

Living with Change (LivC):

**An Integrated National Strategy for Enhancing
the Resilience of Tokelau to Climate Change
and Related Hazards, 2017-2030**

IMPLEMENTATION PLAN

2017-2022

April 2017



Government of Tokelau

Office of the Council for the Ongoing Government



Photo Courtesy: Cover - Fakaofu Fishing Boats, C.L. Anderson, 2016.

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ACRONYMS

Agenda 2030	Transforming Our World: the 2030 Agenda for Sustainable Development, 2015-2030
CEDAW	Convention on the Elimination of All Forms of Discrimination Against Women
CRIPs	Climate Resilient Investment Pathways
LivC	Living with Change: An Integrated National Strategy For Enhancing the Resilience of Tokelau to Climate Change and Related Hazards, 2017-2030.
MCDEM	Ministry of Civil Defence, Disaster and Emergency Management, New Zealand
MFAT	Ministry of Foreign Affairs and Trade, New Zealand
SAMOA Pathway	SIDS Accelerated Modalities of Action, 2014
SDGs	Sustainable Development Goals
SIDS	Small Island Developing States
SRDP	Strategy for Resilience Development in the Pacific: An Integrated Approach to Climate Change and Disaster Risk Management (SRDP), 2017-2030
OCOG	Office of the Council of the Ongoing Government of Tokelau
TCR20	Tokelau Climate Change, Resilient, Readiness & Emergency Services' Office
TNDF	Tokelau National Development Framework, 2016-2020
UNFCCC	United Nations Framework Convention on Climate Change

EXECUTIVE SUMMARY

This Implementation Plan, 2017-2022, is the companion document to the ***Living with Change: An Integrated National Strategy for Enhancing the Resilience of Tokelau to Climate Change and Related Hazards, 2017-2030 (LivC)***. It provides an overview of how implementation of LivC will occur during the first five years, 1 July 2017 to 30 June 2022. The implementation is the process of bringing LivC to life.

The Vision, Goals, Objectives, Mission, and Benefits of LivC

The vision of LivC is for Tokelau to become a vibrant, innovative, climate-resilient, and ready nation with healthy communities, ecosystems, and an economy that are all resilient in the face of change. This vision will be achieved through developing and incorporating Climate Change and related hazards' intelligence Services (CCS) into decision making, planning, policy, and practice. These services (e.g. renewable energy, energy efficiency and conservation, ocean protection, early warnings, climate variability and change information, predictions and scenarios, etc.) are evidence-based and policy relevant.

LivC is intended to be long lived, and this Implementation Plan is only a first step towards achieving its long-term vision.

LivC has three inter-related strategic Climate Resilient Investment Pathways (CRIPs):

- 1. Mitigation: Decarbonisation Development**, revolving around: (i) clean energy, (ii) low carbon, “no regrets”¹ development policies, (iii) reducing the carbon intensity of development processes, (iv) increasing the efficiency of end-use energy consumption, (v) enhancing the resilience of infrastructure, and (vi) increasing the protection and conservation of terrestrial and marine (ocean) ecosystems. This pathway will contribute to clean energy, low carbon economic developments, more resilient and climate proofing infrastructure in place, increase energy security, and enhanced carbon sinks, while decreasing net emissions of greenhouse gases (GHGs).
- 2. Adaptation: Strengthened Integrated Risk Reduction and Adaptation to enhance climate change and disaster resilience** entails successfully managing risks caused by climate change and disasters in an integrated manner, within social and economic development planning processes and practices to reduce the accumulation of such risks, and prevent the creation of new risks or loss and damage. This pathway will contribute to resilient development and achieving efficiencies in resource management.
- 3. Human Development: Capacity Building, Education, Training, Public Awareness & Outreach**, focusing on: (i) improving the capacity of the three villages (Fakaofu, Nukunonu, Atafu) to prepare for emergencies and disasters, thereby ensuring timely and effective response and recovery in relation to both rapid and slow onset disasters; (ii) Disaster preparedness, response and recovery initiatives to reduce human losses and suffering, and; (iii) minimising adverse impacts on national, villages and local communities' economic, social and environmental systems.

The long-term, high-level outcomes and benefits of LivC are human safety and well-being, climate resilient infrastructure, and Tokelau communities making climate change and related hazards' informed decisions based on CCS.

¹ No regrets policies are defined as “Options or actions to reduce greenhouse gas (GHG) emissions that have negative net costs. Net costs are negative because these options generate direct or indirect benefits, such as those resulting from reductions in market failures, double dividends through revenue recycling, and ancillary benefits that are large enough to offset the costs of implementing the options.”

Implementation Plan, 2017-2022

The first phase, 1 July 2017 to 30 June 2019, of implementing LivC is **transitional**. During the transition phase, stakeholders will have the chance to become familiar with LivC. Some stakeholders² will be early adopters, working to integrate LivC into their existing organisational services, processes and systems. Key deliverables for the transition phase are; implementing the necessary governance and institutional frameworks; developing national and villages' capabilities, and building partnerships.

The second phase, 1 July 2019 to 30 June 2022, is **consolidation**. During this phase, stakeholders should be familiar with LivC, its established governance and institutional arrangements, and some of the selected concepts in Annex 2 will have progressed to implementable projects. Key deliverables for the consolidation phase are: (i) identification of lessons learned that would contribute to advancing the LivC vision; and, (ii) securing resources to turn the selected concepts in Annex 2 to implementable projects.

Enabling Mechanisms

Recognising the call from the villages during the consultation that LivC should build upon existing government initiatives and not duplicate, there are significant opportunities for synergy with existing programmes and activities within Tokelau Government Departments and Ministries, Village Councils, Civil Society, the Private Sector and Development Partners. However, it was also clear from the consultation that LivC will need a suitable governance structure to support its work in a sustained manner, to implement the proposed activities, and ultimately to meet the needs of Tokelau communities. This governance structure will enable representation of senior public servants of Tokelau government, while bringing experts in appropriate fields, into its structure.

The General Fono will be fully responsible for the high-level governance of the LivC's implementation.

A Tokelau national CCS advisory board (TCCS), is proposed to oversee the implementation of LivC, with the Tokelau Climate Change, Resilient, Readiness & Emergency Services' Office of the Council of the Ongoing Government of Tokelau (TCR2O/OCOG) providing administrative support. The TCCS and TR2O/OCOG will oversee the LivC's activities, but this should not preclude participants from designing and implementing other activities that would fill the gaps and address the LivC priorities.

To promote LivC and to inform its stakeholders of its activities, an effective communication strategy will be put in place. The communication strategy is anticipated to develop and implement local communication plans that will provide information on the implementation of LivC to stakeholders. Publishing early success stories will be a key focus of this strategy.

Resource Mobilisation

While continuing investments in existing development related CCS projects will be the largest component of the resources committed to the implementation of LivC, additional investments will be required to strengthen the capacity of the three villages.

Measuring Progress

Measuring implementation progress will be coordinated, monitored, reviewed, and evaluated through the Taupulega, the General Fono, Council, and the OCOG.

Two independent reviews will be carried out during the duration of this Plan. The first will be carried out after the completion of the first phase on 30 June 2019, and the second on completion of the second phase on 30 June 2022.

² The three villages, Tokelau Government Departments and Ministries, Civil Society, the Private Sector and Development Partners.

1. INTRODUCTION



Motorboats used for Local Transportation among Islands in the Atoll. Fakaofu, August 2016. *Photo courtesy: C.L. Anderson.*

Living with, and adapting to change, including climate change, is an everyday reality for Tokelau.

As an atoll nation, Tokelau is highly susceptible to climate change, sea level rise, extreme events, and related hazards. This reality led the Tokelau General Fono in July 2016 to include climate change as part of its national development priorities³ under the Tokelau National Development Framework, 2016-2020. LivC is Tokelau's response to the General Fono's decision.

In stakeholders' forums in Fakaofu and Atafu, as well as remote engagement with Nukunonu, there was unanimous support by the

communities to pursue actions on climate change and related hazards without delay. Informed by these consultations, and building on the work already completed over the years, LivC describes Tokelau's mission and vision of the future, the goals and objectives, specific outcomes, and strategies for action on climate change and related hazards, 2017-2030.

Central to achieving the LivC Vision and Objectives is an effective Climate Change and Related Hazards Intelligence Services (CCS). CCS will facilitate smart decisions and innovative ideas to: (i) reduce the impact of climate change and related disasters, and (ii) contribute to building a vibrant, innovative, climate-resilient, and ready Tokelau with healthy ecosystems, communities, and an economy that are all resilient in the face of change.

Although many of the foundational capabilities and infrastructure for CCS already exist, or are being established in Tokelau, such as the Tokelau Solar Photovoltaics project <http://www.tokelau.org.nz/Bulletin/February+2016/Tokelau+Solar.html>, coordination of the many programmes that address individual aspects of CCS requires improvement. These components often operate in isolation or independently, and with varying degrees of success. LivC will strengthen and coordinate existing initiatives and develop new ones where needed to meet LivC's goals and objectives.

2. BENEFITS FROM LivC

The vision of LivC is for Tokelau to become **a vibrant, innovative, climate-resilient and ready nation with healthy ecosystems, communities, and an economy that are all resilient in the face of change**. This will be done through developing and incorporating CCS into planning, policy and practice.

LivC is intended to be long lived, and this Implementation Plan, 2017-2022, is only a first step at achieving this long-term vision. It is designed for the first five years of actions.

³ Sustainability, Infrastructure Development, Human Development, Good Governance and Partnerships.

LivC has three inter-related overarching goals:

- 1. Mitigation: Decarbonisation development**, revolves around: (i) clean energy; (ii) low carbon, “no regrets” development policies; (iii) reduction of the carbon intensity of development processes; (iv) increased efficiency of end-use energy consumption; (v) enhanced resilience of infrastructure; and, (vi) increased protection and conservation of terrestrial and marine ecosystems. This pathway will contribute to clean energy, low carbon economic development, more resilient and ‘climate-proofed’ energy infrastructure in place, increased energy security, and enhanced capacity to use oceans (terrestrial and marine ecosystems) as carbon sinks, while decreasing net emissions of greenhouse gases (GHGs).
- 2. Adaptation: Strengthened integrated risk reduction and adaptation to enhance climate change and disaster resilience** entails successfully managing risks caused by climate change and disasters in an integrated manner, within social and economic development planning processes and practices to reduce the accumulation of such risks, and prevent the creation of new risks, or loss and damage. This pathway will contribute to strengthening resilient development and achieving efficiencies in resource management.
- 3. Human Development: Capacity Building, Education, Training, Public Awareness & Outreach** focuses on (i) improving the capacity of the three villages to prepare for emergencies and disasters, thereby ensuring timely and effective response and recovery in relation to both rapid and slow onset disasters, which may be exacerbated or caused by climate change; (ii) reducing undue human losses and suffering through disaster preparedness, response, and recovery initiatives; and, (iii) minimising adverse consequences for national, villages and local community economic, social and environmental systems.

LivC’s outcomes and benefits are that Tokelau people make climate-smart and innovative decisions, and that CCS are disseminated effectively and in a manner that lends themselves more easily to practical action. These outcomes need to be addressed at an early stage to demonstrate the value of LivC to decision makers, providers, and potential funders.

Effective development and use of CCS will add value for decision making on many economic and social areas, value that has not yet been properly assessed by providers or users.

3. ISSUES TO BE ADDRESSED IN IMPLEMENTATION

The first phase of implementing LivC, 1 July 2017 to 30 June 2019, is transitional. During the transition phase, stakeholders (villages, public servants, development partners) will have the opportunity to become familiar with LivC. Some stakeholders will be early adopters, working to integrate LivC into their existing organisational services, processes and systems.

The second phase, 1 July 2019 to 30 June 2022, is consolidation. During this phase, stakeholders should be familiar with LivC, its governance and institutional arrangements established, and some of the selected concepts in Annex 2 have progressed to implementable projects.

LivC will prioritise the development and delivery of CCS in three areas; Energy security; protection and conservation of terrestrial and ocean (marine) ecosystems; Integrated risk reduction, adaptation and disaster resilience, and, Human development. As LivC evolves, the needs of users in other areas such as water, health and food security will be addressed.

LivC’s priority areas are closely aligned with those addressed by the Fakaofu, Nukunonu, and Atafu Village Development Plans, 2016-2020, the Tokelau National Development Framework, 2016-2020, the SIDS Accelerated Modalities of Action, 2014 (SAMOA Pathway), the Strategy

for Resilience Development in the Pacific: An Integrated Approach to Climate Change and Disaster Risk Management (SRDP), 2017-2030, Agenda 2030, the Paris Agreement 2015, and the Sendai Framework for Disaster Risk Reduction (DRR), 2015-2030.

LivC was formulated with the understanding that the Tokelau government and development partners will help support its financing and implementation. In the first two years, the Tokelau Climate Change Programme Unit, presently under the Office of the Council for the Ongoing Government of Tokelau (OCOG) will facilitate and coordinate the

implementation of LivC until a permanent institutional arrangement, such as the proposed Tokelau Climate Change, Resilient, Readiness & Emergency Services' Office (TCR2O), or a climate change department, is established.

Certain factors such as suitable governance structures and adequate institutional and human capacity (i.e. a well-resourced and fully functional and permanent institutional arrangements (e.g. proposed TCR2O or department) are critical for the successful implementation of LivC. These critical success factors would need to be addressed without delay.

Fostering of partnerships and cooperation between the Climate Change programme unit and other Government Departments and Ministries, Village Councils, Civil Society, the Private Sector and development partners are critical to the successful implementation of LivC.

Recognising the call from the villages during the consultation that LivC should build upon existing government initiatives and not duplicate, there are significant opportunities for synergy with existing programmes and activities within Tokelau Government Departments and Ministries, Village Councils, Civil Society, the Private Sector and development partners. LivC will be implemented by coordinating and promoting activities that help achieve its overall goals. Many of these activities will continue efforts already being made across Tokelau government departments and ministries but will now fit these efforts into a coherent national development framework with common goals.



Boys playing in rainwater. Fakaofu, August 2016. *Photo courtesy: C.L. Anderson.*

4. IMPLEMENTATION PRIORITIES

This Implementation Plan identifies a series of project concepts, if fully developed, will address the priority areas. Implementing these projects will demonstrate the value of LivC to Tokelau and development partners, and ensure their sustained commitment while delivering benefits to Tokelau communities. The priorities emerged from the consultation process with the villages in August 2016. Discussions with ministries and key government officials enabled the identification of project concepts that could be developed with currently available or targeted sources of funding in the immediate term, and further expanded into implementable projects within the next five years.



Fatupaepae engage in LivC Strategic Planning. Fakaofo, August 2016. *Photo courtesy: Fatu Tauafiasi.*

Key deliverables over the immediate term include: implementing the necessary governance, management, and reporting frameworks; developing national and villages capabilities; engaging stakeholders (users and development partners); and, building partnerships.

During the five-year benchmark of this plan, LivC aims to facilitate access to improved CCS for Tokelau in the initial priority areas and initiate project activities in additional areas. After

ten years, LivC aims to facilitate access to improved CCS across all climate-sensitive sectors and systems-

The initial project concepts to be developed into implementable projects will be selected using guidelines aligned with the views of the three villages. They will also contribute to developing one or more village capacities, enhancing infrastructure, or building scientific and technical capacity.

The general approach will be to work with existing entities, build upon projects already underway, and identify and engage with key partners and organisations. An important outcome of these initial efforts will be to learn lessons from them to move steadily towards sustainable and valued services.

5. ENABLING MECHANISMS

LivC will need a suitable governance structure to support its work in a sustained manner, to implement the proposed activities successfully and ultimately to meet the needs of Tokelau people (see Annex 2).

This governance structure will enable high level representation of senior public servants of Tokelau government while bringing experts in appropriate fields and sectors into its structure.

The General Fono will be responsible for the high-level governance of the plan's implementation. A Tokelau national CCS advisory board (TCCS) is proposed to oversee the implementation of LivC with the Tokelau Climate Change, Resilient, Readiness & Emergency Services' Office (TCR20/OGT) providing administrative support.



Students learn how to build gardens. Nukunonu, August 2016. *Photo courtesy: Litia Maiava.*

The TCCS and TR2O/OGT will oversee the LivC's activities, including initial project concepts. This should not preclude participants from designing and implementing other project activities that fill the gaps and address the LivC priorities.

To promote LivC and to inform stakeholders of its activities, an effective communications strategy will be put in place. Publishing early success stories will be a focus of the communication strategy.

6. RESOURCE MOBILISATION



CANCC Side Event during COP 22, November 2016 . Photo Courtesy: Penehuro F. Lefale.

While continuing investments in existing development related CCS projects will be the largest component of the resources committed to the LivC by far, additional investment will be required to strengthen the capabilities of the three villages.

Targeting sources of funding outside national budget processes will be required. Such sources include development banks, Climate Funds (e.g. Green Climate Fund), United Nations and regional agencies, Overseas Development Assistance, and the private sector.

7. MEASURING PROGRESS

Measuring implementation progress will be coordinated, monitored, reviewed, and evaluated through the Taupulega, the General Iono, Council, and the OCOG.

Two independent reviews will be conducted after the conclusion of the first phase on 30 June 2019, and the second phase on 30 June 2021.



Island environments are vulnerable to environmental change. Fakaofu, August 2016. Photo courtesy: C.L. Anderson.

8. CONCLUSIONS AND NEXT STEPS

LivC aims to enable Tokelau to better manage the risks of and opportunities arising from climate change. LivC emphasises village involvement and capacity building, and the engagement of development partners in this concerted effort designed to maximise benefits for Tokelau. Although the initial projects undertaken will focus on a few climate-sensitive areas, the strategy and implementable projects will benefit other areas impacted by climate change and related hazards in the long term. The initial successes from implementing high priority projects will give momentum to LivC .



Children learn gardening for sustainability. Nukunonu, August 2016. *Photo courtesy: Litia Maiava.*

Providing CCS to support development, planning, and actions will prove an essential component of LivC to further enhance the lives and livelihoods of Tokelau communities.

There are already existing mechanisms, activities, and development plans such as the villages' development plans, 2016-2020, that provide CCS for Tokelau; however, these need to be coordinated to address climate change and related issues. LivC will aid in coordination and alignment of activities. LivC will further create the necessary structures to deliver “needs-based” CCS for Tokelau.



Tokelauans have created safe, clean communities and are eager to sustain their livelihoods in the face of change. Atafu, August 2016. *Photo courtesy: C.L. Anderson.*

ANNEX 1: LivC MATRIX OF KEY OUTCOMES AND PRIORITY ACTIONS

1.1 MITIGATION: DECARBONISATION DEVELOPMENT

Strategic Objective: Reduced carbon intensity of development processes, more efficient end-use energy consumption, increased conservation of oceans (marine) and terrestrial ecosystems and enhancing the resilience of energy infrastructure.

OUTCOME	PRIORITY ACTIONS
Energy security is improved, net emissions of GHGs are decreased, and the resilience of energy infrastructure, oceans, and terrestrial ecosystems is enhanced.	Require energy infrastructure to be designed, located, operated and maintained in ways that minimize hazard risks, as well as the adverse consequences of weather extremes and climate change.
	Tokelau to seek technical and financial support to design and implement its Nationally Determined Contribution (NDCs) and long term decarbonisation development strategies.
	Develop and enforce efficient and effective legislation and regulations covering ocean and coastal management, ecosystem services, energy efficiency codes for public buildings and family households, energy efficiency standards for imported electrical goods.
	Increase resilience of climate change and ocean acidification through effective management.
	Introduce and strengthen environmentally friendly national, village sector policies that promote and achieve and cost-effective production and end-use of all forms of energy, both modern and traditional, with an increasing focus on using energy from local sources.
	Conserve and sustainably manage coasts, oceans and other natural ecosystems in ways that maintain and enhance carbon uptake and stocks in terrestrial and marine ecosystems.
	Establish programmes to support private investment in low carbon development.
	Assess, and if feasible implement, the installation of renewable energy generation for all community facilities including churches, schools, fale fono and community based organisation meeting places.
	Investigate the potential for integrated waste to energy options for village-scale bio-gas production
	Identify, and if feasible implement, financing mechanisms to promote the increased installation and maintenance of renewable energy systems for villages (e.g. Tokelau Renewable Solar Nation Programme) and individual households.

1.2 ADAPTATION: STRENGTHENED INTEGRATION OF CLIMATE CHANGE AND DISASTER RISKS INTELLIGENCE INTO DEVELOPMENT PLANNING AND DECISION MAKING

Strategic Objective: Climate change and disaster risks are successfully managed in an integrated manner, within social and economic planning processes and practices, to reduce accumulation of such risks and non-economic loss and damage (NELD) and to prevent the creation of additional risks.

OUTCOME	PRIORITY ACTIONS
Integration of climate change and disaster risks intelligence into development planning and decision making is strengthened.	Embed climate change and disaster resilient initiatives, using integrated approaches, within national and villages' development strategies, social development plans, sector plans, practices and resource mobilisation.
	Ensure that finance and planning institutions play a central role in strategic, whole of community approaches for climate change and related hazards' resilient development, and that all opportunities for climate change financing are pursued, supported by the Office of the Administration, other development partners, regional and UN agencies. Tokelau should also avail itself of opportunities for technical and financial support for National Adaptation Plans and Adaptation Communications available under the Paris Agreement
	Ensure that annual and medium term budgets include climate change and disaster resilient policy and investments
	Strengthen capacities at the village level through inclusive gender-responsive decision making systems to ensure effective delivery of development initiatives
	Develop and implement, through inclusive multi-sectoral and multi-stakeholder mechanisms, concrete actions on the ground to ensure the climate change and disaster resilience of key public infrastructures, including communications, transports, roads, water and sanitation, hospitals and schools
	Develop a village level set of weather and climate risk indicators to quantify and measure how climate-related risk levels vary over time (e.g. review of the Reducing the risks of storm surge inundation reports for each atoll
	Restore, upgrade and install new climate and weather monitoring, baseline and weather forecasts and early warning systems
	Implement water resource management recommendations in the Integrated Waste Management, Water and Sanitation Review and Action Plan.
	Conduct an updated assessment of drought risk for Tokelau and how it may change under climate change scenarios to assist: 1) Implementation of water resource management recommendations in the Integrated Waste Management, Water and Sanitation Review and Action Plan, 2) agricultural planning and 3) water resources and agriculture early warning

OUTCOME	PRIORITY ACTIONS
	Refine the village coastal hazard (cyclone inundation) maps initially developed in the <i>Reducing the risks of storm surge inundation</i> reports for each of atoll and make these available to each Taupulega and community based organisations (Fatupaepae, Aumaga and Youth) on each atoll
	Based on coastal hazard mapping, redefine the risk levels to community buildings and housing initially developed in the <i>Reducing the Risks of Storm Surge Inundation</i> reports for each atoll. Make these available to Taupulega and community based organisations (Fatupaepae, Aumaga and Youth) on each atoll.
	Identify and develop increased key crop diversity and resilience to rising temperature, rainfall variability, and soil salinity increases.
	Develop and implement a replanting programme in each village of endangered plant species, particularly those of cultural and economic importance including 'Kanava' (<i>Cordia sibcordata</i>), 'Puapua' (<i>Guetarda speciose</i>), 'Puka' (<i>Pisconia grandis</i>), and 'Fala' (Pandanua special. variety 'Kiekie')



Coastal hazard mapping will consider risks to critical infrastructure, such as bridges. Nukunonu, August 2016.
Photo courtesy: C.L. Anderson.

1.3 HUMAN DEVELOPMENT: CAPACITY BUILDING, EDUCATION, TRAINING, PUBLIC AWARENESS, AND OUTREACH

Strategic Objective: Enhanced institutional, governance and public awareness of climate change, disaster preparedness, response and recovery.

OUTCOME	PRIORITY ACTIONS
A fully functional and well-resourced Tokelau Climate Change, Resilience, Readiness & Emergency Services (TCR20).	Institutional Strengthening: Review the current functions and roles of the Tokelau Climate Change Programme unit, hire new personnel and establish a fully functional and well- resourced Develop a LivC communication strategy.
A well-informed public.	Ensure climate change and related hazards' services are incorporated in all education and related development areas
Climate Resilient and Ready Villages.	Strengthen each village capacity and capability to prepare and participate effectively in relevant village, national, regional and international forums on climate change and related hazards (e.g. Climate and Ocean Forums, Conferences of the Parties (COP)/ Meetings of the Parties (MOP) to the UNFCCC, Agenda 2030, etc.)
	Climate Change Resilient, Readiness, & Emergency Services
	Implement public awareness and outreach activities in the New Zealand Ministry of Defence Emergency Management Disaster and Climate Risk Management Plan (MCDEM DCRMP) (2016) of each village
	Increase community awareness on use of energy efficient lighting and electrical appliances and energy conservation
	Training by Red Cross Drills by each Village Disaster Management Committees (DMC).
	Create educational opportunities to build specialised knowledge and capacities for Tokelauans in the climate change and related fields.



Tokelauans engage in public awareness campaigns to keep the islands clean and safe. Atafu and Fakaofu, August 2016. Photo courtesy: C.L. Anderson.

ANNEX 2: SELECTED IMMEDIATE AND LONG-TERM CONCEPTS

CRIP 1-1: TOKELAU INTENDED NATIONALLY DETERMINED CONTRIBUTION REPORT

Preparing Tokelau's Intended Nationally Determined Contribution (INDC) Report

Results Areas: International/New Zealand/Pacific Islands' relations, UNFCCC/Paris Agreement Obligations, Climate Finance, Marine Transportation, Renewable Energy Technologies.

Agenda 2030 #3 Ensure healthy lives and promote well-being for all, #7 Access to affordable, reliable, sustained and modern energy for all, #8 Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all, #9 Industry, innovation and infrastructure, #13 Climate Change, #14 Conserve Oceans, #17 Partnerships.

Background

During COP22 in Marrakesh, Morocco, in November 2016, Hon. Paula Bennett, New Zealand's Climate Change Minister announced New Zealand's intention to extend ratification of both the Climate Change Convention and the Paris Agreement to include Tokelau. <https://www.beehive.govt.nz/release/paris-agreement-will-be-extended-include-tokelau>.

All Parties to the UNFCCC and Paris Agreement must prepare an Intended Nationally Determined Contribution (INDC) report. INDC is the term used under the UNFCCC to refer to Parties' intended (voluntary) contributions to reduce their greenhouse gases for the post Kyoto Protocol (2020) period, in the lead up to the 2015 COP21 held in Paris, France, in December 2015.⁴ These intended contributions were determined without legal prejudice to the legal nature of the contribution. Under the Paris Agreement, the INDC will become the first Nationally Determined Contribution (NDC) when a country ratifies the agreement, unless they decide to submit a new NDC at the same time. The NDC will become the first greenhouse gas targets under the UNFCCC that applied equally to both developed and developing countries once the Paris Agreement enters into force.

NDCs will be the key vehicle for Parties to communicate internationally how they will cut emissions for the post-2020 period. NDCs will allow Parties to demonstrate leadership on addressing climate change. While climate change is a global challenge, each Party faces unique circumstances, including different emissions profiles and emissions reduction opportunities, different risks from a changing climate and different resource needs.⁵

Through its INDC, Tokelau can tailor its contributions to their own national priorities, capabilities, and responsibilities. These individual measures can be the basis for collective action, and, if they are ambitious enough, set a path towards a decarbonisation (low-carbon) climate-resilient future of which Tokelau is committed to under LivC. A key sector for Tokelau to address under its INDC report is marine transportation. At present, the bulk (at least 90% (estimate) of Tokelau's carbon emissions come from marine transportation. Preparation of INDC Report will offer Tokelau the opportunity to address this major challenge.

Concept

The activity will assist Tokelau prepares her first INDC report. The activity will gather a team of experts to conduct technical dialogues with the three villages and Government of Tokelau officials about designing and preparing Tokelau's INDCs. The team will use the World Resource Institute (WRI) report "Designing and Preparing Intended Nationally Determined Contributions (INDCs)" <http://www.wri.org/publication/designing-and-preparing-indcs> to guide the preparation and design of Tokelau's INDCs report. It is anticipated that the planning and implementation of this activity will be supported by INDC experts from New Zealand, and relevant international and regional (UN and CROP) agencies.

Proposed Outcomes

- Evidence-based, accurate, and reliable INDC report for Tokelau.
- INDC report will further guide the decarbonisation development pathway (CRIP) for Tokelau.

⁴ https://en.wikipedia.org/wiki/Intended_Nationally_Determined_Contributions.

⁵ <http://www.wri.org/publication/designing-and-preparing-indcs>

- Build local capacity on INDC.
- Increased awareness and knowledge of Tokelau communities about INDCs.
- Improved quality of life on the atolls of Tokelau.

Proposed Outputs

- Technical Assistance.
- INDC plans for each village and a national plan identifying human resources and contracted services needed to support villages to implement their INDC plans.
- Tokelau INDC Report.

CRIP 1-2: THE TOKELAU RENEWABLE ENERGY PROGRAMME

Reducing the carbon intensity of development processes by increasing the uptake of Renewable Energy Technologies.

Results Areas: Livelihoods of people, access to affordable renewable energy technologies, promote sustained, inclusive and sustainable economic growth, full and productive employment, and decent work for all.

Agenda 2030: SDGs #3 Ensure healthy lives and promote well-being for all at all ages, #7 Access to affordable, reliable, sustained and modern energy for all, #8 Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all, #9 Industry, innovation and infrastructure, #13 Climate Change, #14 Conserve Oceans, #16 Promote peaceful and inclusive societies for sustainable development, and #17 Partnerships.

Background

Tokelau has been a world leader at shifting from diesel to renewable energy (RE) to generate electricity despite its binding constraints of geographic isolation, small population, small land area, skill shortages and a decentralised governance structure. When solar photo-voltaic (PV) systems were installed in 2013, they provided close to 100% renewable electricity. Since then demand for electricity has risen sharply and this additional demand has been met by diesel generation.

The goal of the Government of Tokelau (GoT) as stated in its National Energy Policy and Strategic Plan is to generate 100% of its electricity from renewable sources. To achieve this, the GoT has committed funding to upgrade village electricity distribution networks expand the existing PV systems and investigate other options.

The Tokelau Department of Energy (DOE) will soon install a trial wind turbine on Fakaofu, and collect data for six months to determine if wind-powered electricity is a viable option. GoT has also undertaken initial research on biogas options. This concept focuses on these alternative sources of renewable energy generation, reduction in electricity demand, policy responses and research to enable other Pacific countries to benefit from the lessons learned from Tokelau's pioneering RE experiences.

Concept

The Tokelau Renewable Energy Programme (TREP) featured in MWH's Evaluation of Infrastructure Investment in the Pacific, Stage 2 Report, August 2015. The TREP design used data from 2008 to estimate total demand across Tokelau. At the time of installation, the load had increased by 15% above baseline. Electricity demands on the islands have increased further since commissioning (Fakaofu load increased by 37% (1002 kWh/day to 1443 kWh/day), Nukunonu 24% (698 kWh/day to 920 kWh/day) and Atafu 11% (776 kWh/day to 907 kWh/day). This means the PV system is relying more heavily on the battery storage and diesel back up than was intended.

The benefits of TREP in the first full year of operation included reducing diesel consumption by 536,000 litres, saving an estimated NZ\$1 million in the first year, and avoiding 1383 tonnes of carbon dioxide emissions. Tokelau's vulnerabilities to diesel prices and supply issues were reduced. Blackouts had been common, but the solar PV systems have provided reliable electricity.

Households are consuming more electricity because reliability has improved and the tariff (NZD 50 cents per kwh) is subsidised. This has led to higher household spending on electricity, whiteware and

electronics to help with household chores, refrigeration and access to leisure activities and media (TV, DVDs). These changes are seen as improvements to quality of life. But there is, as yet, no data on the impacts of reliable electricity 24/7. The impacts include improving the ability to keep food, increasing flexibility in the timing of daily chores, reducing time spent on cooking, laundry and construction through use of power driven tools and appliances, guaranteed light in the evenings for study, and use of RE powered vehicles. MWH observed that the results achieved in Tokelau could “provide a body of knowledge and learning for the industry.” One lesson that has been applied elsewhere is the need to design for significant increases in household consumption and higher total loads. With financing from the GoT budget, DOE is increasing the solar PV generation on each atoll, upgrading the overloaded village high and low voltage distribution systems and installing a trial wind turbine to confirm wind data. Should this wind prove effective, the DOE proposes to create hybrid RE (solar/wind) generation mini-grids to reducing the battery load demand, improve battery longevity and reduce diesel consumption. UNDP has worked with the DOE to implement energy efficiency measures (e.g. enabling the purchases of more efficient appliances). The DOE is continuing this work. It would welcome assistance to collect and analyse data on impacts of reliable electricity supply, the effectiveness of its policy settings (tariff, asset management, energy efficiency) and actions (energy efficiency incentives, community awareness) which will be of benefit to other Pacific countries. Expanding access to affordable, reliable clean energy is a strategic investment priority for the New Zealand Aid Programme for 2015/19. The GoT has a goal of generating 100% of its electricity from renewable sources. The GoT has used its RE achievements to advocate internationally for climate change mitigation. Its interests in this area are ultimately the same as New Zealand’s.

Tokelau is a pilot country for the New Zealand Pacific Partnership on Ocean Acidification which aims to build the resilience of communities and ecosystems by enabling communities to gather data on ocean and lagoon health. This pilot can be linked to measuring the health of the atoll lagoons and the impact of the proposed biogas options on reducing the seepage of pollutants into the lagoons.

The proposed outcomes of the proposed investment are that the GoT will have:

- the capability to collect and analyse data to select the most effective options for generating electricity from alternative sources;
- the financial and human resources to implement cost-effective options;
- the commitment to collaborate with independent researchers to monitor the impacts of GoT policies and RE developments in order to generate research findings that would assist other Pacific countries with related policy settings and investment decisions.

The planned expansion of solar PV will not achieve GoT’s goal of 100% electricity from RE so the following options have been considered:

- (a) Bio oil from local coconut was considered first. There are many inhibiting factors that reduce the feasibility of this option including the large labour component and the small size of Tokelau coconuts compared to more fertile islands. Furthermore, most land is privately owned, most trees are old and producing fewer nuts, and coconuts are staple food source.
- (b) Wind power data has been collected and data analysis indicates it will work as a back up to solar PV in low solar radiation to ease battery demand and reduce the use of diesel. The type of wind turbine identified has proven it withstands cyclone conditions. Minimal maintenance required. It requires little technical expertise and can be monitored remotely. The minimum pay back on investment is 9 years on an expected 25year life. Environmental impact is limited to possible bird strike because of low noise pollution.
- (c) Biogas options are under consideration for the environmental benefits. The biogas could be captured for cooking, lighting and compressed to CNG for fuelling vehicles and generators. Once set up biogas requires minimal maintenance and its fertilizer by-product would increase local food production. The primary focus will investigate the costs, benefits, and cultural acceptability of converting piggery waste water (since family-owned pigs are penned in one place) and village septic waste water into biogas.

Proposed Outcomes

- Electricity demand met through alternative renewable sources.
- Reduction in importation of diesel and LPG.
- (For biogas) reduction in organic waste seeping into the lagoons.
- Reduction in greenhouse gas emissions.
- Battery state of health (SOH) improved.
- Improved quality of life on the atolls of Tokelau.

Proposed Outputs

- Staff training in RE asset management and maintenance.
- Data on causes of big increases in electricity demand analysed, shared with communities to raise awareness, used to identify GoT energy efficiency investment options and available to inform policy decisions of other Pacific nations.
- Independent analysis and assessment of trial wind turbine data. If viable, installation of nine wind turbines.
- Bio-gas feasibility study on each atoll.
- If viable, design and construction of piggery waste collection and biogas plants.
- If viable, co-finance with GoT and other partners the design and construction of waste water collection and biogas plants.
- Independent evaluation of impact of alternative RE options after implementation.

CRIP 2-1: REDUCING THE RISKS OF INUNDATION IN TOKELAU

Protecting Tokelau from the impact of rising sea levels and increasing extreme weather and climate events that threaten the islands' viability

Results Areas: Livelihoods of people, promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all.

Agenda 2030: #3 Ensure healthy lives and promote well-being for all at all ages, #8 Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all, #9 Industry, innovation and infrastructure, #13 Climate Change, #14 Conserve Oceans, #17 Partnerships.

Background

The low-lying atolls of Tokelau are sensitive to climate change and related hazards. The islands that make up Tokelau's atolls are typically not more than 200 metres wide and no point on Tokelau is higher than five metres. This means Tokelau is particularly vulnerable to coastal erosion and inundation damage caused by rising sea levels and weather events (including cyclones, strong winds, storm tides). Dealing with the effects of climate change is a national development priority for Tokelau. The government has identified a number of priority actions which present the most immediate opportunities to increase human safety and well-being.

Concept

This activity aims to build coastal resilience and manage coastal inundation risks in all three villages by formulating and implementing a coastal hazard risk reduction plan to reduce the impact of increasingly intensive wave action on areas identified as most in need of coastal protection. It draws on technical recommendations from 2006 NIWA reports, commissioned by UNDP, which identify the inundation risks and options for reducing the risks associated with storm surges and tropical cyclones. The proposed activity will enable the Government of Tokelau (GoT) and villages to implement measures that are urgently required to reduce the impact of increasingly intensive wave action on coastlines and key infrastructure.

With New Zealand financing, it is expected that high-value vulnerable coasts will be made more resilient to the effects of waves, compared with the baseline of 2006. Expected direct benefits are significant with 1,499 people, 100% of the total population, benefiting. Further the atolls which are the home of Tokelau's language, culture and people (including Tokelauans living overseas) will be protected for future generations.

Climate change is one of five strategic areas of focus in the draft Tokelau National Strategic Plan (2016-2020) and resilience to the impacts of climate change and related hazards is identified as a long term outcome. The proposed activity is the immediate priority under Tokelau's National Strategy for Enhancing the Resilience of Tokelau to Climate Change and Related Hazards (LivC) approved by the General Fono in March 2017. Tokelau's constitutional status (non-self-governing territory administered by NZ) limits its funding options including, for example, eligibility to access the Green Climate Fund. At the General Fono, the village representatives welcomed the potential support they have been expecting for years.

It is intended that the design of this activity is supported by the planned updates by NIWA of its 2006 inundation risk reports, which are being funded under the Disaster Response and Risk Management activity, funded through NZ Partnerships and Humanitarian response programme.

The activity aligns with numerous international agreements including Agenda 2030 (specifically SDG13 which calls for urgent action on climate change and its impacts), the Paris Agreement, Sendai and the SIDS Accelerated Modalities of Actions (SAMOA) Pathway, 2014.

The following options for coastal protection are based on the lists of priority actions recommended in the 2006 NIWA inundation risks reports. The design team and villages would consider the current condition and impacts of coastline infrastructures that have been completed by the villages since 2006, and develop a comprehensive plan for coastal protection focused on vulnerable and high-value areas.

During the consultations with villages on the LivC strategy, they identified the following options:

- Demolition of existing seawalls which have deteriorated and construction of new seawalls;
- Maintenance of existing seawalls;
- Coastline planting;
- Structures to reclaim and extend land and to increase the resilience of vulnerable coasts;
- Employing a sand pump to build up beaches; and
- Raising awareness to limit sand mining or other activities that reduce the effectiveness of natural defences.

It is proposed the coastal hazard risk reduction plan and detailed designs for coastal resilience would cover not only what can be funded through this activity, but also identify specific work which agencies such as SPREP and other partners could assist with in subsequent phases. This is the preferred option because human-made coastal structures are already having environmental, social and economic impacts on the atolls and Tokelau's small land masses and fragile ecosystems make it critical that these impacts are mitigated in a comprehensive long term plan.

Proposed Outcomes

- Effective coastal protection for public safety and community infrastructure, with an emphasis on inundation damage and hazards associated with extreme events;
- Strengthening integration of climate change and disaster risk into capital development planning and decision making, and human resource development plans to reduce the accumulation of existing risks and prevent the creation of additional risks;
- Increased awareness and knowledge of coastal management and risk reduction.

Proposed Outputs

- Technical Assistance.
- Coastal hazard risk reduction plans for each village and a national plan identifying human resources and contracted services needed to support villages to implement their plans.
- Preliminary and detailed designs for coastal protection infrastructure and measures.
- Construction and quality assurance services out-sourced where necessary to implement the plan.

CRIP 2-2: TOKELAU RESTORATION OF CLIMATE, WEATHER, WATER, AND OCEAN SERVICES

Protecting Tokelau from climate, weather, water and marine-related disasters by restoring, upgrading and installing new climate, weather, water and ocean monitoring and observational networks and related services.

Results Areas: Climate, Weather, Water, Ocean, Resilience and Readiness Services, Climate Science and Technologies.

Agenda 2030: SDG #3 Ensure healthy lives and promote well-being for all at all ages, #7 Access to affordable, reliable, sustained and modern energy for all, #8 Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all, #9 Industry, innovation and infrastructure, #13 Climate Change, #14 Conserve Oceans, #17 Partnerships

Background

Climate change poses considerable challenges for Tokelau due to its small size, surrounded by large

expanses of ocean, highly prone to natural disasters, particularly extreme events such tropical storms and droughts. Understanding and responding to the onset of extreme climate, weather, water and ocean related events as well as understanding current and future climate change requires a robust, sustained climate observing and monitoring programme. Tokelau does not have such a programme at present.

The need for a fully functional and operational National Meteorological and Hydrological Services (NMHS) for any country is critical to understanding and adapting to climate change. NMHS are responsible for protecting life and property and understanding climate change via research, monitoring and observing on a daily basis changes in the weather, climate, and water systems, and issuing weather bulletins and severe weather warnings. Article 5 of the UNFCCC specifically recognises the importance of research and systematic observation in understanding climate change. It states;

“In carrying out their commitments under Article 4, paragraph 1(g), the Parties shall:

(a) Support and further develop, as appropriate, international and intergovernmental programmes and networks or organisations aimed at defining, conducting, assessing and financing research, data collection and systematic observation, taking into account the need to minimise duplication of effort;

(b) Support international and intergovernmental efforts to strengthen systematic observation and national scientific and technical research capacities and capabilities, particularly in developing countries, and to promote access to, and the exchange of, data and analyses thereof obtained from areas beyond national jurisdiction; and

(c) Take into account the particular concerns and needs of developing countries and cooperate in improving their endogenous capacities and capabilities to participate in the efforts referred to in subparagraphs (a) and (b) above.”

This activity will re-establish and build new weather, climate, water, ocean and related programmes in all three of Tokelau’s atolls (Construction of 3 new meteorological buildings, weather, climate, water and ocean monitoring and observations programs, Public and Severe Weather Warning system, Climate Early Warning System (CLEWS), Water Monitoring and Management System, Ocean Monitoring Programme).

Concept

This activity will re-establish, restore, upgrade and build new climate, weather, water, ocean and related programmes, including construction of new NMHS buildings, in all three of Tokelau’s atolls.⁶ The goal is at least 90% of the country will be monitored and issued with daily weather bulletins (public and marine forecasts, severe weather and tropical cyclone warnings), seasonal climate and ocean outlooks, and climate change and seas level changes scenarios. The investments will build upon existing initiatives, using a range of measures for building and restoring weather, climate, water and ocean monitoring programmes. National capacity for climate, weather, water and ocean monitoring and management will also be developed and the project will help catalyse additional climate, weather, water and ocean monitoring and observations finance from development partners. The proposed activity will work with the three villages and relevant UN/CROP and other scientific organisations to undertake public awareness and outreach to ensure they understand and apply the information and services offered by the NMHSs.

Proposed Outcomes

- Effective climate, weather, water and related environmental conditions monitoring programme for public safety and community infrastructure, with an emphasis on severe weather and extreme climate events;
- Strengthening integration of weather, climate change and disaster risk into capital development planning and decision making, and human resource development plans to protect lives and property;
- Increased awareness and knowledge of weather, climate, water, ocean and related environmental hazards.

Proposed Outputs

- Technical Assistance.
- Weather, climate, water, ocean and related environmental conditions monitoring and infrastructure plans for each village and a national plan identifying human resources and contracted services needed to support villages to implement their plans.

⁶ For full information on why Tokelau needs to restore its observing network, visit https://unfccc.int/files/science/workstreams/systematic_observation/application/pdf/gcos_ip_10oct2016.pdf.

- Preliminary and detailed designs for meteorological services infrastructure and measures.
- Construction of NMHS buildings.

CRIP 3-1: TOKELAU CLIMATE CHANGE, RESILIENCE, READINESS & EMERGENCY SERVICES' OFFICE

Establishing a new Tokelau Climate Change, Resilience, Readiness and Emergency Services' Office

Results Areas: Livelihoods of people, Governance and Institutional Arrangements, Applications of Weather, Climate, Resilience and Readiness Intelligence' Services (CCS), Human development.

Agenda 2030: #4 Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all, #5 Achieve gender equality and empower all women and girls, #8 Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all, #9 Industry, innovation and infrastructure, #11 Make human settlements inclusive, safe, resilient and sustainable, #13 Climate Change, #14 Conserve and sustainably use the Oceans, #17 Partnerships.

Background

LivC specifically identified the need for a suitable governance structure to support its implementation in a sustained manner, to implement the proposed activities successfully, and ultimately to meet the needs of Tokelauans. This activity will address this need.

Concept

The activity will review existing institutional arrangements in the environmental and sustainable development fields in Tokelau. The recently adopted LivC Strategy for Tokelau, 2017-2030, noted "[t]he successful implementation of the LivC Strategy depends on a well-resourced and function office". It further noted "[t]he LIVC Strategy is formulated with the understanding that Tokelau Government and development partners will support its financing and implementation. The basis for the institutional elements will be the Tokelau Climate Resilience and Ready Office (TCR2O)". The strategy details the roles and functions of the proposed office/department, including but not limited to the following.

"The TCR2O will lead and guide the implementation of the [LivC] Strategy. The TCR2O will also act as the political, legal and administrative entity responsible for implementing the Strategy together with the General Fono, Tapulega, and other appropriate and relevant partners and stakeholders."

The challenge right now is the fact that there is no fully functional TCR2O in place. The LivC Strategy rightly pointed out the current set up of one fulltime Climate Change Program Manager and 1 external advisor on a fixed term contract to manage Tokelau climate change and DRM programs and activities is not good enough and unsustainable. This activity will assess what the best options for Tokelau in strengthening its internal capacity to absorb and manage climate change and related hazards.

Proposed Outcomes

- A fully functional national institution (office/department) tasked with managing Tokelau's climate change and related hazards' programmes;
- Strengthening integration of climate change and disaster risk into government and villages' development planning and decision making, and human resource development plans to reduce the accumulation of existing risks and prevent the creation of additional risks; and,
- Increased awareness and knowledge of climate change, risk management and risk reduction.

Proposed Outputs

- Expert Assistance.
- Report outlining options for a new TCR2O and/or similar arrangement.
- Identification of human and financial resources and contracted services needed to establish Tokelau's new TCR2O and/or similar institution.

CRIP 3-2: INCREASE RESILIENCE TO CLIMATE CHANGE AND OCEAN ACIDIFICATION

Provide training opportunities to Tokelauans to increase their understanding of the impacts of climate change, the predicted range of changes that will occur, including uncertainties associated with climate outlooks and climate change scenarios, and management strategies that address the impacts of climate change on marine and coastal ecosystems.

Results Areas: Livelihoods of people, Ocean (Marine) and Coastal Ecosystems, Climate Change, Ocean Acidification, Capacity Building.

Agenda 2030: #3 Ensure healthy lives and promote well-being for all at all ages, #4 Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all, #5 Achieve gender equality and empower all women and girls, #6 Ensure availability and sustainable management of water and sanitation for all, #8 Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all, #11 Make human settlements inclusive, safe, resilient and sustainable, #9 Industry, innovation and infrastructure, #13 Climate Change, #14 Conserve and sustainably use the Oceans, #17 Partnerships.

Background

In March 2017, the Governments of Tokelau and New Zealand, together with Secretariat of the Pacific Regional Environment Programme (SPREP), Secretariat of the Pacific Community (SPC) and the University of the South Pacific (USP), hosted a Climate Change and Ocean Acidification workshop for Tokelau public servants, community leaders, youth and NGOs in Apia, Samoa. <http://www.tokelau.org.nz/Bulletin/March+2017/Ocean+acidification+monitoring.html>

The main objectives of the workshop were (i) to inform participants about Climate change and Ocean Acidification; (ii) to inform participants about the NZ Pacific Partnership on Ocean Acidification (PPOA) project; (iii) to build capacity on the importance of coral reef ecosystem and the stressors that threaten their survival, and; (iv) to discuss community management and adaptation activities for the proposed ocean acidification pilot site. This proposed activity will address the key priorities and recommendations that came out of the Apia workshop.

Concept

The New Zealand Pacific Partnership on Ocean Acidification (PPOA) project is a collaborative effort between the Secretariat of the Pacific Regional Environment Programme (SPREP), the University of the South Pacific, and the Pacific Community, which aims to build resilience to ocean acidification in Pacific Island communities and ecosystems, with financial support from NZ Ministry of Foreign Affairs and Trade and the Government of Monaco. The PPOA project follows the “*International Workshop on Ocean Acidification: State-of-the-Science Considerations for Small Island Developing States*” that was co-hosted by New Zealand and the United States, in partnership with SPREP, as an official side-event of the 3rd UN SIDS Conference.

The PPOA project is working to build resilience Ocean Acidification in Pacific Island countries by:

1. Identification and Implementation of Practical Adaptation Actions – Once a pilot site is selected in one of the chosen countries, the project will carry out an Ecosystem and Social Resilience Assessment and Mapping (ESRAM) study that will guide the implementation of adaptation activities at the site.
2. Research and Monitoring – As part of the ESRAM study, the project will establish chemical and biological baselines which will be followed up by routine monitoring of key parameters.
3. Capacity Building and Awareness Raising – During the ESRAM study and throughout the implementation of adaptation activities, the project will seek to build capacity within the local communities and partners, to address OA and to develop effective coastal zone management. Additionally, the project will seek to raise awareness of ocean acidification at all levels.

The PPOA project recently (October 2015) hosted a regional ocean acidification workshop in Auckland, attended by Tokelau and also contributed to formulation of a regional ocean acidification vulnerability assessment (available at <http://www.sprep.org/attachments/Publications/CC/ocean-acidification.pdf>). With the recent endorsement of the PPOA project by the Government of Tokelau, the next step for the project is to establish an ocean acidification adaptation pilot project site in Tokelau.

The Apia workshop is a follow up to the Auckland workshop. The Apia workshop identified key priority areas that Tokelau need to explore as it moves towards establishing a pilot site.

This activity aims to consolidate the key findings and recommendations from the Apia workshop. The goal is to identify 'climate and ocean acidification' champions from the Apia workshop participants and work with them to conduct in-villages public awareness and outreach activities on climate change, ocean acidification and the PPOA.

Proposed Outcomes

- Increased awareness and knowledge of local communities from each of the three villages about climate change and ocean acidification;
- Improved understanding of resilience and capacity that can be integrated into climate change strategies; and,
- Improved ability to reduce risk and improve planning with knowledge of more effective methods for resource allocation.

Proposed Outputs

- Identification and implementation of Practical Adaptation Actions.
- Ecosystem and Social Resilience Assessment and Mapping (ESRAM) study completed.
- Research and Monitoring programmes established.
- Capacity building and Awareness Raising at the villages' level completed.

CRIP 3-3 Tokelau Intergenerational Knowledge System

Establishing intergenerational and intercultural dialogue on climate change and related hazards among Tokelauan communities in Tokelau, Samoa, and New Zealand.

Results Areas: Livelihoods and knowledge transfer; integrating technology with indigenous learning systems to sustain and perpetuate cultural knowledge; sustaining dialogue among generations; enabling relocated Tokelauans to retain cultural knowledge.

Agenda 2030: #4 Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all, #5 Achieve gender equality and empower all women and girls, #8 Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all, #9 Industry, innovation and infrastructure, #11 Make human settlements inclusive, safe, resilient and sustainable, #13 Climate Change, #14 Conserve and sustainably use the Oceans, #17 Partnerships.

Background

One of the key components of LivC Strategy is the development of an Intergenerational Knowledge System (IKS). It is widely accepted there is an urgent need to document and rescue Tokelau Traditional Ecological Knowledge (TEK) which is fundamental to the long-term goals of LivC as it instils intergenerational collaboration and coordination to ensure sustainability of culture and climate knowledge in Tokelauan communities in Tokelau, Samoa, and New Zealand.

The IKS ensures that climate change policies, actions, and strategies are understood across generations and institutions to capture successes and lessons that are sustained through an intergenerational knowledge system (IKS). One of the inhibitors to moving forward in addressing climate change is the lack of institutional memory and knowledge transfer of Tokelau's involvement in climate change actions, negotiations, and policy implementation. In the Pacific Islands, it has long been recognized that "brain drain" or loss of educated citizens to other countries results in challenges to staff and personnel retention as well as the loss in continuity of governmental and institutional actions. In many recent proposals and activities targeting resilience and sustainability, the challenge has been addressed by involving youth in strategic planning and programme development to ensure that governments, organizations, and communities retain knowledge.

Concept

The activity will aid in establishing the IKS with the LivC and climate change programme to ensure its longevity. Funding will be used to analyse dialogues and meeting results from LivC consultations in Tokelau, and to determine the appropriate ways to involve youth in engaging in dialogues with elders on

climate change. The intent is to design a culturally-appropriate means of using technology and database management to enable sustainability of culture.

The initial aspect of this activity will engage youth in thinking about climate change as they design questions for elders in their communities about climate, observed changes in climate, climate impacts, culturally appropriate interventions, and climate and disaster resilience. Youth will be trained in ethical research protocols, and will engage in dialogues with elders in culturally-appropriate settings. The activity will conduct meetings involving Tokelauan youth with Tokelauan diaspora communities in Samoa and/or New Zealand– both to build awareness of climate impacts, discuss culture knowledge and climate, and to engage students in interviews and intercultural discussions. The results of the interviews and discussions will be analysed and categorised for inclusion in a database on a web-based platform for use by Tokelauan communities to share climate experiences and protect cultural knowledge.

One aspect is that the LivC strategy and climate change programme will engage with the local schools to build awareness of climate change and involve students in visioning their climate future. There will be formal discussions of the integration of climate science into the science curriculum. Informally, there will be an approach to have children/youth “talk-story” with their elders about climate impacts or changes in relation to their livelihood activities or specialized skills (such as carving, navigation, traditional medicine, agriculture, or fishing). The activity will capture the conversations on videotape for archive and use in climate.

In addition, the activity will identify youth ‘shadows’ for regional and international climate meetings, with opportunities to train as interns, to learn climate diplomacy, and to understand the linkages with climate science and policy. Funding will be needed for travel costs to include youth in regional and international meetings.



Father and Son playing in the Fale Pa.
Nukunonu, August 2016. Photo courtesy: C.L. Anderson.

Proposed Outcomes

- Increased interest among Tokelauan youth in climate science and policy;
- Implementation of an assessment on cultural aspects of climate conducted by youth interviewing elders and adults, with youth trained in ethical research design;
- Identification of resilience indicators and strategies that are informed by culture and maintain links and dialogues among communities; and,
- Establishment of a process that supports ongoing, intergenerational, and intercultural dialogue among Tokelauan communities in Tokelau, Samoa, and New Zealand as the Tokelau Climate Programme grows and as LivC is implemented.

Proposed Outputs

- Determination of a culturally appropriate framework for the IKS developed by Tokelauan communities with input from elders, adults, youth, and children in the community.
- Intergenerational Knowledge System database and shared learning platform.
- Tokelauan youth trained in protocols for engaging in local, regional, and international climate change activities.

CRIP 3-4: GENDER-DIFFERENTIATED CLIMATE IMPACTS AND RESILIENCE ANALYSIS

Enhancing understanding of the current and potential impacts of climate change on women and men at different ages.

Results Areas: Improved understanding of climate change impacts throughout the community; gender-differentiated climate change impacts and impacts on livelihoods, resources, and divisions of labour; improved knowledge of resilience activities; improved disaster risk reduction planning and resource allocation.

Agenda 2030: #4 Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all, #5 Achieve gender equality and empower all women and girls, #8 Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all, #9 Industry, innovation and infrastructure, #11 Make human settlements inclusive, safe, resilient and sustainable, #13 Climate Change, #14 Conserve and sustainably use the Oceans, #17 Partnerships

Background

Experiences shared from a number of Pacific island countries show that women, and their families and communities, are undergoing increasing hardships in their daily lives as a result of climate change impacts on agriculture, land availability, water resources, fishing, mining and other sectors. At the same time, there is recognition that knowledge and capacity to deal with changes in natural resource management has not been adequately factored into assessments of resilience to climate change. Women are affected differently from men by climate change and associated natural disasters such as floods, droughts, cyclones, and storms. This is largely because men and women are bound by distinct socioeconomic roles and responsibilities, including different divisions of labour, that give rise to differences in vulnerability and ability to cope with these climate change consequences. As a result, vulnerable groups are likely to be faced with problems such as food insecurity, loss of livelihood, hardships due to environmental degradation that lead to displacement, and a host of other potentially devastating economic and social consequences. There remain significant analytical gaps for Tokelau about the changes and these impacts on communities.

There have not been sufficient gender-differentiated, intergenerational, or socioeconomic vulnerability assessments to demonstrate the impacts of climate change on men and on women in Tokelau at different ages. A gender study necessitates understanding the way that society works with respect to women and men, as well as consideration of age, community, and other socioeconomic and demographic factors. Because of the lack of knowledge and socioeconomic data applied to climate change, the LivC has not been informed adequately about the differential risks of climate change to members of the community.

Concept

Multiple methods will be used in conducting this study on the gender-differentiated impacts of climate change in Tokelau. The analysis, which are currently being used by the LivC Strategy, will be informed by:

Participatory Engagement: The three Taupulega (Council of elders) on each atoll will make it possible for this proposed activity to work with the villages and people. The Taupulega are led by the Pulemuku (village mayor). The three Pulemuku are also members of the Council of the Ongoing Government, and are essential to the implementation of this activity. The activity team will work through the General Managers and Coordinator for the Pulemuku for the Tokelau Atolls of Fakaofu, Nukunonu, and Atafu. The proposed groups the activity team will partner with in Tokelau will be: i) Taupulega (Council of Elders); ii) Aumaga (able-bodied men); iii) Fatupaepae (Women's group); and iv) Tupulaga (Youth/Sports). The assessment and analysis of differential impacts will involve consultation and group discussions, as well as key informant interviews and integration with updated demographic information.

Equality and Human Rights: The Constitution of Tokelau offers protection to all the people of Tokelau. The Constitution of Tokelau asserts that "...the Tokelau way, which includes a commitment to a life of interdependence where the less fortunate are cared for, the *inati* system of sharing resources, equal opportunity to participate in the life of the community, and the right to live happily." The approach to the research takes into account the cultural values and equality ensured to all the people of Tokelau.

Intergenerational Knowledge: The approach will ensure intersectional gender analysis by engaging with different age groups and integrating demographic data in the analysis. The intergenerational approach

will ensure that there is an awareness of climate change and impacts in relation to activities and divisions of labour throughout the communities.

The proposed activity will: 1) Conduct a Document Review across Sectors to develop a literature review and analysis of gender understanding and approaches in Tokelau; 2) Conduct consultations with key people in ministries on their awareness and use of gender-responsive and intergenerational approaches in the design and development of programmes and projects; 3) Conduct consultations in Tokelauan communities (Fakaofu, Nukunonu, and Atafu) to determine gender-differentiated roles and divisions of labour at the community level; 4) Develop a draft report for review by ministries, project leaders, and community participants that integrates the findings from the consultations and the analysis from the literature review and review of gender; and, 5) Revise and refine the report with recommendations for gender mainstreaming and monitoring progress in implementation.

Proposed Outcomes

- Improved understanding of the impacts of climate change on women and men at different ages;
- Improved understanding of resilience and capacity that can be integrated into climate change strategies; and,
- Improved ability to reduce risk and improve planning with knowledge of more effective methods for resource allocation.

Proposed Outputs

- Report that contributes to the knowledge of gender-differentiated impacts of climate change in Tokelau.
- A process that uses approaches that will have co-benefits for understanding risks, identifying capabilities and capacities to reduce risks, and improving resilience.
- An analysis that can be used locally to improve planning and as a regional and international contribution towards legally binding agreements (i.e. CEDAW, SDGs).



Men engage in shipping transfer activities. Nukunonu, August 2016. *Photo courtesy: C.L. Anderson.*



Women of all ages relax after completing a community weaving project. Fakaofu, August 2016. *Photo courtesy: C.L. Anderson*

ANNEX 3: GLOSSARY

Aumaga The able bodied (men). The aumaga are responsible for looking after the village and do most of the required labour- intensive work in Tokelau society.

Climate Adaptation In human systems, the process of adjustment to actual or expected climate and its effects to moderate harm or exploit beneficial opportunities. In natural systems, the process of adjustment to actual climate and its effects, human intervention may facilitate adjustment to expected climate.

Climate change in Intergovernmental Panel on Climate Change (IPCC) usage refers to a change in the state of the climate that can be identified (e.g. using statistical tests) by changes in the mean and/or the variability of its properties, and that persists for an extended period, typically decades or longer. It refers to any change over time, whether due to natural variability or as a result of human activity. This usage differs from that in the United Nations Framework Convention on Climate Change (UNFCCC), where climate change refers to a change of climate that is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and that is in addition to natural climate variability observed over comparable time periods.

Climate-Resilient Investment Pathways Climate-resilient investment pathways include strategies, choices and actions that reduce climate change and its impacts. Climate-resilient investment pathways include two main categories of responses: (1) Actions to reduce both human induced climate change as well as affects from natural climate variability, and its impacts, including both mitigation and adaptation



Telecommunications Infrastructure are critical lifelines for Tokelau Nukunonu, August 2016. *Photo courtesy: C.L. Anderson.*

towards achieving sustainable development; (2) Actions to assure that effective institutions, strategies, and choices for risk management will be identified, implemented, and sustained as an integrated part of achieving sustainable development.

Climate Resilience The capacity for a social-ecological system to (1) absorb stresses and maintain function in the face of external stresses imposed upon it by climate change, and (2) adapt, reorganise, and evolve into more desirable configurations that improve the sustainability of the system, leaving it better prepared for future climate change impacts.



Solar Photovoltaic energy on each atoll contributes to Tokelau's decarbonisation scheme, Fakaofu, August 2016. *Photo courtesy: C.L. Anderson.*

Decarbonisation The reduction or removal of carbon dioxide from fossil fuel energy sources. A decarbonised (low-carbon) economy is an economy that has a minimal output of greenhouse gas emissions in general into the environment biosphere, but specifically refers to the greenhouse gas, carbon dioxide.

Disaster The severe alterations in the normal functioning of a community or a society due to hazardous physical events interacting with vulnerable social conditions, leading to widespread adverse human, material, economic, or environmental effects that require immediate emergency response to satisfy critical human needs and that may require external support for recovery.

Faipule A Government of Tokelau representative on each of the three atolls. The faipule are elected every 3 years during general elections. They are members of the Office of the

Government of Tokelau with portfolios (Ministers); the Ulu of Tokelau is a Faipule and is also the Head of Government.

Fatupaepae Women's committees which are comprised of those women who are finished with school. The wife of the faipule is the President assisted by the Pulenuku's wife. However, the elders of the Fatupaepae are accorded the highest respect.



Fatupaepae engage in LivC strategic planning. Fakaofu, August 2016. *Photo courtesy: Fatauafifi.*

General Fono The General Assembly, the legislative body that makes national decisions for Tokelau after consultation with the village Taupulega (Village Councils). It is also the Legislative National Committee and the National Budget Committee. The numbers of delegates on the General Fono are representative of the population from each of the three villages.

Hazard The potential occurrence of a natural or human-induced physical event that may cause loss of life, injury, or other health impacts, as well as damage and loss to property, infrastructure, livelihoods, service provision, and environmental resources.

Impacts The effects on natural and human systems. In this document, the term 'impacts' is used to refer to the effects on natural and human systems of physical events, of disasters, and of climate change.

Mitigation (of climate change) A human intervention to reduce the sources or enhance the sinks of greenhouse gases. Note "mitigation" (in the context of disaster risk reduction) is defined as the "lessening of the potential adverse impacts of physical hazards (including those that are human-induced) through actions that reduce hazard, exposure, and vulnerability." In LivC, we restrict the use of "mitigation" to the climate change definition.

No regrets policies Options or actions to reduce greenhouse gas emissions that have negative net costs. Net costs are negative because these options generate direct or indirect benefits, such as those resulting from reductions in market failures, double dividends through revenue recycling and ancillary benefits that are large enough to offset the costs of implementing the options.

Pulenuku The village mayor, who is also a matai in the village, and is elected every 3-years during the General elections. The Pulenuku traditional role is to take the lead in managing the village affairs from the decisions and policies made by the Taupulega (the Village Council).

Resilience The ability of people, households, communities, countries and systems to mitigate, adapt to and recover from shocks and stresses in a manner that reduces chronic vulnerability and facilitates inclusive growth. As this definition suggests, the concept (and measurement) of resilience is complex and multidimensional.

Strategy A guide for achieving the sort of future that people want. It can help people, organisations, or a whole system work together more effectively on the most important and prioritised items. Without a strategy, small problems today can become big problems over time.

Taupulega The Village Council. Each atoll has its own council. Fakaofu village comprises of council of elders. Atafu and Nukunonu on the other hand comprise the village council of Matais.



Youth participate in Keyhole Garden Project for adaptation. Nukunonu, August 2016. *Photo courtesy: Litia Maiava.*

Tupulaga Youth, including sports teams.

Vulnerability The propensity or predisposition to be adversely affected by climate-related risks.



Government of Tokelau

Office of the Council for the Ongoing Government

