TUVALU

NATIONAL ADAPTATION PLAN FRAMEWORK

DESK REVIEW REPORT

Government of Tuvalu | Climate Change Department | October 2020

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Executive Summary

The next decade from 2020 to 2030 is a critical period for Tuvalu to plan for and implement adaptation strategies to increase its long-term resilience to the impacts of climate change. Adaptation planning is a matter of priority for the Government of Tuvalu, as articulated in its National Strategy for Sustainable Development, the Tuvalu Climate Change Resilience Act and key national policies.

The Government of Tuvalu, through the Climate Change Department (CCD), is developing a National Adaptation Plan (NAP) framework to guide the identification and assessment of medium- and long-term needs and options for adaptation. The purpose of the NAP framework is to plan for and describe the core elements of Tuvalu's national adaptation planning process. As part of this work, a desk review was carried out between July and October 2020 to identify and take stock of climate change impacts, vulnerabilities, adaptive capacity and adaptation efforts undertaken to date. It is anticipated that the findings of the desk review will be used to ascertain gaps, needs and opportunities to enhance and inform the enabling environment of Tuvalu's NAP process.

The following opportunities were identified for strengthening the NAP enabling environment in Tuvalu:

- **NAP mandate:** clearly articulate the need for the NAP in the new National Strategy for Sustainable Development and the revised National Climate Change Policy to strengthen national commitment and rationale for adaptation planning, and to ensure sectoral policies are aligned with the NAP's legal framework;

- **Horizontal and vertical integration:** develop a communication and stakeholder engagement strategy for the NAP process to ensure meaningful participation of stakeholders across different sectors and at all levels, and incorporate the NAP process into annual work planning and budgets of relevant government departments and the Island Kaupule;

- **Gender and social inclusion:** conduct detailed assessments of the gender and social inclusion capacities of national, Kaupule and community institutions to ensure the NAP process is participatory and gender-responsive, and increase technical capacity of relevant agencies in Tuvalu to conduct gender and social assessments;

- **Institutional arrangements:** review the current institutional arrangements for NAP governance and consider the need to establish a NAP technical working group under the umbrella of the existing National Advisory Council on Climate Change (NACCC), formalise a parliamentary committee on NAP, and convene the National Climate Change Resilience Forum at least on an annual basis, as a multi-stakeholder and participatory process for guiding NAP implementation;

- **Funding and resource mobilisation:** develop a finance strategy to calculate the cost of adaptation and incorporate them into national development and budget planning

and in aid investment negotiations. Continue to progress and strengthen public financial management at national and island levels to manage climate finance;

- **Information and knowledge management:** invest in information and knowledge (including traditional knowledge) management architecture for the NAP by strengthening policies, procedures, skills, technologies and financing to better manage data, information and knowledge generated and used by the NAP process; and

- **Monitoring, evaluation and learning (MEL):** design, test and establish a MEL system at the early stages of the NAP process and harmonise NAP's MEL system with existing monitoring, verification and reporting mechanisms of international and national agreements, plans and policies.

Acronyms

CCD	Climate Change Department
CMIP5	Coupled Model Inter-comparison Project Phase 5
COP	Conference of Parties
CSIRO	Commonwealth Scientific and Industrial Research Organisation
DSW	Department of Social Welfare
GAD	Gender Affairs Department
GCF	Green Climate Fund
GCM	General Circulation Model
GEF	Global Environment Facility
ISP	Island Strategic Plan
LDCF	Least Developed Countries Fund
LDC	Least Developed Country
LEG	LDG Expert Group
MEL	Monitoring, Evaluation and Learning
NAP	National Adaptation Plan
NAPA	National Adaptation Programme of Action
NDC	Nationally Determined Contribution
PA	Priority Area
R2R	Ridge to Reef Project
RCP	Representative Concentration Pathway
SPREP	Secretariat of the Pacific Regional Environment Programme
TCAP	Tuvalu Coastal Adaptation Project
TIVA	Tuvalu Integrated Vulnerability Assessment
TKIII	Te Kakeega III
UNDP	United Nations Development Programme
UNFCCC	United Nations Framework Convention on Climate Change
USAID	United States Agency for International Development
YD	Youth Department

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1. Introduction

The Government of Tuvalu is in the process of formulating a National Adaptation Plan (NAP) to identify medium- and long-term priorities and strategies for adapting to climate change. The NAP process was established in 2010 under the Cancun Adaptation Framework as an outcome of the sixteenth Conference of Parties (COP) to the United Nations Framework Convention on Climate Change (UNFCCC). The objectives of the NAP process are twofold:

a) To reduce vulnerability to the impacts of climate change, by building adaptive capacity and resilience; and
b) To facilitate the integration of climate change adaptation, in a coherent manner, into relevant new and existing policies, programmes and activities, in particular development planning processes and strategies, within all relevant sectors and at different levels, as appropriate (decision 5/CP.17, paragraph 1).

In July 2020, the Government of Tuvalu, through the Climate Change Department (CCD), commenced the development of a NAP framework with support from the United States Agency for International Development's (USAID) Climate Ready project. The purpose of the NAP framework is to plan for and describe the elements of the NAP process, including but not limited to:

- The overall approach and key principles;
- Institutional arrangements;
- Funding and resource mobilisation;
- Information and knowledge management; and
- Monitoring and evaluation.

This report presents the findings of the desk review carried out as part of and to inform the development of Tuvalu's NAP framework. The report identifies gaps and needs of the enabling environment for the NAP process, as well as opportunities for enhancing the country-driven, participatory, gender-sensitive and transparent approach of the NAP process in Tuvalu.

1.1 Background on Tuvalu's NAP process

In 2017, the Government of Tuvalu began laying the groundwork for the NAP process. With support from the Global NAP Network and the International Institute for Sustainable Development, the Government of Tuvalu commenced the Tuvalu Integrated Vulnerability Assessment (TIVA) across all nine islands of Tuvalu. With a focus on livelihood assets and human security, the IVA framework was applied to conduct participatory appraisals in 14 communities to identify vulnerabilities across seven sectors and five livelihood assets.[1] The IVA reports for two pilot communities in Amatuku and Funafuti were completed in June 2020.

[1] Dumaru, P. (2019) How Integrated Vulnerability Assessments Support NAP Processes in the Pacific Region. NAP Global Network. http://napglobalnetwork.org/wp-content/uploads/2019/01/napgn-en-2019-how-ivas-support-nap-processes-in-the-pacific-region.pdf. Accessed 18 August 2020.

The IVA results for the remaining 12 communities are available on the TIVA database (www.tuvaluiva.com), however, they are yet to undergo stages of validation.

In late 2018, the Government of Tuvalu began preparing a NAP funding proposal to the Green Climate Fund's (GCF) Readiness and Preparatory Support program. The proposal covers financing and resourcing requirements for Tuvalu's NAP process. The delivery partner for the proposal is the Secretariat of the Pacific Regional Environment Programme (SPREP). The proposal is currently being finalised for submission to the GCF in November 2020.

This desk review informs the development of Tuvalu's NAP framework. The framework will build on the outcomes of TIVA and it will lay the groundwork for the NAP by clearly defining what the NAP process should look like, what it should entail and how it should be undertaken. The NAP framework is due to be completed by the end of October 2020.

1.2 Desk review scope and objectives

To develop the NAP framework, a desk review was carried out to:

1. Identify and assess climate change impacts, vulnerability, adaptive capacity and adaptation efforts undertaken so far based on a stocktake of domestic legislation, policies, plans and projects relevant to climate change adaptation;
2. Identify gaps and needs of the current enabling environment for the NAP process, and suggest improvements and opportunities for enhancing the effectiveness of Tuvalu's NAP process; and
3. Identify and prioritise key national climate change adaptation issues.

The scope of the desk review covers available information on relevant legislation, policies, plans and projects from the year 2010 to the present day.

1.3 Methodology

The desk review was conducted in August 2020. The identification of documents for the desk review initially built on the existing inventory compiled as part of the TIVA. The TIVA inventory had a total of 35 documents. These documents were then reconciled against other NAP-relevant documents contained in existing databases, including:

- The Tuvalu Climate Change Portal (Total: 43 documents);
- The Tuvalu Environmental Data Portal (Total: 30 documents); and
- The Pacific Climate Change Portal's Tuvalu Country Page (Total: 9 documents).

The reconciliation of documents allowed for identification of additional literature, as well as non-duplication of documents. In addition, a visual mapping exercise of adaptation-related legislation, policies, plans and projects revealed a further 70 documents. All of the documents were entered into a spreadsheet and the associated metadata was recorded (i.e. name of document, author, year of publication, publisher, document type, geographic scope, language format and source of access). Each document entered into the spreadsheet was reviewed against the following predefined criteria:

1. **Gender elements** contained in the document:
    - No reference to women and men
    - Selected references to women in document
    - Specific section focusing on women
    - Data with a specific focus on women
    - Data comparing results for women and men
    - References to women integrated throughout the document
    - Or any combination of the above
2. **Climate change-induced impacts identified**
3. **Climate change vulnerabilities identified** (using the human security categories from TIVA and additional categories)
4. **Adaptation actions or strategies identified** (again using the TIVA human security categories)
5. **Gaps and needs identified**

The total number of NAP-relevant documents was narrowed down from 138 to 91 to only include documents that are published between 2010 and 2020. Note that for the purpose of Section 3 of this report, only the main documents listed in Table 1 were included in the analysis with a few exceptions (refer to Section 3 for further details). Furthermore, the desk review only covers government-managed initiatives and it does not include adaptation efforts undertaken by non-governmental organisations. This is noted as a limitation to the desk review.

1.4 Report structure

This report is divided into five sections:

- **The Introduction:** (this section) introduces the desk review and its objective, scope and method to inform the development of the NAP framework;
- **Section 2:** provides a summary of the legislative and policy context for the NAP process, including key national laws, policies and plans relevant to NAP, and its linkage to and alignment with international and regional commitments;
- **Section 3:** presents an overview of the adaptation context for the NAP process, including current and projected climate impacts, vulnerability and adaptive capacity, as well as adaptation efforts undertaken to date to set the baseline for the NAP process;
- **Section 4:** discusses the identified gaps and needs of the enabling environment for the NAP process. Suggested actions and opportunities for enhancing the enabling environment for the NAP are also provided; and
- **Section 5:** concludes with an outline of next steps for developing Tuvalu's NAP framework.

2. Legislative and Policy Context for the NAP Process

This section describes the current legislative and policy context for the NAP process. It examines the climate change risks, vulnerabilities and impacts, and how these are addressed and prioritised in the national legislative and policy framework. The NAP process' linkage to and alignment with international and regional commitments is also described.

2.1 Tuvalu's commitments to and participation in the UNFCCC

Tuvalu became a party to the UNFCCC in June 1992. It further adopted the Kyoto Protocol in 1998 and the subsequent Doha Amendment to the Kyoto Protocol in 2014. In April 2016, Tuvalu ratified the Paris Agreement, which was a major outcome of the twenty-first COP of the UNFCCC. The Paris Agreement was entered into force on 4 November 2016.

Tuvalu has so far submitted two national communications to the UNFCCC Secretariat. Its intended Nationally Determined Contribution (NDC) was submitted to the UNFCCC Secretariat in 2015 and is currently being reviewed in accordance with the obligations under the Paris Agreement. Tuvalu's NDC focuses on mitigation. Adaptation needs and priorities are to be captured in the national climate change policy (currently being revised for Cabinet endorsement by the end of this year) and the NAP (to be developed by 2021). Tuvalu's short-term adaptation priorities were identified in its National Adaptation Programme of Action (NAPA), which was submitted to the UNFCCC Secretariat in May 2007.

Tuvalu is a member of the Executive Committee on the Warsaw International Mechanism on Loss and Damage associated with Climate Change Impacts. Tuvalu served as the co-chair of this Committee with the United States from September 2015 to November 2017. Tuvalu also served as the Chair of the Least Developed Countries Expert Group (LEG) from 2012 to 2013.

2.2 National legislative and policy framework

The **Tuvalu Climate Change Resilience Act** was enacted in 2019 to give effect to Tuvalu's commitments to the Paris Agreement. The Act provides a legal basis for Tuvalu's climate change response and transition to a climate resilient and lower carbon future. The Act establishes the CCD (Section 12) and defines the functions and powers of the responsible Minister (Section 10), the CCD (Section 15), the Director of the CCD (Section 13) and the National Advisory Council on Climate Change (NACCC; Section 19). In accordance with Part III Section 15 of the Act, the functions of CCD[2] that are relevant to the NAP process include:

- coordinating the implementation of climate change mitigation and adaptation projects, including projects to address loss and damage associated with climate change (1f);
- undertaking climate change risk assessments (1h);
- coordinating with relevant sectors on the development and implementation of policies and plans for renewable energy and energy efficiency (1j);

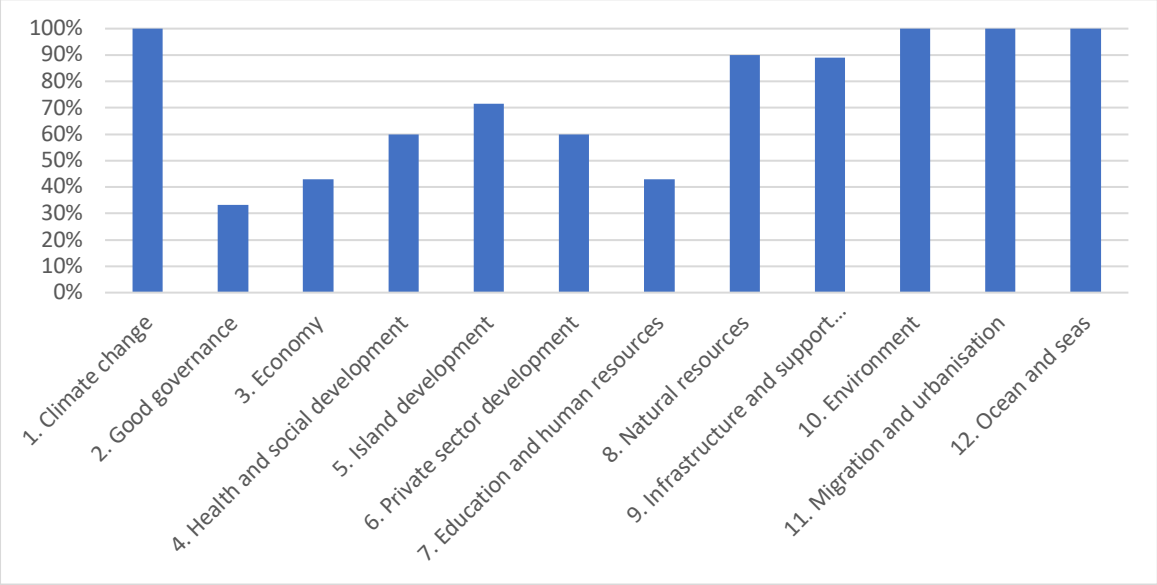
[2] Tuvalu Climate Change Resilience Act Part III Section 15

- providing educational, training and other capacity development opportunities for Tuvaluans in the area related to mitigating greenhouse gas emissions, building resilience and adapting to the impacts of climate change (1k);
- Researching and publishing research on climate change in Tuvalu (1l);
- Fostering gender equality in the development and implementation of policies under this Act (1m);
- Liaising with international and regional organisations associated with climate change matters (1n); and
- Liaising with the media on climate change matters (1p).

Section 16 of the Act further defines CCD's function in coordinating Tuvalu's response and compliance with the UNFCCC, the Kyoto Protocol, the Doha Agreement to the Kyoto Protocol and the Paris Agreement. The NAP process falls under Section 22 of the Act, which recognises the need for the CCD to develop and implement strategies and plans to realise climate resilience. Additional details on the specific provisions relevant to the NAP process can be found in Annex 1. In short, the mandate of the NAP process is set by the Tuvalu Climate Change Resilience Act, which is also supported by policy instruments, such as the National Strategy for Sustainable Development.

The **National Strategy for Sustainable Development 2016-2020**, also known as Te Kakeega III (TKIII) is the overarching national development plan for Tuvalu. Climate change adaptation, mitigation and resilience is identified as a priority, whilst it is also mainstreamed as a cross-cutting theme that appears in all 12 strategic areas of the TKIII (refer to Annex 2 for further details). As illustrated in Figure 1, out of the 94 strategies identified in the TKIII, 62 (equivalent to 66%) are directly relevant to the NAP process. For instance, 100% of strategies identified under Strategic Area 12 on 'Ocean and seas' are relevant to adaptation whilst only 33% of strategies under Strategic Area 2 on 'Good governance' are related to adaptation. They serve as a reference point for defining key priority sectors for climate change adaptation. The TKIII expires in December 2020. Due to COVID-19, the review of TKIII and the development of a new national sustainable strategy are currently postponed until November 2020.

Figure 1. Percentage of TKIII strategies relevant to NAP



National laws, policies and plans that are relevant to the NAP process are shown in Table 1. Their status and purpose are also provided. These key instruments are assessed in further detail in Section 3 as part of the stocktake of climate change risks, vulnerabilities and impacts, and adaptation priorities.

2.3 Linkage to and alignment with other international and regional commitments

In addition to the UNFCCC and associated agreements, Tuvalu has ratified other related international treaties including:

- the 1992 UN Convention on Biological Diversity;
- the 1994 Convention to Combat Desertification;
- the 1987 Montreal Protocol on Substances that Deplete the Ozone Layer; and
- the 2001 Stockholm Convention on Persistent Organic Pollutants.

Tuvalu is also committed to the 2030 Agenda for Sustainable Development and its 17 Sustainable Development Goals (SDG). Goal 13 on climate action and Goal 14 on oceans are of particular relevance to Tuvalu's NAP process.

At a regional level, Tuvalu has endorsed the Framework for Resilient Development in the Pacific (FRDP) 2017-2030. The FRDP is a set of voluntary guidelines for achieving climate and disaster resilience in the Pacific islands. It is linked to and aligns with the 2030 Agenda for Sustainable Development, the Sendai Framework for Disaster Risk Reduction 2015-2030, the World Humanitarian Summit, and adaptation and mitigation obligations under the UNFCCC.

Tuvalu is also committed to other major regional agreements, including:

- the Small Island Developing States (SIDS) Accelerated Modalities of Action (S.A.M.O.A) Pathway;
- the Framework for Pacific Regionalism;
- the Boe Declaration on Regional Security; and
- the Kainaki II Declaration for Urgent Climate Action Now.

The Kainaki II Declaration was adopted by Pacific Islands leaders who convened in Funafuti in August 2019. The Declaration calls for bold and transformative action to address the climate crisis faced by island nations and to urgently pursue efforts to limit global warming to 1.5°C above pre-industrial levels.

Pacific Resilience Partnership: Tuvalu's Representation on the Technical Working Group
The Pacific Resilience Partnership (PRP) was created by the Pacific Islands leaders in 2017 as a governance structure to monitor and implement the FRDP. The PRP comprises the Pacific Resilience Meeting (held every two years), the PRP Taskforce, Support Unit and Technical Working Groups. As at August 2020, Tuvalu is a core member of the PRP Information and Knowledge Management (IKM) Technical Working Group. The inaugural meeting of the IKM Technical Working Group was held in Samoa in November 2019. The second meeting took place on a virtual platform in July 2020.

Table 1. List of key national legislation, policies and plans related to climate change adaptation

Document	Type	Status	Purpose
TKIII 2016-2020	Plan	Current. To be reviewed and revised in 2021	The overarching strategy for sustainable development of Tuvalu.
Climate Change Resilience Act 2019	Legislation	Current	An Act to build an effective climate change response and to ensure long term, just transition to a climate resilient and lower carbon economy and society.
Tuvalu Climate Change and Disaster Survival Fund Act 2015	Legislation	Current	An Act to provide for the security of the people of Tuvalu against the impacts of climate change and natural disasters.
National Disaster Management Act 2008	Legislation	Currently being revised	An Act to provide for the management of pre- and post-effects of natural disasters in Tuvalu.
Tuvalu Climate Change and Disaster Survival Fund Regulations 2017	Regulation	Current	Prescribes matters giving effect to the application for and the assessment of request for assistance from the Tuvalu Survival Fund. The adaptation component of the Fund constitutes 20% of the Fund allocation, including small-scale adaptation projects up to $0.1 million.
National Climate Change Policy 2012-2021 *Te Kaniva*	Policy	To be superseded by the revised national climate change policy	The main policy for guiding climate change action in Tuvalu. The policy identifies 7 goals and 33 strategies, including Goal 1 on adaptation. The accompanying National Strategic Action Plan on Climate Change and Disaster Risk Management (NSAP) 2012-2016 was reviewed in 2016.
National Climate Change Policy 2020-2030 *Te Vaka Fenua o Tuvalu*	Policy	Draft	This Policy has been revised to align with the UNFCCC Paris Agreement, the Framework for Resilient Development in the Pacific, and the Sustainable Development Goals. The NAP will sit under this policy framework.
National Energy Policy 2009-2020	Policy	Currently being reviewed	The Policy considers the supply, demand and environmental considerations for energy security in Tuvalu. The policy identifies 7 strategic areas and 37 strategies.
Sustainable and Integrated Water and Sanitation Policy 2012-2021	Policy	Current	An integrated national plan for water and sanitation covering the period 2012-2021. The policy has 7 goals and 76 strategies.
Health and Climate Change Country Profile	A baseline policy profile	Current	Provides a summary of available evidence on climate hazards, health vulnerabilities, health impacts, recommendations on and progress to date in achieving a climate-resilient health system.
National Disaster Risk Management Arrangements 2012	Framework	Current. To be updated when the National Disaster Management Act is revised	Provides a high-level framework for disaster risk reduction and disaster management in Tuvalu. The Arrangements have three parts: 1) Context and structure of disaster risk management; 2) Disaster management operation plan; and 3) Audit and appendices (this part is incomplete).
Tropical Cyclone Tino Recovery and Vulnerability Reduction Plan 2020	Plan	Current	Provides a plan for post-Cyclone Tino recovery and to build back better in a holistic manner to achieve a more climate and disaster resilient future for Tuvalu. The plan lists 34 immediate, 13 medium-term and 3 long-term priorities costed at a total of AU$103 million.

3. Overview of the Adaptation Context for the NAP process

This section provides an overview of the key findings from the review of the TKIII, three national policies (National Climate Change Policy 2012-2021; National Energy Policy 2009-2020; Sustainable and Integrated Water and Sanitation Policy 2012-2021), the Health and Climate Change Profile and the TC Tino Recovery and Vulnerability Reduction Plan. These policies and plans were selected because they explicitly contain strategies on adaptation. The findings presented in this section provide a baseline of the current climate context in Tuvalu.

3.1 Identified climate change risks and impacts

The analysis of key policies and plans mentioned above revealed numerous climate risks and impacts for Tuvalu. These risks and impacts were compared against the recently updated Coupled Model Inter-comparison Project Phase 5 (CMIP5) General Circulation Model (GCM) climate change projections for Tuvalu. [3] The CMIP5 uses the IPCC Representative Concentration Pathways (RCP) scenarios to generate climate change projections. The results of this analysis are presented in Table 2.

Table 2. Climate change risks and impacts, and future projections for Tuvalu

Identified risks and impacts in key national policies and plans (a)		**Projected Changes for Tuvalu (b)**	
Climate risks	**Impacts**	**2030**	**2050**
Sea level rise	Coastal erosion Flooding Saltwater intrusion Human displacement Damage to critical infrastructure	Sea levels are projected to rise by approximately 7-18 cm by 2030, which is greater than previously projected for a high emissions scenario (RCP 8.5)	Sea levels are projected to rise by approximately 14-40 cm by 2050
Tropical cyclones (TC)	Storm surge Flooding Coastal erosion Biodiversity loss Loss of islets Loss of livelihoods (agriculture and fisheries) Loss of cultural sites Human displacement Human health Disruption to essential services Damage to critical infrastructure	No apparent change in the number of TCs forming within a 200-500 km radius of Tuvalu. However, TC occurrence is projected to become more frequent during future El Niño periods and less frequent during future La Niña and neutral periods	TC-induced impacts over Tuvalu are likely to be elevated during future El Niño events where TC numbers, as well as intensity, are projected to increase
Coral bleaching	Biodiversity loss Loss of livelihoods (fisheries)	Increased risk of coral bleaching in parallel with the mean increase in sea surface temperature	Elevated risk of coral bleaching with an increase in sea surface temperature of 1.5°C resulting in an average severe bleaching risk lasting for longer periods

[3] The CMIP5 climate change projections for Tuvalu were updated to reflect the recent findings from the IPCC Special Reports on Global Warming of 1.5°C (SR15) and Ocean and Cryosphere in a Changing Climate (SROCC).

Identified risks and impacts in key national policies and plans (a)		Projected Changes for Tuvalu (b)	
Climate risks	**Impacts**	**2030**	**2050**
			and reoccurring in shorter intervals
Ocean acidification	Biodiversity loss Loss of livelihoods (fisheries)	Decline in aragonite saturation rate. Under the high emissions scenario (RCP 8.5), the aragonite saturation rate decreases to marginal conditions (3.5) in 2030	Decline in aragonite saturation rate in parallel with the carbon dioxide concentrations in the atmosphere
Rainfall extremes	Drought Water-borne diseases Water insecurity Loss of livelihoods (agriculture) Algal bloom	Annual maxima daily rainfall is projected to increase, with a gradient of 6.8 mm per decade^{-1} until 2030 Increase in the frequency and intensity of extreme rainfall. Under the high emissions scenario (RCP 8.5), the current 1-in-20 year daily rainfall amount is projected to increase by 5mm by 2030	Annual maxima daily rainfall from 2030 to 2050 is projected to increase with a gradient of approximately 40 mm per decade^{-1} Future changes to the average annual rainfall and frequency of drought are uncertain due to low confidence in the magnitude of rainfall projections
Temperature extremes	Heat stress Vector-borne diseases Plant and disease outbreak	A warming of surface air temperature by up to 1°C for Tuvalu by 2030, relative to the 1995 reference period under all RCPs Temperature of extremely hot days (1-in-20 year occurrence) is projected to increase by approximately 0.5°C (RCP2.6) to 0.7°C (RCP8.5) by 2030	A very high emissions scenario (RCP8.5) will see annual mean temperatures in Tuvalu increase by up to 1.9 °C
Storms/wind extremes	Coastal erosion Disruption to essential services Damage to critical infrastructure	Strong wind gusts are likely to become less frequent particularly after 2030	Strong wind gusts are likely to become less frequent
Wave anomalies	King tide Flooding Coastal erosion Disruption to essential services Damage to critical infrastructure	Frequency of TC occurrence, during El Niño periods in particular, can elevate the impacts of destructive waves	Elevated risk of destructive waves and coastal flooding from increase in TC occurrence during El Niño periods

(a) Identified from the analysis of TKIII, two national policies (National Climate Change Policy 2012-2021; National Energy Policy 2009-2020), the Health and Climate Change Profile, and the TC Tino Recovery and Vulnerability Reduction Plan.
(b) Australian Government DFAT, CSIRO and SPREP, 2020.

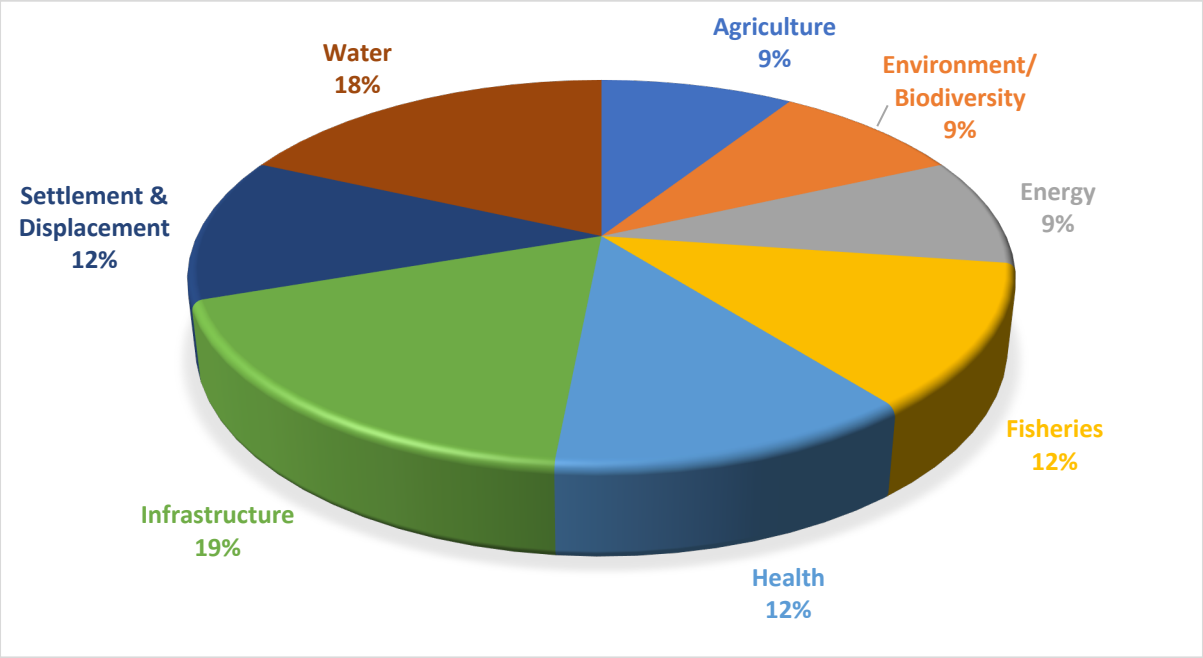
Based on best available science, combined with climate risks and impacts identified in key national policy instruments, the next decade from 2020 to 2030 is a critical period for Tuvalu to plan for and implement adaptation strategies to address current and projected changes in climate. There is high level of confidence associated with the projected changes over the next 10-20 years, whilst long-term projections are dependent upon which emissions pathway the world will follow (DFAT, CSIRO and SPREP 2020). The global warming targets of 1.5 °C and 2°C stated under the Paris Agreement are similar to but not exactly the same as the very low emissions scenario (referred to by the IPCC as RCP2.6). In this scenario, the world is following a pathway to decarbonise the economy by 2070 (i.e. net zero emissions), which provides a two-thirds chance of maintaining global warming below 2°C by 2100 compared to pre-industrial levels. At the current rate, global warming will reach 1.5 °C between 2030 and 2052 (IPCC 2018) or put in another way, as early as 2030. An increase in global temperature has serious implications for Tuvalu, particularly in terms of the potential magnitude of projected impacts over the long term (after 2030), which is largely dependent on uncertainties surrounding global response to emissions reduction.

3.2 Identified vulnerabilities

Climate change vulnerabilities mentioned in the key policy documents were enumerated and categorised into 8 sectors. These sectors are depicted in a pie chart in Figure 2 and include the following (in order of most frequently cited sector for vulnerability):

- Infrastructure (19% of key national policy documents identify this sector as being vulnerable to the impacts of climate change);
- Water (18%);
- Health (12%);
- Settlement and displacement (12%);
- Fisheries (12%);
- Agriculture (9%);
- Energy (9%); and
- Environment/biodiversity (9%).

Figure 2. Vulnerable sectors identified in key national policy instruments

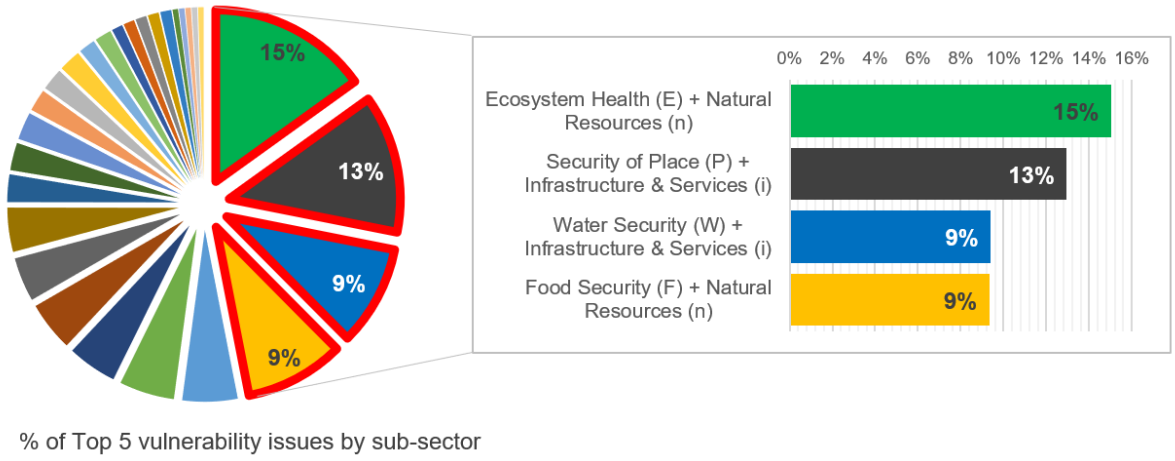


The sectors identified as being vulnerable in the key national policy instruments are comparable to the recent assessment undertaken as part of the TIVA. The results of the TIVA revealed the following top 5 vulnerability issues for Tuvalu:

1. Ecosystem Health + Coastal Erosion (En.5) specific issue: declining/retreating shoreline due to coastal erosion
2. Water Security + Infrastructure & Services (Wi.1) specific issue: inadequate household water tank capacity
3. Food Security + Natural Resources (Fn.10) specific issue: soil for farming – declining or poor soil quality (i.e. soil fertility/salinity)
4. Income Security + Finance (If.1) specific issue: household income insufficient to meet basic needs and services
5. Ecosystems Health + Natural Resources (En.12) specific issue: land-based invasive species (e.g. crazy ants, African snails, etc.)

Furthermore, the TIVA results determined 'hotspot sub-sectors', which for the purpose of TIVA analysis, nationally have 9% or more of the top 5 vulnerability issues. When combined, nearly half (47%) of all (total number of issues =192) top five vulnerability issues identified across 14 communities in Tuvalu fall into the four 'hotspot sub-sectors' as shown in Figure 3. These include ecosystems health + natural resources subsector (En), security of place + infrastructure & services subsector (Pi), water security + infrastructure & services subsector (Wi), and food security + natural resources subsector (Fn). For details on the TIVA methodology, refer to the TIVA website: www.tuvaluiva.com.

Figure 3. 'Hotspot sub-sectors' in the Tuvalu national TIVA survey (2020)



Source: Government of Tuvalu, 2020

The breakdown of TIVA results at the community level shows the similarities, as well as the differences, in what is considered to be a vulnerable sector. The top vulnerability issues for each group and community involved in the TIVA are presented in Table 3.

Table 3. TIVA: Top vulnerability issue by community and group

	Men	Women	Youth	Mixed
Nanumea	Ecosystems health	Community health	Ecosystems health	
Nanumaga	Security of place	Security of place	Security of place	
Niutao	Ecosystems health	Ecosystems health	Ecosystems health	
Nui	Ecosystems health	Ecosystems health	Ecosystems health	
Vaitupu	Ecosystems health	Ecosystems health	Income security	
Nukufetau	Ecosystems health	Energy security	Energy security	
Funafuti - Funafuti	Water security	Income security	Food security	
Amatuku				Security of place
Funafuti - Lofeagai	Security of place	Water security	Community health	
Funafuti - Fakaifou	Water security	Water security	Water security	
Funafuti - Vaiaku	Water security	Water security	Water security	
Funafuti - Kavatoeoe	Water security	Food security	Income security	
Nukulaelae	Food security	Community health	Water security	
Niulakita				Security of place

Source: Government of Tuvalu, 2020

The TIVA results serve as a suitable qualitative baseline for identifying and assessing vulnerabilities for the NAP process, particularly at the community level. The TIVA dashboard features functions for the results to be disaggregated by community, sector and social group (the latter includes men, women and youth). However, it is important to note that only two out of the 14 communities involved in the TIVA have completed the technical validation process. Accordingly, it is highly recommended that the TIVA results for the other 12 undergo a validation process by technical experts to ensure their robustness and reliability, and application for the NAP process.

3.3 Identified priorities for adaptation

Tuvalu's NAPA (2007) identified seven priority projects for addressing short term adaptation needs. These included:

1. Coastal protection
2. Agriculture
3. Water management
4. Human health
5. Fisheries (conservation)
6. Fisheries (adaptation)
7. Disaster preparedness and response

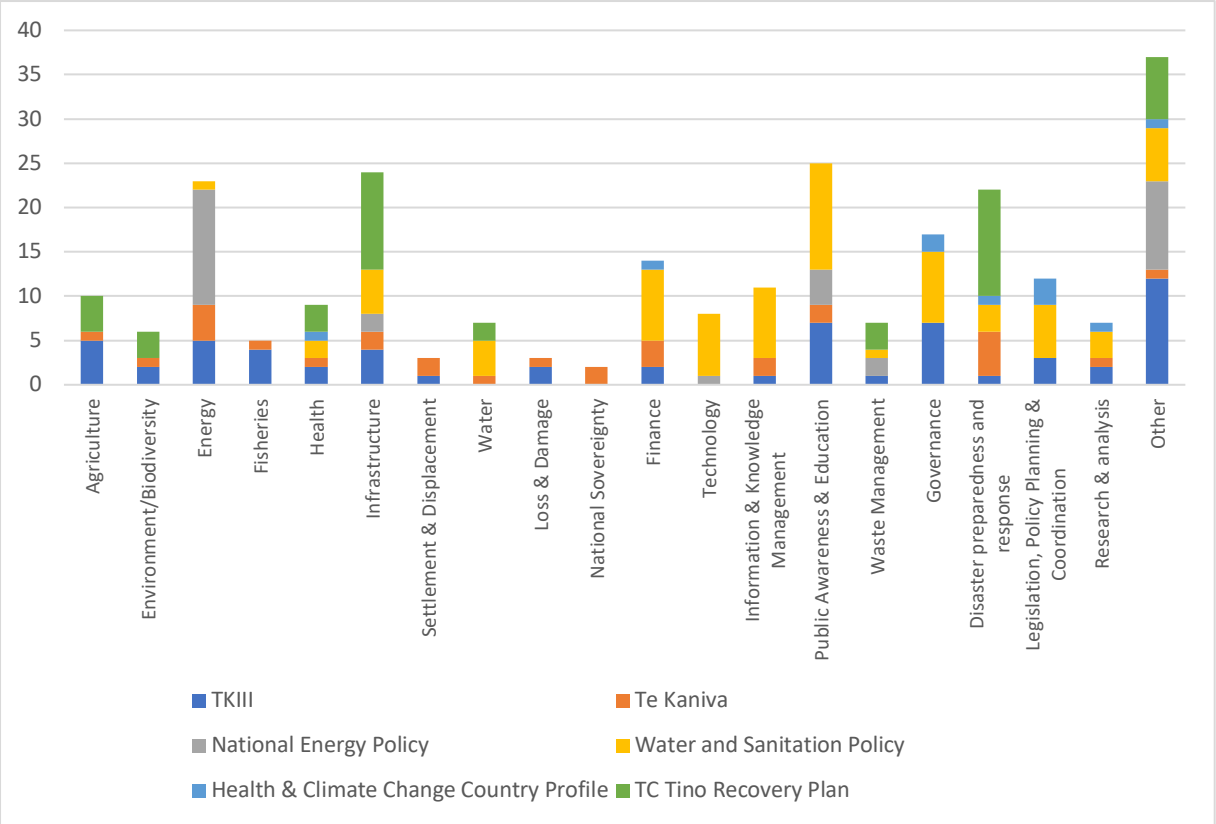
Six out of the seven projects (all except for human health) have been implemented through NAPA-I, NAPA-I+ and NAPA-II projects (see Section 3.5 on national adaptation efforts to date, including the status of the project proposal on human health). The NAPA projects were designed to address immediate and short-term adaptation priorities, whereas the emphasis of the NAP process will be on longer-term priorities for reducing vulnerability and enhancing adaptive capacity.

Key national policy instruments pinpoint other adaptation priority areas and strategies. These are visually presented in Figure 4. Notably, top five priorities include:

1. Public awareness and education
2. Infrastructure (including hard coastal protection measures)
3. Energy
4. Disaster preparedness and response
5. Climate change and disaster governance

The 'Other' category in Figure 4 includes priorities on employment, gender mainstreaming and economic development.

Figure 4. Adaptation priorities/strategies identified in key national policy instruments



The results shown in Figure 4 are indicative of the type of priorities for adaptation planning, rather than being a definitive set of priorities to be considered under the NAP process. Many of the priorities are interrelated (i.e. agriculture is linked to health, health is linked to water, water is linked to infrastructure). Therefore, it is essential that the NAP process adopts a holistic approach to assess and prioritise adaptation strategies, including analysis against projected future climate and the specific adaptation needs and circumstances at different scales (i.e. national, island, community).

3.4 National adaptation efforts to date

During the 2000-2020 period, there have been over 76 nationally implemented projects in Tuvalu that focus on reducing climate change vulnerability and enhancing adaptive capacity and resilience of communities and natural ecosystems.[4] A vast majority of these projects is externally funded through bilateral and multilateral financing, the latter including the Global Environment Facility's (GEF) Least Developed Countries Fund (LDCF) and the GCF. The main adaptation initiatives to date, in terms of scale and funding, include:

- The NAPA-I: Increasing resilience of Coastal Areas and Community Settlements to Climate Change in Tuvalu (March 2010 – June 2016);
- The NAPA-I+: Follow-up full size project (July 2011 - December 2013);

[4] Government of Tuvalu's Second National Communication to the UNFCCC contained a list of 37 climate change-related projects for the 2000-2015 period. CCD's project database [as at December 2019] identifies a further 39 projects for the 2016-2020 period.

- The NAPA-II: Effective and Responsive Island-level Governance to Secure and Diversify Climate Resilient Marine-based Coastal Livelihoods and Enhance Climate Hazard Response Capacity (August 2013 – June 2019);
- The Ridge to Reef (R2R) Project: Implementing a "Ridge to Reef" approach to protect biodiversity and ecosystem functions in Tuvalu (August 2015 – December 2020); and
- The Tuvalu Coastal Adaptation Project (TCAP) (August 2017 – September 2023).

The NAPA-I project was the very first project being funded and delivered in response to Tuvalu's submission of its NAPA to the UNFCCC Secretariat in 2007. NAPA-I+ was implemented to scale up adaptation initiatives piloted under NAPA-I in the areas of agriculture, water and coastal protection. NAPA II builds on the outcomes of NAPA-I and focuses on fisheries (adaptation and conservation) and disaster preparedness and response. The previous NAPA projects focused on six out of the seven short-term adaptation priorities identified in Tuvalu's NAPA. The last priority on climate change and health is addressed through a regional proposal to the GEF LDCF "Building Resilience of Health Systems in Pacific Island LDCs to Climate Change", which will be implemented by the United Nations Development Programme (UNDP) and executed by the World Health Organization (WHO) in partnership with respective national health ministries. The GEF LDCF has approved the full-size project for US$17m, of which US$1.4m is allocated for activities in Tuvalu. The project is yet to commence.

In 2016, Tuvalu was one of the first nations in the Pacific to secure funding from the GCF for the implementation of TCAP. The coastal protection component of TCAP focuses on three islands (Funafuti, Nanumea and Nanumaga). The Government of Tuvalu has expressed its intention to apply for subsequent funding from the GCF in the future to expand coastal protection measures to other outer islands.

Table 4 provides a summary of the above adaptation initiatives.

Table 4. Summary of adaptation initiatives to date: NAPA and TCAP

Project	Financing	Project Duration	Implementing Arrangements	Key Adaptation Priority Areas (PA) Addressed	Project Location
NAPA-I	GEF LDCF US$3.3m	Mar 2010 – Jun 2016 (Completed)	Implementing agency: UNDP Implementing partner: GoT Department of Environment	1. Agriculture – *pulaka* pits and nurseries established 2. Water management – provision, repair and installation of water tanks and cisterns 3. Coastal protection –pilot of ecosystems-based coastal protection measures	Nanumaga (PA1&2), Niutao (PA1), Niulakita (PA1), Nanumea (PA2&3), Vaitupu (PA2), Nui (PA2), Nukulaelae (PA2), Nukufetau (PA1), Funafuti (PA1&3)
NAPA-I+	Australian Government AU$1.1m	Jul 2011 - Dec 2013 (Completed)	Implementing agency: UNDP	1. Agriculture – additional 12 *pulaka*, breadfruit and	Nanumaga (PA1), Nanumea

Project	Financing	Project Duration	Implementing Arrangements	Key Adaptation Priority Areas (PA) Addressed	Project Location
			Implementing partner: GoT Department of Environment	banana plantations in the outer islands 2. Water management – additional 400m³ of fresh water supply in the outer islands 3. Coastal protection - expanded area of model demonstration projects on coastal protection measures in the outer islands	(PA1), Nui (PA1)
NAPA-II	GEF LDCF US$4.2m GoT co-financing US$14.3m	Aug 2013 – Jun 2019 (Completed)	Implementing partner: GoT Department of Environment	1. Fisheries – community-based conservation of highly vulnerable near-shore marine ecosystems 2. Fisheries – adaptation to near-shore coastal shellfish fisheries resources and coral reef ecosystem productivity 3. Disaster preparedness and response	All islands (PA 1, 2 & 3)
R2R	GEF US$3.7m GoT co-financing US$15.6m	Aug 2015 – December 2020 (Current)	Implementing partner: Ministry of Foreign Affairs, Trade, Tourism, Environment and Labour	1. Conservation of islands and marine biodiversity 2. Integrated water resource management 3. Governance and institutional capacity 4. Data and information management systems for natural resource management	All islands (PA1, 3 and 4) Funafuti, Nanumea and Nukufetau (PA2)
TCAP	GCF US$36m GoT co-financing US$2.9m	Aug 2017 – Sep 2023 (Current)	Implementing agency: UNDP Implementing partner: GoT Climate Change Department	1. Institutional capacity, human resources, awareness and knowledge 2. Coastal protection to protect critical infrastructure 3. Financing mechanism for adaptation	All islands (PA 1 & 3) Funafuti (reclamation), Nanumea and Nanumaga (PA 2)

In addition to the 76 projects enumerated for the 2000-2020 period, there are many other smaller-scale projects implemented outside of national government or public enterprise structures.

These include projects of varying purpose, size, budget and duration, managed and implemented by the Island Kaupule, the University of the South Pacific (Funafuti campus), international non-governmental and philanthropic organisations, and civil society (i.e. Tuvalu Red Cross Society, Tuvalu Association of Non-Governmental Organisations, Ekalesia Kelisiano Tuvalu, Tuvalu Climate Action Network). Due to limitations associated with this desk review, it was not possible to compile an exhaustive list of adaptation initiatives undertaken at subnational levels. For the NAP process, it is important to consider local knowledge on past and current adaptation-related activities, and their lessons learned to identify and assess suitable adaptation strategies at the subnational scale.

4. Gaps and Needs for the NAP Process

A comprehensive review of all documents collated for the desk review is synthesised in this section. The findings are categorised into the main components for potential inclusion in the NAP framework. These components reflect the approaches, principles and elements of the NAP process as stipulated in the UNFCCC LEG (2012) Technical Guidelines for the NAP Process. Suggested actions and opportunities for enhancing the NAP enabling environment are provided at the end of each subsection.

4.1 Mandate for the NAP process

The mandate for the NAP process in Tuvalu is set by the Tuvalu Climate Change Resilience Act. Section 22 of the Act prescribes powers to the CCD in developing strategies and plans to aide in the implementation of the national climate change policy. These powers extend to enable the CCD to conduct awareness and research, coordinate and deliver programs, seek funding, participate in international conventions, and other activities necessary to achieve the vision and goals of the national climate change policy.

Although the legislative mandate exists through the Tuvalu Climate Change Resilience Act, there is a need for relevant national policy instruments to affirm the policy mandate for the NAP process. This is due to uncertainty surrounding the timing of the TKIII review (TKIII expires at the end of 2020) and the finalisation of the National Climate Change Policy *Te Vaka Fenua o Tuvalu,* which is to supersede the current national climate change policy (*Te Kaniva*).

Suggested Actions/Opportunities

There are existing opportunities to strengthen the policy mandate for the NAP process. These include:

- A clear articulation of the purpose and the need for the NAP in the TKIII review to inform the development of the new National Strategy for Sustainable Development.

- Finalisation of the *Te Vaka Fenua o Tuvalu* and its endorsement by Cabinet before the end of 2020 to provide an overarching policy mandate for adaptation planning and activities in Tuvalu, including the NAP process.

- Update sectoral policies and legislation to establish linkages to the Tuvalu Climate Change Resilience Act and align with the intention of the relevant provisions in the Act.

In regards to the last point, the current review of the National Energy Policy and the upcoming review of the Sustainable and Integrated Water Management Policy are ideal entry points for integrating climate change needs and priorities (including those on adaptation) within these sectoral policies. Conscious efforts should be made to strengthen climate change considerations within other sectoral policies and strategic plans.

4.2 NAP approaches

Building on UNFCCC decisions on enhanced action on adaptation, including the definition in the Cancun Agreement, the NAP process should be a continuous and iterative process that is "country-driven, gender-sensitive, participatory and transparent" and be guided by best available science, and where appropriate, traditional and indigenous knowledge, and local knowledge systems to develop and implement adaptation actions (Decision 5/CP.17, paragraph 3). The desk review findings were analysed against this definition of the NAP process to ascertain the gaps and needs of the current enabling environment in Tuvalu.

4.2.1 Horizontal and vertical integration

Essential to the NAP process is horizontal and vertical integration. Horizontal integration is achieving intentional and strategic linkage in adaptation planning, implementation, and monitoring and evaluation across agencies and sectors. On the other hand, vertical integration is establishing intentional and strategic linkage between national and subnational levels.

Horizontal integration

There have been various interventions over the past decade which focused on climate change mainstreaming within national government processes (i.e. budget and policy planning) and decision-making across development sectors. Mainstreaming is a systematic process of incorporating climate and disaster risks into normal procedures of government, rather than treating it as a discrete and standalone area of work (Buncle and Manley 2014). Examples of such interventions with a specific focus on climate change and disaster risk mainstreaming into national government processes include but are not limited to:

- Pilot Program for Climate Resilience Pacific Regional Track 2014-2017 (funded by the Asian Development Bank and implemented by SPREP);
- Coping with Climate Change in the Pacific Region 2009-2015 (funded by German Government and implemented by SPC);
- NAPA-I, NAPA-I+ and NAPA-II projects;
- Institutional Strengthening in Pacific Island Countries to Adapt to Climate Change 2017-2020 (funded by USAID and implemented by SPREP then later by SPC); and
- Tuvalu Ministry of Finance and Economic Development's accreditation as the National Implementing Entity to the Adaptation Fund 2015-2019 (achieved in December 2019).

The findings from the desk review provide evidence of mainstreaming at the strategic level (legislation and policy), as well as at the project level, although both can continue to be strengthened.

For example, the TKIII integrates climate change risks into all sectors of development. As discussed in Section 2.2, climate change has been mainstreamed into all 12 strategic areas of the TKIII, as well as having its own strategic area with strategies and key performance indicators. The Tuvalu Climate Change Resilience Act also contains provisions under Section 22 which reference key sectors, such as water, coastal areas, biodiversity, fisheries, infrastructure and health. The identification of these sectors reinforces the necessity for the

NAP process to achieve horizontal integration by linking (and considering the links between) adaptation needs and priorities of each sector.

The NACCC, as a national governance body on climate change, also function as a platform for facilitating horizontal integration within and between government departments and non-governmental actors in Tuvalu (see Section 4.3 for further discussion on institutional arrangements).

There are, however, gaps and needs identified from the desk review in relation to horizontal integration. These include:

- There is ***low technical capacity in conducting sector-specific climate change and disaster risk analyses*** to fully and sufficiently integrate climate change and disaster risks into sectoral-level policy making and implementation. Subsequently, the depth and breadth of analyses vary between sectors, depending on the level of external technical support provided to conduct such analyses (i.e. risk and vulnerability assessments, feasibility studies, environmental and social impact assessments, cost-benefit analyses, gender analyses, etc). There are technical reports from past assessments, which indicate the analyses of climate change risks in agriculture, fisheries, water, health, energy and the environment sectors, however, there is limited evidence of assessment for infrastructure, land use, waste and the economy (the economy category includes income and livelihoods, education and employment).

- ***Limited human resources,*** which has implications on recruitment, retention and capacity building of technical officers in different sectors. Past major projects on adaptation experienced significant delays in implementation due to difficulties in recruiting and retaining project staff. These issues also have ramifications on functional capacity of organisations concerned, including lack of continuity of staff working on projects, loss of institutional and project-based knowledge, and operational and project inefficiencies in terms of time and cost.

- ***The need for greater alignment and linkage between government and non-governmental actors*** involved in adaptation planning and related activities within and between sectors. Non-governmental actors include the private sector, civil society and faith-based organisations. The commitment to the NAP process by all relevant sectors should be clearly articulated in their respective organisational strategic plans and annual work plans to ensure their dedicated and continued participation in the NAP process. The continuity in engagement of key sectoral stakeholders in the NAP process will also have mutual benefits in facilitating the integration of climate change risks into sector-level planning and decision-making.

Multi-sectoral engagement and support are integral to secure financing and resources, and to sustain the NAP process. In turn, strong stakeholder partnership will be more conducive to delivering much needed actions and outcomes for climate-sensitive sectors and affected communities.

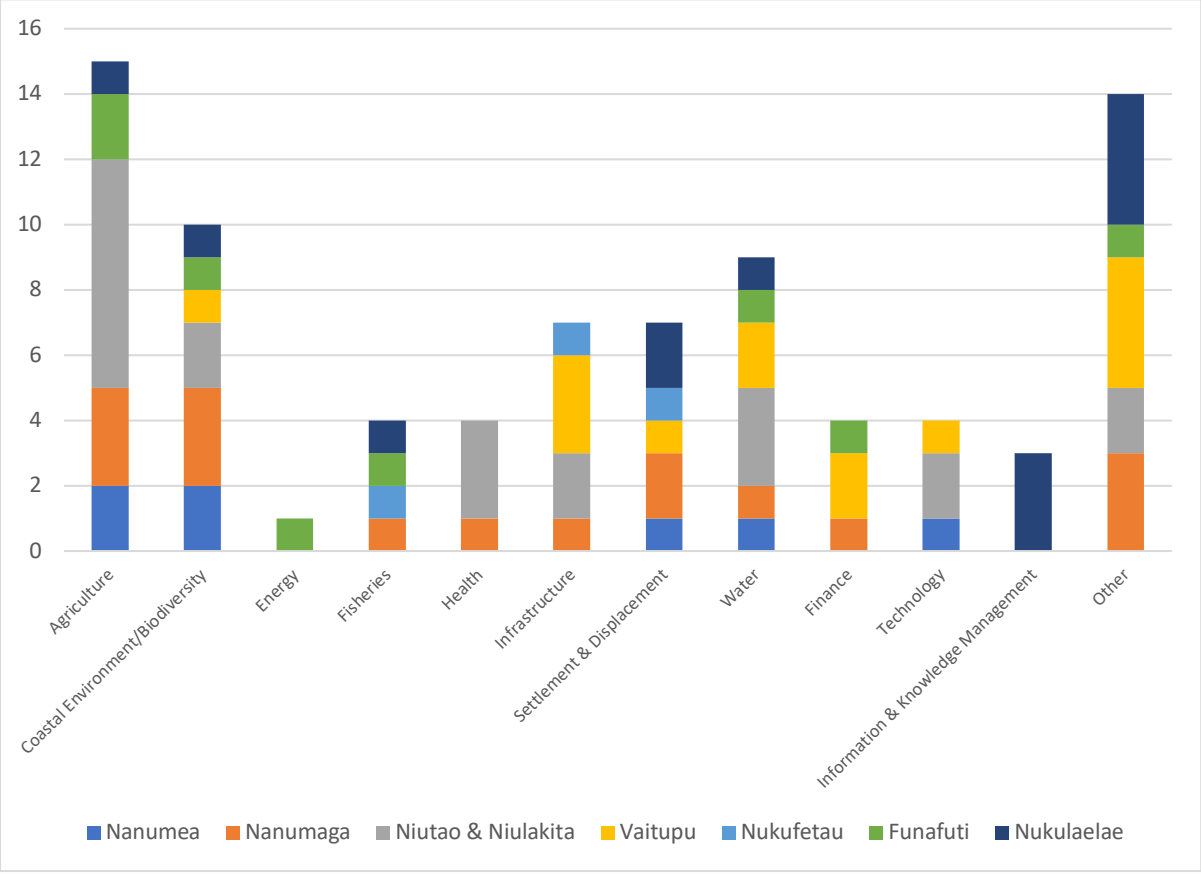
Vertical integration

The desk review revealed that the current enabling environment provides partial support for vertical integration, however, additional efforts are needed to enhance the linkage between national and subnational adaptation planning, decision-making, implementation and monitoring and evaluation.

Within the Tuvaluan context 'subnational' refers to the island-level administrative structures, including the Kaupule and Falekaupule.

There is some evidence of climate change and disaster risks being integrated into the Island Strategic Plans (ISPs). Collectively, ISPs identify 82 specific island-level strategies on climate and disaster resilience. As can be seen in Figure 5, there is a high frequency of adaptation strategies on agriculture (including food security), coastal environment/biodiversity, and water security. The other category in Figure 5 includes disaster preparedness and response, community awareness and education, and waste management. Interestingly, the Nukulaelae ISP was the only ISP to have specific adaptation strategies on information and knowledge management. A specific strategy on energy security was only found in the Funafuti ISP.

Figure 5. Adaptation priorities/strategies identified in Island Strategic Plans



The desk review found the following gaps and needs in relation to vertical integration:

- ***The need for greater engagement of Kaupule in the NAP process*** to ensure their leadership and ownership of adaptation decisions and actions. Whilst adaptation

priorities at the national and island levels are linked through the TKIII and ISPs, there are challenges in translating this into actual policy and implementation on the ground. In addition to development planning processes, there is a need for dedicated settings, such as the National Climate Change Resilience Forum (as stipulated in Section 18 of the Climate Change Resilience Act) to bring together national- and island-level stakeholders to collectively discuss, exchange information and learn from each other to inform each stage of the NAP process.

- Outside of national forums, there is ***a need for the NAP process to be integrated into Kaupule planning and decision-making***. One of the ways in which this can occur is by setting NAP as a permanent agenda item for Kaupule meetings and for the meeting outcomes to be reported back to the CCD and the NACCC (as well as the Department of Rural Development). This will also allow CCD and NACCC to communicate and disseminate information on the NAP process and its progress to the Kaupule to ensure they are kept informed and have ongoing opportunities to input into NAP development and implementation.

Suggested Actions/Opportunities

The suggested actions for strengthening the horizontal and vertical integration component of the NAP process are as follows:

- Develop a stakeholder engagement strategy for the NAP process to ensure meaningful participation of stakeholders across different sectors and at all levels.

- Clearly articulate NAP development as an activity in the annual work plans of climate-sensitive sectors and relevant government departments to ensure appropriate staffing and resources are allocated to their involvement in the NAP process from national to the subnational levels.

- Include the NAP process as part of the regular meeting agenda item for the Kaupule for the duration of the NAP process, and where possible, allocating human and financial resources for the NAP process in the Kaupule annual work plan and budget.

- Assign NAP focal points for each ministry, Kaupule and non-government sector to support horizontal and vertical integration of NAP processes. This could be established using NACCC members as focal points or by way of self-nomination from relevant ministries and organisations. A clear terms of reference for the NAP focal points should be developed by CCD and regular meetings held to communicate, update and share information the NAP process and its progress.

4.2.2 Gender and social inclusion

As defined by the Cancun Agreement, the NAP process should be participatory and gender-responsive. Understanding the differences in vulnerability and adaptive capacities between men and women is paramount for devising effective adaptation options that increase long-term resilience to climate change as well as advance the rights and equality of all groups in society.

The Gender Affairs Department (GAD) is the national women's machinery with a mandate to coordinate and promote strategies on gender equality and women's empowerment in Tuvalu. From 2014 to 2019, the GAD was situated within the Office of the Prime Minister. Following the general elections in September 2019, the GAD now sits within the newly formed Ministry of Health, Social Welfare and Gender Affairs. In addition to the GAD, the Tuvalu National Council of Women (TNCW) represents the views and interests of women in Tuvalu. The TNCW has an extensive network of women across all islands. It supports women's economic empowerment through facilitation and support towards women-led enterprises (i.e. food services and handicrafts).

The GAD is responsible for guiding and supporting the implementation of the National Gender Policy (NGP) 2014-2018 (the Policy is currently being revised by GAD). The aim of this Policy is to provide a policy framework for operationalising Tuvalu's international, regional and national commitments to gender equality and women's empowerment. The NGP has five priority outcomes:

1. Increase capacity within all sectors of Government to address key issues of concern in achieving gender equality and women's empowerment within each sector;
2. Reflect Government commitments to gender equality and women's empowerment in legislation and in sector policies affecting Government and civil society;
3. Create an enabling environment for the full participation of women in economic development;
4. Take measures to ensure women's and men's equal access and full participation in decision-making as a means of enhancing leadership and governance at all levels; and
5. Eliminate all forms of violence against women.

The NGP's Strategic Plan of Action 2014-2016 recognises the link between gender and climate change. The Strategic Plan of Action includes specific actions on climate and disaster resilience including:

- Monitor the implementation of commitments to gender equality and women's empowerment in the National Strategic Action Plan for Climate Change and Disaster Risk Management (an action plan supporting the soon-to-be-replaced Tuvalu National Climate Change Policy *Te Kaniva*);
- Ensure women's equitable access to capacity building initiatives in disaster risk management and adaptation to climate change and natural resources management; and
- Support equitable participation of women, together with men, in decision-making in relation to disaster risk management, climate change adaptation and natural resources management at the community and national levels.

The Strategic Plan of Action further identifies capacity gaps for gender mainstreaming across development sectors in Tuvalu. These include the need for sufficient technical capacity in gender analysis, understanding correlations between women's education, health and poverty to address gender inequalities (including inequalities in vulnerability and adaptive capacity), and systematic collection of sex disaggregated data to inform government decisions and

actions on climate change. Additionally, the most recent gender stocktake was undertaken by SPC in 2013. The stocktake included the gender mainstreaming capacity of GAD and other national agencies, but it did not include capacity assessment of subnational and civil society organisations.

The Department of Social Welfare (DSW) is responsible for policy coordination and response on matters relating to people with disabilities, the elderly and the general welfare of other marginalised groups. The DSW sits within the Ministry of Health, Social Welfare and Gender Affairs and is responsible for coordinating the implementation of the Tuvalu Social Development Policy 2016. The Policy does not include strategies on climate change, however, there are specific strategies for disaster preparedness and response. The DSW is also responsible for overseeing the implementation of the Tuvalu National Policy for Persons with Disability. The Priority Area 12 of the Policy focuses on emergency and safety, with specific policy objectives and activities on the inclusion of people with disabilities in national- and community-level planning on climate change and disaster risk management, and increased awareness and advocacy of disability issues in the contexts of emergency, safety and security.

The Youth Department (YD), under the Ministry of Education, Youth and Sports, is the national agency responsible for youth affairs in Tuvalu. Their mandate is guided by the National Youth Policy 2015-2019. The YD also supports the Tuvalu National Youth Council (TNYC), which provides a mechanism for young people in Tuvalu to participate in policy development and decision-making. In August 2019, young people in Tuvalu presented the Tuvalu Youth Climate Change Declaration to the leaders attending the Pacific Leaders Forum in Funafuti. The Declaration called on urgent action on climate change.

The gaps and needs of the current enabling environment to support gender-responsive and participatory NAP process include:

- Despite having the policy framework in place, the desk review found that ***gender issues were inconsistently and insufficiently addressed*** in many national policies, sector plans and technical assessments. Some included sex disaggregated data or mentioned gender considerations, however, gender analysis was generally lacking across most documents. Furthermore, the majority of the adaptation projects carried out in Tuvalu have been gender-blind or very limited in assessing gender-differentiated impacts of climate change to inform adaptation options and activities.

- There is ***limited evidence of gender specialists being engaged*** to support adaptation projects from the design stage through to monitoring and evaluation. The only exception is the gender assessment conducted for the NAPA-I and NAPA-I+ project in 2013, which examined differences in gender division of labour and capacity to adapt to climate change impacts. All ISPs have selected references to women, however, they are references only and further mainstreaming of gender equality and women's empowerment is needed to enhance the gender-responsiveness of planning and decision-making at the island level.

- Assessments of ***adaptation needs and issues for people with disabilities, children, youth, elderly and other vulnerable groups are generally lacking*** from sectoral

policies and plans, and documentation on adaptation projects. It appears from the desk review that gender and social assessments tend to be carried out on an ad-hoc basis, depending on donor requirements. A more detailed analysis of adaptation needs and capacities for different social groups is needed to supplement the findings of TIVA and to ensure the NAP process is truly responsive to gender and social dimensions of adaptation and resilience building.

Gender inequalities in Tuvalu: a snapshot

Tuvalu is a patriarchal society with limited opportunities for women to participate in leadership and decision-making roles. Men are the primary decision makers however, women are active participants of church and community life. Traditionally, only men were permitted to speak in the *Falekaupule* (village assembly), however, amendments to the Falekaupule Act and local government reforms have allowed women to participate in political affairs (Kofe and Taomia, 2007). Only three women have been elected to the national parliament since Tuvalu gained independence in 1978. There is currently one female member of parliament (opposition party).

The majority of people in the outer islands practice subsistence agriculture and fishing. These activities are highly dependent on the weather and environmental conditions, and therefore are subject to the impacts of climate change. Tuvalu also faces significant constraints to crop production due to saltwater intrusion and lack of fresh water sources. Women outnumber men in subsistence production, with women playing a vital role in food and water security. The custom of growing *pulaka* (swap taro) is traditionally practiced by men although this is changing.

It became evident from the aftermath of Tropical Cyclone Pam in 2015 that disasters can substantially increase women's workloads, including caring and cooking for those who are displaced, as well as for their own families (Government of Tuvalu, 2015). There were also differences in how men and women coped after the cyclone and in dealing with post-disaster trauma.

Almost half of ever-partnered women (47%) in Tuvalu have experienced physical or sexual violence in their lifetime (Tuvalu Central Statistics Division, 2009). The 2007 National Demographic and Health Survey found that 70% of women believe wife beating is justified in certain circumstances, such as women's failure to take care of children or going out without informing their husbands (Tuvalu Central Statistics Division, 2009). The Family Protection and Domestic Violence Act was passed in parliament in 2014 to protect women and children from all forms of violence. However, the powers provided for in the Act are yet to be fully realised and enforced.

Suggested Actions/Opportunities

The suggested actions for strengthening gender and social inclusion component of the NAP process are as follows:

- Undertake a detailed assessment of the capacities and needs of national, Kaupule (island), and community institutions to embed gender equality and social inclusion into their planning and decision-making processes, including entry points for

supporting the meaningful participation of women, girls, people with disabilities and marginalised groups in identifying, implementing and evaluating long term adaptation strategies. Given that existing national policies on gender, social development and youth are due for a revision, a detailed assessment of this kind would not only benefit the NAP process, but it will assist the GAD, DSW and YD to progress their mainstreaming work in other sectors.

- Invest in building the gender and social analyses capacity of GAD, DSW and DY. There is a need for strengthening institutional and technical capacity of these mandated agencies to translate policy commitments into tangible actions. For the NAP, there are opportunities to recruit gender and social inclusion specialists to support the integration of gender and social issues into each stage of the NAP process, as well as to provide capacity building, coaching and training support to responsible agencies in the areas of human rights, gender equality, and disability and social inclusion. Technical areas requiring further capacity building and training include gender and social assessment, poverty analysis, gender responsive budgeting and age and sex disaggregated data collection and analysis.

- Develop a stakeholder engagement strategy for the NAP process to ensure meaningful participation of stakeholders across different sectors and at all levels including key actors and service providers from civil society, faith-based organisations, private sector and the wider community.

4.3 Institutional arrangements

Strong and well-coordinated institutional arrangements are necessary to support the NAP process and its implementation. The Climate Change Resilience Act 2019 prescribes powers and functions of relevant entities in coordinating Tuvalu's climate change mitigation and adaptation actions. Key entities include the CCD and the NACCC, which reports directly to Cabinet. Presently, there is no parliamentary committee on climate change. The Falekaupule Act 2008 also prescribes powers to the Island Kaupule on matters relating to climate change and the environment.

Accordingly, the NAP process can leverage and build on existing institutional arrangements, rather than start from scratch and establish completely new structures. Experience from previous GEF-funded projects in Tuvalu demonstrate that project advisory boards consisting of national, island and community representatives facilitate multi-stakeholder engagement in adaptation planning and decision-making at different levels (i.e. NAPA and R2R projects).

Similarly, a situation analysis on the use of climate information for adaptation planning in Tuvalu found that the NACCC serves as an effective mechanism for integrating climate change issues into different sectors and collective decision-making on climate actions (Morioka et al, 2019). The NACCC meetings enable government and non-governmental organisations to share information and knowledge that is necessary for informed decision-making processes. The NACCC has also been attributed to increased awareness and recognition of gender and social inclusion issues among NACCC members, with the GAD using NACCC meetings as an opportunity to advocate for the needs of women, girls and other vulnerable groups.

The current institutional arrangements can be further improved to support the NAP process by:

- ***Establishing and strengthening the linkage between national and subnational planning and decision-making processes*** to achieve vertical integration of adaptation priorities and actions. This can be achieved through establishing a permanent NAP technical working group within the existing structure of the NACCC.

- ***Enhancing the link between formal government institutions (i.e. national government and Island Kaupule) and civil society and faith-based organisations*** is also paramount to achieve both horizontal and vertical integration as the small size and population of Tuvalu means that many of the non-governmental organisations are working in multiple sectors that are sensitive to climate change impacts.

- There is also a need to ***increase dialogue and engagement with the private sector***, including micro-, small- and medium-sized businesses that operate in Funafuti and the outer islands. Outside of government, the private sector serves as essential sources of livelihoods and income for many households in Tuvalu. Any legislative or regulatory changes emanating from the NAP process may have implications on how these businesses operate and potentially create new business opportunities in areas identified as a priority for adaptation (i.e. water security, food security, infrastructure, etc).

Suggested Actions/Opportunities

The suggested actions and opportunities for improving institutional arrangements for the NAP process include:

- Establish a NAP technical working group under the umbrella of NACCC. A terms of reference for the working group needs to be drafted, with details on its membership, roles and responsibilities, frequency of meetings and reporting accountabilities. The technical working group should consist of technical officers from both government and non-governmental organisations that align/support the NAP approaches and principles and co-chaired by one government and one non-government representative.

- Planning and implementing adaptation strategies over the next 10-20 years and beyond requires strong leadership from the highest level. To support this objective and to protect the NAP process from being politicised, a parliamentary committee on NAP should be established for the development of Tuvalu's NAP, comprising of members of parliament. The parliamentary committee on NAP will need clear terms of reference and meet at least twice a year to ensure NAP processes are accountable and linked to the broader sustainable development agenda, democratic processes and Constitutional and legislative reforms in Tuvalu.

- Enact Section 18 of the Climate Change Resilience Act to convene the National Climate Change Resilience Forum at least on an annual basis as a multi-stakeholder and participatory process for guiding NAP implementation. The forum should be inclusive

of government, civil society and faith-based organisations, private sector, scientific and research institutions, and development partners. The facilitation of such a Forum will enhance the accountability and transparency of the NAP process and provide a collaborative environment for stakeholders to plan, review and implement adaptation strategies.

4.4 Funding and resource mobilisation

Funding and resources for adaptation initiatives in Tuvalu thus far have been largely supported through multilateral and bilateral financing. GEF financing for NAPA projects in Tuvalu has been in excess of US$12 million. By far the GCF-funded TCAP is the largest multilaterally funded adaptation project in Tuvalu, totalling US$36 million. Furthermore, according to CCD's Project Database, approximately US$186 million has been allocated or expended through donor-funded projects for the 2015-2020 period, which directly or indirectly relate to climate and disaster resilience. This includes direct financing, as well as technical, operational and technological support.

Domestic financing for climate change adaptation is small compared to external financing in terms of monetary figures, however, the actual in-kind contributions in terms of staffing time and ongoing operational costs and support are considerable given the small size of Tuvalu's bureaucracy and economy. For the three completed NAPA projects, the Government of Tuvalu's in-kind contribution was estimated to be US$30 million (refer to Table 4). The Tuvalu Climate Change and Disaster Survival Fund (TSF) allocates 20% of its annual funding budget towards adaptation, including a total of AU$100,000 each year to fund small-scale adaptation projects of up to $5,000 per project (TSF Regulation 2017, Schedule 2).

The Government of Tuvalu does not have a recurrent budget for adaptation measures. Major non-recurrent projects and works are considered by the Ministry of Finance each year as part of the annual budget planning. In previous instances, domestic financing for 'resilience building' was typically included in supplementary budgets as part of recovery funding for a disaster event (i.e. Cyclone Pam, COVID-19). There are some exceptions, with major capital works for the outer islands being included in the Special Development Expenditure of the annual government budget appropriation. Government departments and ministries have no or very little annual budget allocation for asset management, capital works and upgrades, and ecosystems rehabilitation, which are all paramount to building Tuvalu's long-term resilience to climate change and disaster risks.

The Tuvalu Infrastructure Strategy and Investment Plan (TISIP) 2016-2025 provides a prioritised investment plan for infrastructure of national significance. This includes projects such as:

- Coastal protection measures in Nukufetau with an estimated capital cost of AU$1 million (this project was completed in 2018);
- Coastal protection in Funafuti, Nanumea and Nanumaga with an estimated capital cost of AU$42 million (this is covered under the GCF-funded TCAP);
- Development of three water reserves on each island AU$8.4 million;
- Battery replacement for solar photovoltaic systems AU$12 million; and
- Resealing of roads in Funafuti AU$9 million.

The total investment of the TISIP 2016-2025 is approximately AU$213 million over a 10-year period. Recent and current project spending on climate proofing infrastructure in Tuvalu is estimated at a combined US $150,000 - $5 million for each project (Government of Tuvalu, 2016).

Non-governmental organisations in Tuvalu are also reliant on government and donor funding to implement activities on climate change and disaster risk reduction. The main funding sources for non-governmental organisations include grants and technical support from Australia, New Zealand, Japan and the U.S. Without external donor support, civil society and faith-based organisations have limited financial and human resources available to plan, manage and implement adaptation projects.

In July 2019, the Ministry of Finance was accredited as a National Implementing Entity with the Adaptation Fund. The Adaptation Fund, established under the Kyoto Protocol of the UNFCCC in 2010, is a dedicated global financing mechanism for supporting developing countries adapt to the impacts of climate change. The six-year process, which involved reforms in public financial management, environmental safeguards, gender and social inclusion, and project management, resulted in streamlined accreditation for the Ministry of Finance. This enables the government, communities and private sector to access up to US$1 million from the Adaptation Fund towards an adaptation project, with total financing for Tuvalu not exceeding US$10 million. Tuvalu is also considering accreditation with the GCF.

Based on the desk review, the gaps and needs of the current enabling environment in regard to funding and resource mobilisation include:

- There is a significant shortfall in government financing of non-recurrent expenditures, including the Special Development Expenditure. In 2016 alone, the Government of Tuvalu had an overall budget deficit of AU$6 million. As such, ***financing of current and future adaptation strategies needs to be fully integrated as part of national development and budget planning***, and included in aid investment negotiations with financiers and development partners.

- There is ***a backlog of asset maintenance works, which expose Tuvalu's critical infrastructure to further damage from climate and disaster risks***. As found in the desk review, ministries have no or limited budget allocated to ongoing maintenance of infrastructure assets. In 2015, the Ministry of Finance established a Deferred Maintenance Fund for asset maintenance that should have been performed but has been delayed or postponed (Government of Tuvalu, 2016). The effective management and expenditure of this Fund by the Secretary for Public Utilities and Infrastructure and the Secretary for Finance (who have assigned management powers for the Fund) is paramount to address the backlog of asset maintenance works and to ensure works are carried out to deliver climate resilient infrastructure and to improve energy and water efficiency.

- Aside from infrastructure***, specific adaptation strategies and actions identified in key national policies and plans are yet to be costed***. There is lack of data on the true cost

of adaptation efforts undertaken to date in Tuvalu by government, Island Kaupule, non-governmental organisations and development partners. Climate financing is extremely difficult to track within the public accounting system, although improvements are being made by the Treasury to better manage and monitor financial flows from both internal and external funding modalities.

Suggested Actions/Opportunities

The suggested actions and opportunities for strengthening funding and resource mobilisation for the NAP process include:

- As part of the NAP process, identify and prioritise adaptation strategies, using multi-criteria analysis including cost-benefit analysis of adaptation options. Adaptation strategies chosen should be fully costed and included in national development planning (i.e. development of TK IV), annual budget appropriation by relevant ministry and department, and in aid investment negotiations with bilateral and multilateral donors.

- Related to the above action, the true cost of adaptation, in terms of financing and resourcing needs over the next 10-20 years, should be discussed as part of the NAP process in collaboration with government, Island Kaupule and non-governmental stakeholders. Development partner assistance should align with and support the financing and resourcing needs defined by the NAP process and Tuvalu's National Strategy for Sustainable Development. This includes support for recurrent funding to sustain adaptation activities and projects.

- Where possible, financing and resourcing of adaptation measures should be integrated in all sector policies, plans and projects. Adaptation financing and resource mobilisation will be maximised by taking an integrated approach, rather than being confined as a sole responsibility of the CCD or the NAP.

- Continue to progress and strengthen the management of public finance in Tuvalu to ensure the Ministry of Finance has the leadership, capacity, policies, procedures and systems in place to access, manage and acquit climate finance. Financial management capacity should also be strengthened at the Island Kaupule level to enable greater community access to adaptation funds and resources.

4.5 Information and knowledge management

An effective NAP process relies on best available science, as well as information and knowledge from traditional, local and technical sources. The desk review found that Tuvalu has already established a number of information systems and practices that can be built on to further enhance the access, discoverability, sharing, storage and application of data and information required for the NAP process.

For scientific and technical data and information, existing sources include:

- The Tuvalu Climate Change Portal (tuvaluclimatechange.gov.tv);

- The TIVA database (tuvaluiva.com);
- The Tuvalu Environment Data Portal (tuvalu-data.sprep.org);
- The Pacific Climate Change Portal – Tuvalu Country Profile (pacificclimatechange.net/document/tuvalu-climate-change-profile-version-2); and
- Tuvalu Meteorological Service holds historical weather data (i.e. rainfall, winds, major weather events, etc) and it produces daily and seasonal forecasts, and climate outlooks (i.e. ENSO, cyclones, rainfall, coral bleaching, etc).

In addition the above sources of information, the CSIRO and SPREP are currently piloting the development of standardised climate change scenarios to provide a scientific rationale for Tuvalu's NAP. The scenarios are intended to provide descriptions of possible future climates for a specific sector, which are supported by climate change projections modelled against the global emissions pathways, including the Paris Agreement targets. Each scenario will examine the exposure and vulnerability to a climate hazard to illustrate what the potential impacts could be for each sector to inform planning, financing and decision-making. Scenario generation for Tuvalu is expected to be completed by the end of this year.

TCAP is also a source of technical information and knowledge, including biophysical and socio-economic data, for the three project sites (Funafuti, Nanumea and Nanumaga). In 2019, a Light Detection Ranging (LiDAR) survey of all nine islands was commissioned by TCAP. The survey provides detailed bathymetric data (sea floor mapping up to 50 metres in depth) and land elevation data. The data are a vital source of information for assessing adaptation options for the NAP process as it can be used to model scenarios for sea level rise, inundation and storm surge.

The list of available and most recent datasets for the NAP process, as identified through this desk review, is provided in Annex 3. It is worthwhile noting that various departments and organisations in Tuvalu also maintain their own project databases and libraries, however, they may not be up-to-date or accessible to external users.

The information and knowledge management gaps and needs identified from this desk review are as follows:

- The need for CCD to ***access up-to-date and reliable data from other departments in a timely fashion and in suitable format***. Although there are shared databases and portals, there is widespread practice in Tuvalu of storing data, reports and other digital information on personal laptops, computers and external hard drives. CCD staff spend excessive time searching for data and reports, and interpreting supplied data to meet their information and reporting needs. There is also the risk of vital information and knowledge being lost when custodians of that information/knowledge leave the project or organisation.

- ***Lack of Tuvalu-specific scientific research to inform adaptation planning and decision-making***. In most cases, research is conducted as part of a larger regional program or project, with limited budgets and resources allocated for Tuvalu. This presents some challenges for Tuvalu, including difficulties in accessing research data,

as the ownership of the data may be retained by an external organisation and there is limited potential for the research to be replicated (or sustained as a longitudinal study).

- ***The culture of information sharing between and within government and non-governmental organisations is gradually improving***. The exchange of information and knowledge is occurring through personal relationships and social interactions. Enhanced focus on data sharing, information exchange and knowledge transfer across development sectors and with subnational stakeholders (i.e. Kaupule and communities) is necessary for every stage of the NAP process.

- There is currently ***inconsistent use of metadata***, which is a gap with potential implications for the NAP process. The data, information and documentation collected and generated by the NAP process should apply consistent metadata standards to ensure their authenticity, source, year, format and other characteristics.

- There is a ***gap in systematically documenting and capturing traditional and local knowledge*** of changes in climate and coping strategies used to adapt to the impacts of climate change. Whilst some projects have been more successful than others in documenting traditional and local knowledge, the information is held by projects, rather than being stored in a central repository for greater access and application of information for NAP and other adaptation planning processes. This in turn leads to limited understanding about what information already exists and who holds this information.

Suggested Actions/Opportunities

The suggested actions for strengthening information and knowledge management component of the NAP process are as follows:

- With the NAP process likely to use and generate large volumes of data and information, it is important that common standards and procedures for access, storage, cataloguing (i.e. metadata), use and disposal of NAP-related data and information are established from the outset.

- Map governance, human and financial resources, and technology requirements for managing data, information and knowledge for the NAP process. The mapping exercise would be useful in identifying where there is duplication in data collection, user-specific information needs, and opportunities for sharing, and reuse of available information.

- Maintain and update the Climate Change Portal and the TIVA database throughout the NAP process. This task may be assigned to CCD's Data and Information Officer or, ideally, a new dedicated position for Information and Knowledge Management to be created within the CCD to support continued management of existing data portals and to coordinate brokering of scientific, technical, traditional and local information and knowledge required for the NAP development.

- Advocate for greater investments in conducting in-country scientific research and building the technical capacity of the Tuvalu Meteorological Services in providing user-centred information products and climate services for NAP and other related decision-making purposes. The NAP development provides a huge opportunity for Tuvalu to enhance its in-country capacity to carry out scientific research and produce and disseminate climate data and projections to meet the needs of different users. The CCD, together with the Tuvalu Meteorological Service, are well positioned to initiate and take leadership on this issue by negotiating increased technical assistance and funding from donor partners, regional agencies and research institutions.

- Utilise existing communication mediums like radio and TV to disseminate timely information and progress on the NAP process to the members of the public. Bringing the communities on the NAP journey through effective communication and branding is critical to increase stakeholder buy-in and engagement in the NAP process.

4.6 Monitoring, evaluation and learning

Monitoring, evaluation and learning (MEL) is considered one of the success factors for the NAP process. Monitoring climate change impacts and financial flows, and tracking and evaluating adaptation results are part of the continuous and iterative process in reducing climate change vulnerability and strengthening long-term resilience of communities. By establishing MEL systems for adaptation planning, it ensures effective resource allocation and improves accountability, leadership and steering of the NAP process (GIZ, 2014).

According to the findings of the desk review, Tuvalu has performed to a satisfactory standard in monitoring and evaluating major climate change and environmental projects funded by the GEF. Previous NAPA projects and the current R2R project funded by GEF all have a component on systematic monitoring of project performance using pre-established logframe or strategic results framework for the project. The technical oversight for the monitoring and evaluation of GEF-funded projects was provided by the implementing agency, the United Nations Development Programme (UNDP). Monitoring and evaluation roles have also been assigned and fulfilled by partner agencies, such as Fisheries, Agriculture and Environment Departments of the Government of Tuvalu. In accordance with GEF requirements, annual project reviews and mid-term and terminal evaluations have been carried out for all GEF-funded projects. Sufficient budgets and resources have also been allocated to conduct monitoring and evaluation visits. Same, if not more stringent, requirements are in place for the GCF funded project, TCAP.

The gaps and needs for MEL go hand in hand with those of information and knowledge management (refer to Section 4.5). Constraints with access, discoverability, storage and sharing of data and information have direct implications on monitoring, evaluation and adaptation decision-making. Learning from current and past experience about what adaptation measures work and what don't also depend on robust information and knowledge management systems. Given that the NAP process is country-led, it presents an opportunity for Tuvalu to demonstrate its commitment and capacity to establish, implement and sustain MEL systems. Developing and strengthening information and knowledge management policies, procedures, technologies, skills and budgets at the national and island levels of

administration will be integral to not only the NAP process, but for UNFCCC reporting on Tuvalu's progress in achieving adaptation and mitigation outcomes.

Suggested Actions/Opportunities

The suggested actions for improving MEL systems for the NAP process include:

- Design, test and establish a MEL system for the NAP in the early stages of NAP process instead of waiting until the NAP is developed. This provides an opportunity for the MEL system to be piloted in parallel with the NAP process, allowing for system improvement and refinement. There needs to be clear delineation of who is responsible for the NAP's MEL system, including sources of data, frequency of data collection and reporting, and dissemination of MEL outcomes.

- Harmonise NAP's MEL system with existing monitoring, verification and reporting mechanisms of UNFCCC, the Sustainable Development Goals, other relevant multilateral agreements and the TKIII (soon to be replaced by TK IV). Harmonisation will enable interoperability of data and information systems, sharing of knowledge and lessons learned, and reduce organisational inefficiencies associated with data collection, management and reporting.

- Develop SMART (specific, measurable, achievable, relevant and time-bound) indicators for measuring and evaluating the NAP actions and processes using participatory evaluation methods at national and subnational levels.

- Allocate and secure dedicated funding for MEL, including a MEL unit for the NAP process. The MEL unit needs to be sufficiently staffed with skilled officers as the continuous and iterative nature of the NAP process will require multiple staff to support the design, pilot and implementation of the MEL system. The MEL unit will also be critical for liaising and collaborating with key national, subnational and sectoral agencies with MEL responsibilities.

- Create regular and scheduled opportunities for stakeholders to reflect on the achievements, experiences and lessons learned from each stage of the NAP process. Frequent stakeholder reflection and learning will strengthen their commitment and engagement in the NAP process, and in turn support the implementation of adaptation actions at national and subnational levels.

5. Conclusion and Next Steps

As a continuous and iterative process, NAP needs to be responsive to new information, knowledge and insights emerging from each step of the NAP process. The human and natural environments in which NAP processes occur are also dynamic, hence planning for the medium- and long-term adaptation needs requires flexibility and sensitivity to changes that may occur.

In short, the NAP process is *ongoing*: climate risks and adaptation needs are to be continuously assessed and adaptation priorities revisited to inform decision-making; the NAP process should be adjusted and repeated to incorporate new data and information, and results from previous stages, to improve planning decisions; and at the same time avoid duplication of the analyses, consultations, and outputs that have already been completed or are underway through other initiatives. Ultimately, the aim is to achieve a consolidated and coherent articulation of Tuvalu's adaptation priorities.

Contributing to this aim, this desk review sought to provide a baseline and an overview of the current adaptation context in Tuvalu, and to identify gaps and needs of the enabling environment for the NAP process. Moving forward, the next steps for the development of the NAP framework will involve:

- Completion of the stocktake of data and documents relevant to the NAP process. The information gathered for the stocktake will be available in a format that can be used and reused by the CCD for different stages of the NAP process. In addition, the information from the stocktake contains metadata that can be easily uploaded onto the Tuvalu Climate Change Portal and the TIVA inventory, which has benefits for enhancing access, discoverability and application of data and documents collated for the stocktake;

- Stakeholder consultation with specific sectors to discuss past experiences and lessons learned on what constitutes successful adaptation planning processes, including insights on governance structures (national and subnational levels), planning and coordination, monitoring and evaluation, information and knowledge management, and financing mechanisms to inform the development of the NAP framework. The Government of Tuvalu has identified two sectors for initial consultation in September 2020. These are the coastal management and infrastructure sectors. The consultation outcomes will augment and validate the desk review findings;

- Best practice review of NAP frameworks from the Pacific Islands region and beyond to glean insights and lessons learned to inform the development of Tuvalu's NAP framework. The Government of Tuvalu has identified Fiji and Botswana for the best practice review. If time permits, online meetings with national climate change agencies in Fiji and Botswana will be arranged to exchange views and experiences on the NAP process; and

- Development of the Tuvalu NAP framework based on the synthesis of the findings obtained from the stocktake, desk review, stakeholder consultation and the best

practice review. The NAP framework will cover the overall approach and key principles, institutional arrangements, gender and social inclusion, coordination and delivery mechanisms, funding and resource mobilisation, information and knowledge management, monitoring and evaluation, and other necessary elements to guide the NAP process.

Finally, this desk review report, along with the NAP framework (when finalised), will also inform the management and execution of Tuvalu's NAP project with the GCF. The CCD expects to finalise the NAP readiness proposal to the GCF by November 2020.

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Annex 1. Tuvalu Climate Change Resilience Act 2019: relevant provisions

Section	Legal Provisions
8 Commitments	Taking into account Tuvalu's responsibilities and specific national and regional development priorities, objectives and circumstances, Tuvalu shall: (f) cooperate in preparing for adaptation to the impacts of climate change, and develop and elaborate appropriate and integrated plans for coastal zone management, water resources and agriculture, and for the protection and rehabilitation of areas affected by drought and desertification, as well as sea level rise and floods; (g) take climate change considerations into account, to the extent feasible, in their relevant social, economic and environmental policies and actions, and employ appropriate methods, for example impact assessments, formulated and determined nationally, with a view to minimising adverse effects on the economy, on public health and on the quality of the environment, of projects or measures undertaken by them to mitigate or adapt to climate change (h) promote and cooperate in scientific, technological, technical, socio-economic and other research, systematic observation and development of data archives related to the climate system and intended to further the understanding and to reduce or eliminate the remaining uncertainties regarding the causes, effects, magnitude and timing of climate change and the economic and social consequences of various response strategies; (i) promote and cooperate in the full, open and prompt exchange of relevant scientific, technological, technical, socio-economic and legal information related to the climate system and climate change, and to the economic and social consequences of various response strategies; (j) promote and cooperate in education, training and public awareness related to climate change and encourage the widest participation in this process, including that of non-governmental organisations; and (k) communicate to the Conference of the Parties serving as the meeting of Parties to the Paris Agreement, information related to the implementation of the Paris Agreement, in accordance with Article 13 of the Paris Agreement.
Section 10 Functions and powers of the Minister	(1) The Minister is responsible for the proper administration of this Act. (2) The Minister may do all things necessary or convenient to be done to attain or further the objects of this Act, and any other climate change resilience related law which the Department is responsible for administering, including power to: (a) give approvals or grant an authority as provided by law;

Section	Legal Provisions
	(b) approve appropriate representatives of the Department at international conventions related to a Convention to which this Act applies, and any other meeting related to the work of the Department; (c) approve reports prepared by the Department on behalf of Government; (d) designate the Department or another appropriate Government agency to be the focal point for the purpose of a Convention to which this Act applies; (e) set fees and charges under this Act; and (f) do any other related act or thing. (3) A power under this Act to regulate any matter, act or thing, includes the power to prohibit the matter, act or thing for the purpose of meeting obligations under a Convention to which this Act applies and for the purpose of protecting Tuvalu against the adverse effects of climate change.
Section 12 Department of Climate Change	(1) The Department of Climate Change and Disaster is established as a Department of the Office of the Prime Minister. (2) The Department is headed by a Director, appointed in accordance with section 13, and staffed in accordance with the Public Service Act.
Section 16 Functions of the Department relating to climate change related Conventions	(1) Nothing in this section affects or restricts the role of any other Department or agency of Government in relation to a Convention to which this Act applies. (2) The roles of the Department in relation to a Convention to which this Act applies includes the following: (a) coordinating Tuvalu's response to international climate change negotiations; (b) making arrangements for the attendance at a meeting of the Parties to a Convention, and other relevant meetings, of a suitably qualified person to represent the interests of the Government of Tuvalu; (c) liaising with relevant regional or international bodies to ensure that the representation of the Government of Tuvalu at a meeting concerning a Convention is informed and effective; (d) accessing and utilising available funds and resources by preparing and submitting project proposals and undertaking programs to implement a Convention; (e) assisting any other Department and agency of Government to implement any aspect of a Convention; (f) preparing any necessary report and reporting on a regular basis to the Minister and Cabinet in relation to the implementation of a Convention to which this Act applies; (g) sharing information and providing cooperation required by a Convention; (h) recommending that a law of Tuvalu be amended or enacted in order to effectively implement a requirement of a Convention; and (i) doing any other act or thing, in conjunction with any other

Section	Legal Provisions
	relevant Department or agency of Government, to implement an obligation under a Convention. (3) In addition to the roles of the Department under this Act or another Act, the Department may be designated by the Minister as the focal point for the purposes of a Convention to which this Act applies. (4) As focal point, the Department shall perform the roles and duties: (a) necessary to implement a Convention to which this Act applies; and (b) which may be vested in it by law for the implementation of the Convention.
Section 18 National Climate Change Resilience Forum	The Minister may convene a National Climate Change Resilience Forum for the following purposes: a) considering a climate change related matter of national importance; (b) giving guidance to the Minister, Director and Department on strategies for a national strategic action plan relating to climate change; (c) ensuring that the general community has an opportunity to participate in the formulation of climate change resilience related policies and the implementation of related programs and activities.
Section 22 Strategies and plans to address climate change	To implement the National Climate Change Policy, the Department shall develop strategies and plans to address climate change resilience, including strategies and plans: (a) to raise the level of understanding about the implications of climate change, and activities which contribute to climate change, on Tuvalu and the future of its people; (b) to promote understanding amongst the people of Tuvalu about the causes and implications of climate change; (c) to secure funding for climate change mitigation and adaptation and issues related to loss and damage associated with the adverse effects of climate change, including extreme weather events and slow onset events; (d) to address the effects of climate change within Tuvalu on its water resources, coastal areas, lands and land usage, food security, biodiversity, fisheries, economic welfare, public infrastructure and its vulnerability to disasters; (e) to implement programs and facilitate projects to protect its water resources, coastal areas, mangroves, lands, biodiversity, fisheries and public infrastructure, and to contribute to the health, well-being and livelihoods of Tuvaluan's; (f) to participate in international conventions with a view to obtaining the fullest possible assistance to address the implications of climate change and undertake adaptation initiatives; (g) to develop and implement national strategies for energy security, low carbon development, renewable energy and energy efficiency; (h) to develop and implement a low carbon and renewable energy transport policy for land, sea and air transport;

Section	Legal Provisions
	(i) to facilitate scientific research into the impacts of climate change and technologies to avert or adapt to these impacts; (j) to foster the development of climate change friendly industries and technologies within Tuvalu; (k) to ensure that gender sensitivity policies are incorporated within all functions of this Act; (l) to develop and implement climate change friendly building and housing codes and standards in accordance with Tuvalu Building Code; (m) to establish and facilitate scholarships for Tuvaluan's to study climate change related issues at tertiary institutions within and outside of Tuvalu; and (n) to build capacity in all aspects associated with the implementation of this Act. (2) Regulations made under this Act may provide for any matter associated with the response in Tuvalu to climate change, and to implement strategies and plans formulated in accordance with subsection (1).

Annex 2. Integration of Climate Change in Te Kakeega III

TK III Vision:
A more protected, secure and prosperous Tuvalu; healthier people who are more engaged in national, regional and international forums; and a government that is fully committed to international commitments and respecting partnerships

Strategic Area & Goal	Strategies & KPIs	Strategies relevant to NAP
1. Climate change: Protect Tuvalu from the impacts of climate change: resilience, mitigation, adaptation	7 strategies & 14 KPIs	All
2. Good governance: Strengthen institutional capacity to service the public interest with competence and justice	9 strategies & 18 KPIs	Law reform and constitutional review; strengthen public sector management; foreign relations
3. The economy: growth and stability: Sound macroeconomic management and policy	7 strategies & 11 KPIs	Sound macroeconomic management; revival of copra industry; development of eco-tourism industry
4. Health and social development: Provide high standards of health care, social opportunity, and social protection free of hardship and gender discrimination	10 strategies & 22 KPIs	Non-Communicable Diseases; health infrastructure upgrade; information technology; gender equality, capacity building and training; research and feasibility studies; operational and strategic plans implementation
5. Falekauple and island development: Provide quality services and create more opportunities for development	7 strategies & 5 KPIs	Capacity building; transport and communications; research and feasibility studies; waste management; operational and strategic plans
6. Private sector development, employment and trade: To be the engine of economic growth, employment and export trade	5 strategies & 13 KPIs	Private sector development; business skills and awareness; overseas employment
7. Education and human resources: Provide high quality education; equip people with knowledge and skills to develop more self-reliance; promote Tuvalu's cultural and spiritual values	21 strategies & 9 KPIs	Human resource priorities; scholarship management; pre-service scholarship scheme; youth unemployment; quality of education; learning outcomes; technical and vocational skills development; inclusive

Strategic Area & Goal	Strategies & KPIs	Strategies relevant to NAP
		education; library and archives
8. Natural resources: Maximise social and economic returns from the management and sustainable use of Tuvalu's natural resources	10 strategies & 13 KPIs	Fisheries management; surveillance of EEZ; agricultural development; institutional strengthening for agriculture; farming productivity; local agriculture; community participation in agriculture; awareness of nutrition; land management
9. Infrastructure and support services: Provide efficient, high quality infrastructure and support services	9 strategies and 17 KPIs	Sustainable energy; renewable energy; power generation; energy legislation; transport services; energy development plans; sanitation; building design
10. Environment: Protect, restore and promote sustainable use of terrestrial ecosystems; halt and reverse land degradation; protect and prevent biodiversity loss	4 strategies & 7 KPIs	Climate change integration; environmental legislation; environmental protection; biodiversity
11. Migration and urbanisation: Mitigate the adverse impacts of internal migration and urbanisation; capitalise on opportunities offered by migration and urbanisation	3 strategies & 8 KPIs	Migration; service delivery for the urban population; service delivery for the outer islands
12. Ocean and seas: Conserve the oceans, seas and marine resources for sustainable development	2 strategies & 5 KPIs	Protection of coastal ecosystems; maritime surveillance
Total:	**94 strategies & 142 KPIs**	**61 strategies**

Annex 3. Available Datasets for the NAP process

Data Type & Description	Year	Format	Custodian
Arial imagery for all islands	1943, 1971, 1984, 2004-2015	Raster data	Lands and Survey Department
Bathymetric and topographic data for all islands (LiDAR survey)	2019	Laser file	TCAP
Biodiversity rapid assessment – conservation status of marine and terrestrial biodiversity for all islands	2020	Pdf report and GIS files	R2R
Building exposure map of residential, commercial, public and industrial buildings, consisting of their location, structural characteristics that affect their exposure to the effects of natural disasters and their replacement cost (all islands)	2017	Vector data	Pacific Community (SPC) (pcrafi.spc.int)
Climate change and disaster risk reduction project database – project title, description, duration, donor, funding amount	2016-Present	Excel	CCD
Drone image for all islands	2017	Image and video files	CCD (post-TC Pam) Lands and Survey Department
CMIP5 Updated Climate Change Projections for Tuvalu – average annual temperature (up to 2040), average annual rainfall (up to 2080), sea level rise (up to 2090) and future occurrence of tropical cyclones	2020	Powerpoint slides	CSIRO and SPREP as part of the Australian government funded NextGen Climate Projections for the Western Tropical Pacific project
Census population data from the Mini Census	2017	Excel tables PDF reports	Tuvalu Central Statistics Division
Fisheries creel report card – percentage of undersized fish caught by species and catch of fish per unit of effort for all islands except for Niulakita	2016, 2018 and 2020	PDF report	Fisheries Department
Hospital information system – episodes and visits data for outpatients and inpatients at the Princess Margaret Hospital (not connected to outer island clinics)	2013-Present	Internet-based system installed at Princess Margaret Hospital only	Ministry of Health
Tuvalu Integrated vulnerability assessment data, disaggregated by human security and livelihoods sector, island/community (total:	2020	Tabulated dashboard Excel (raw data)	Online at CCD has log in access for protected data

Data Type & Description	Year	Format	Custodian
14 communities) and group (male/female/youth)			
Land cover map – physical and biological cover over the surface of land, including water, vegetation, bare soil and/or artificial structures. This map is suitable for assessing wind and flood hazard and for establishing a crop exposure database	2017	Vector data	SPC (pcrafi.spc.int)
Meteorological data (historical and seasonal outlooks) – rainfall (from 1927), temperature (from 1933), wind, swells, ENSO, sea level (from 1977), cyclone risk, coral bleaching risk. Weather stations are situated in Funafuti, Nanumea, Nui and Niulakita (rainfall gauges are available in all islands)	Current, historical and future forecasts	Various formats	Tuvalu Meteorological Services
Property registration system - location, owner, tenant, total area, construction type, year, estimated value, details on foundation/flooring, walls, ceiling, windows, roofing, gutters, toilet and water tanks of residential, government and communal properties in all islands	2017	Excel	CCD
Water quality – coastal waters in Funafuti and outer islands	In progress		R2R
Water quality – ground water assessment in Nanumea and Nukufetau	2019	PDF report	R2R