



Government of Tonga

Tonga Climate Change Policy

A Resilient Tonga by 2035





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Prepared by the Department of Climate Change, Ministry of Meteorology, Energy, Information, Disaster Management, Environment, Climate Change and Communications in consultation with the Joint National Action Plan on Climate Change and Disaster Risk Management (JNAP) Technical Working Group and national stakeholders, Government of Tonga.

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Photos by Gavin Kenny, Juliana Ungaro or Gillian Cambers

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Foreword

The small island developing state of Tonga is extremely vulnerable to the adverse effects of climate change and disaster risks because of its geographical, geological and socio-economic features. The Government of Tonga understands that these vulnerabilities and threats may affect the sustainable development of the country, and hence considers climate change and disaster risks as high priorities in its National Strategic Development Framework 2015–2025.

In 2005, Tonga completed its initial National Communication on Climate Change. This was approved by the Government of Tonga and the United Nations Framework Convention on Climate Change (UNFCCC) Secretariat. One of the major capacity development needs mentioned in this report was to develop a national climate change policy. At that time, the Government of Tonga was aware of the importance of including environmental issues in its national strategic plan, even though climate change was not yet considered a national priority. A climate change policy was therefore developed to address these issues. It was certainly a major step forward, as it served to define the position, direction and responsibilities of the government and relevant stakeholders in Tonga on climate change, for both the short and long term. The policy was approved by His Majesty's Cabinet in 2006.

In 2015, it was noted that there was a need to update the policy, given the increasing emphasis, nationally and globally, on climate change and disaster risk. Widespread consultation workshops were held towards this purpose, which involved all relevant stakeholders in Tonga, including government ministries, non-governmental organisations, civil societies, statutory boards, women's groups and youth groups. This revised climate change policy aims to build 'a Resilient Tonga' by 2035. It is recognised that this is an

ambitious goal, as building resilience is very costly, even without considering the funds required for loss and damage due to climate change.

While the goal of 'a Resilient Tonga' by 2035 is ambitious, the policy objectives presented are achievable within the next five years. To ensure these objectives will be met, a revised Joint National Action Plan on Climate Change and Disaster Risk Management (JNAP 2) will be developed, aimed at their implementation.

The intent of both this revised Climate Change Policy 2016 and the revised JNAP 2 is that they will provide both the overarching framework and the action plan for the development of 'a Resilient Tonga' by 2035. It is therefore anticipated that all relevant sector policies and plans, as well as community development plans and island strategic development plans, will be aligned with this policy and the revised JNAP.

Tonga has recently completed the preparation of its Intended Nationally Determined Contributions (INDC) under the UNFCCC and this was adopted at the UNFCCC Conference of the Parties 21 (COP 21) that was held in Paris, France in 2015. This INDC is well-aligned with the goals of this policy.

This climate change policy was developed with assistance from the European Union through the Pacific Community's Global Climate Change Alliance: Pacific Small Island States project. The support and assistance of these organisations is gratefully acknowledged.

I also sincerely thank the team from the Department of Climate Change for their efforts in facilitating the development of this policy, as well as all of the national stakeholders who contributed to its development. Their participation is essential, as climate change affects us all and thus an inclusionary approach is crucial for the development of this key policy.

Faka'apa'apa lahi atu,



Honourable Siasia Sovaleni

Hon. Deputy Prime Minister and Minister for Climate Change
TONGA.



Abbreviations

CDP	Community development plan
DRR	Disaster Risk Reduction
COP21	21 st Conference of the Parties to the UNFCCC
GCCA: PSIS	Global Climate Change Alliance: Pacific Small Island States
IPCC	Intergovernmental Panel on Climate Change
JNAP	Joint National Action Plan on Climate Change Adaptation and Disaster Risk Management
MEIDECC	Ministry of Meteorology, Energy, Information, Disaster Management, Environment, Climate Change, and Communications
NGO	Non-governmental organisation
PACCSAP	Pacific-Australia Climate Change Science and Adaptation Planning Program
PIFACC	Pacific Islands Framework for Action on Climate Change
PLG	Polynesian Leaders Group
RFA	Pacific Disaster Risk Reduction and Disaster Management Framework for Action, commonly referred to as the Regional Framework for Action
SLR	sea level rise
SPC	Pacific Community
SRDP	Strategy for Climate and Disaster Resilient Development in the Pacific
TSDF	Tonga Strategic Development Framework
UNFCCC	United Nations Framework Convention on Climate Change



1. Introduction

1.1 Policy purpose and process

Policy purpose

The purpose of this climate change policy is to provide a clear vision, goal, and objectives to direct Tonga's responses to the effects of climate change and to guide disaster risk reduction over the next five years. The policy – and the associated *Joint National Action Plan on Climate Change Adaptation and Disaster Risk Management (JNAP) 2010* – is not intended to replace or duplicate sector-specific policies and plans. Rather, it is intended to provide an overarching context and guiding framework, with policy objectives that, for the most part, will require multi-sector coordination. This recognises that climate change is the single biggest issue that will determine the future of Tonga over coming decades and will require a 'whole of Tonga' level of cooperation and coordination.

Policy process

Tonga's first climate change policy was developed in 2006. It has not been reviewed or revised since then.

A more structured process will be followed with this climate change policy, involving:

- ▶ a biennial review;
- ▶ a further revision in five years' time; and
- ▶ full alignment of this climate change policy with the revised JNAP.

The objectives of this policy will become the objectives of the revised JNAP, while the sub-objectives and outcomes will become the basis for its activities, which will be specific, measurable, achievable, realistic and time-bound (SMART), guided by the long-term targets presented in this policy. The policy is also linked to the new Tonga Climate Change Fund Bill.

1.2 Policy approach



In the context of this policy, the term 'a Resilient Tonga' is used to describe the goal of an integrated approach to adaptation, mitigation and disaster risk reduction.

This revised climate change policy is based on a new approach, one that is multi-faceted, cross-sectoral, gender-inclusive, equitable, and has a strong emphasis on community ownership supported by strong governance. The overall focus is on the goal of 'a Resilient Tonga', aimed at achieving outcomes that are realised more widely than can be achieved through a conventional, compartmentalised approach. Rather than address climate change adaptation, mitigation and disaster risk reduction in a fragmented manner, a holistic approach is taken to building resilience. The emphasis is on re-imagining and re-designing the future of Tonga to ensure that its people are able to respond as proactively as possible to the unfolding effects of climate change and other related global and local changes.

1.3 Policy context and linkages

National context

The overarching guidance for the Tonga Strategic Development Framework 2015–2025 (TSDF 2015–2025) is Tonga's motto, God and Tonga are my inheritance, bequeathed by King Tupou I (1797–1893). The framework elaborates:

Tonga is our inheritance and our wealth in the form of our people, our land, and our strong Christian and traditional values that underpin our culture. We have inherited this from our families. We must pass it on to our children in an improved condition. This requires us to be wise and prudent in our use of our inherited wealth. Our plans, strategies and policies must be supportive to our inheritance and they must be inclusive and sustainable, so that we leave a more valuable inheritance for those who follow us (TSDF:17).

To support this, the framework is designed to achieve the national impact:

A more progressive Tonga supporting a higher quality of life for all.

The achievement of this is supported by seven national outcomes:

- A. a more inclusive, sustainable and dynamic knowledge-based economy
- B. a more inclusive, sustainable and balanced urban and rural development across island groups
- C. a more inclusive, sustainable and empowering human development with gender equality
- D. a more inclusive, sustainable and responsive good-governance with law and order
- E. a more inclusive, sustainable and successful provision and maintenance of infrastructure and technology
- F. a more inclusive, sustainable and effective land administration, environment management, and resilience to climate and risk
- G. a more inclusive, sustainable and consistent advancement of our external interests, security and sovereignty.

(TSDF: 18)

While this climate change policy is most clearly aligned with national outcome F: 'a more inclusive, sustainable and effective land administration, environment management, and resilience to climate and risk', it is also strongly aligned with the other six outcomes. This alignment recognises that climate change will increasingly affect all aspects of life in Tonga, and will threaten our inheritance and our wealth, our land, our people and our strong Christian and traditional values that underpin our culture.

The seriousness of this cannot be underestimated. Tonga cannot afford to sit and wait for the sea level to rise, for more severe droughts and floods, and for more damaging cyclones, while emissions from fossil fuels continue unabated. A bold vision is required, which must be translated into action that is supported by the international community.

This policy therefore also provides a supporting framework that is aligned with the *Tonga Strategic Development Framework 2015–2025* and encourages alignment with all relevant sector policies and plans to ensure that proactive measures are taken to build a Resilient Tonga. This further requires strong engagement with and ownership by the community, with resilience an integral part of all community development plans and island strategic development plans.

Regional context

Two documents are relevant to the regional context of this policy. One is the draft Strategy for Climate and Disaster Resilient Development in the Pacific (SRDP), which aims to strengthen the resilience of Pacific Island communities to the impacts of natural hazards – both slow and sudden onset – by developing more effective and integrated ways to address climate and disaster risks within the context of sustainable development.

The strategy has three strategic goals:

1. Strengthened integrated risk management to enhance climate and disaster resilience
2. Low-carbon development
3. Strengthened disaster preparedness, response and recovery

This climate change policy is strongly aligned with the strategy's first two goals.

If adopted, the strategy will succeed the existing separate regional frameworks on disasters and climate change (respectively, the *Pacific Disaster Risk Reduction and Disaster Management Framework for Action*, commonly referred to as the Regional Framework for Action, and the *Pacific Islands Framework for Action on Climate Change*), which both ended in 2015.

Tonga's first joint national action plan was the first of its kind in the Pacific region and provided the lead for what is now embedded in the regional strategy. Furthermore, Tonga is again taking the lead with an integrated approach to improving resilience. This suits our small island nation, which is one of the front-line countries in the fight against the adverse effects of climate change.

The other document that is relevant to the regional context of this policy is the 2015 *Polynesian Leaders Group Taputapuātea Declaration*. From page 1:

The Pacific Ocean is a vital regulator of climate for the whole world and needs a voice. We, the Polynesian Leaders Group, are the voice for the Pacific Ocean, and wish to carry our strategic vision to deal with the adverse effects of climate change by limiting global warming below 1.5°C and having access to tools and means to adapt to the adverse impacts caused by climate change.

Climate change and its adverse impacts are poisoning our sea, making our lands infertile and threatening the foundation of our identity as Polynesian peoples. Our children's future is in doubt if the cause of climate change is not addressed and if we are unable to adapt to its impacts.

And on page 2 of the declaration, three crucial points are raised, which were voiced during the 21st session of the United Nations Climate Change Conference (Conference of the Parties – COP 21):

- ▶ The objective to limit global warming to below 1.5°C by 2100: we reaffirm the call for urgency and the commitment of the international community to a legally binding framework reflecting this objective.
- ▶ Green Climate Fund: in the face of the urgency of the fight against climate change, we ask the



international community to have the political courage and to provide the financial tools so that our ability to adapt may express itself. ... The PLG [Polynesian Leaders Group] calls for Oceania to receive its fair share of climate resources from all available sources of funding to address capacity building and technology transfer relating to climate change and its adverse impacts.

- ▶ Recognise that loss and damage is a critical element for building resilience against climate change and that this is reflected in the legally binding agreement.

International context

The *United Nations Framework Convention on Climate Change* is the key international agreement aimed at stabilising greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic (human induced) interference with the global climate system. It entered into force on 21 March 1994. Tonga became a signatory party to the convention on 20 July 1998 and has completed its first and second national communications under the convention; the third is due for completion in 2016.

2. Policy vision and mission statement

2.1 Vision statement

A Tonga that is resilient to the impacts of climate change and climate-related disaster risks, and is able to protect and safeguard its present and future citizens.

2.2 Mission statement

To develop a resilient Tonga through an inclusive, participatory approach that is based on good governance; builds knowledgeable, proactive communities; and supports a strong, sustainable development pathway.



3. Policy goal

3.1 A Resilient Tonga by 2035

The goal of the policy is to achieve the vision of a Resilient Tonga by 2035. This will be realised through the achievement of specific targets.

Figure 3.1: A vision map of a Resilient Tonga

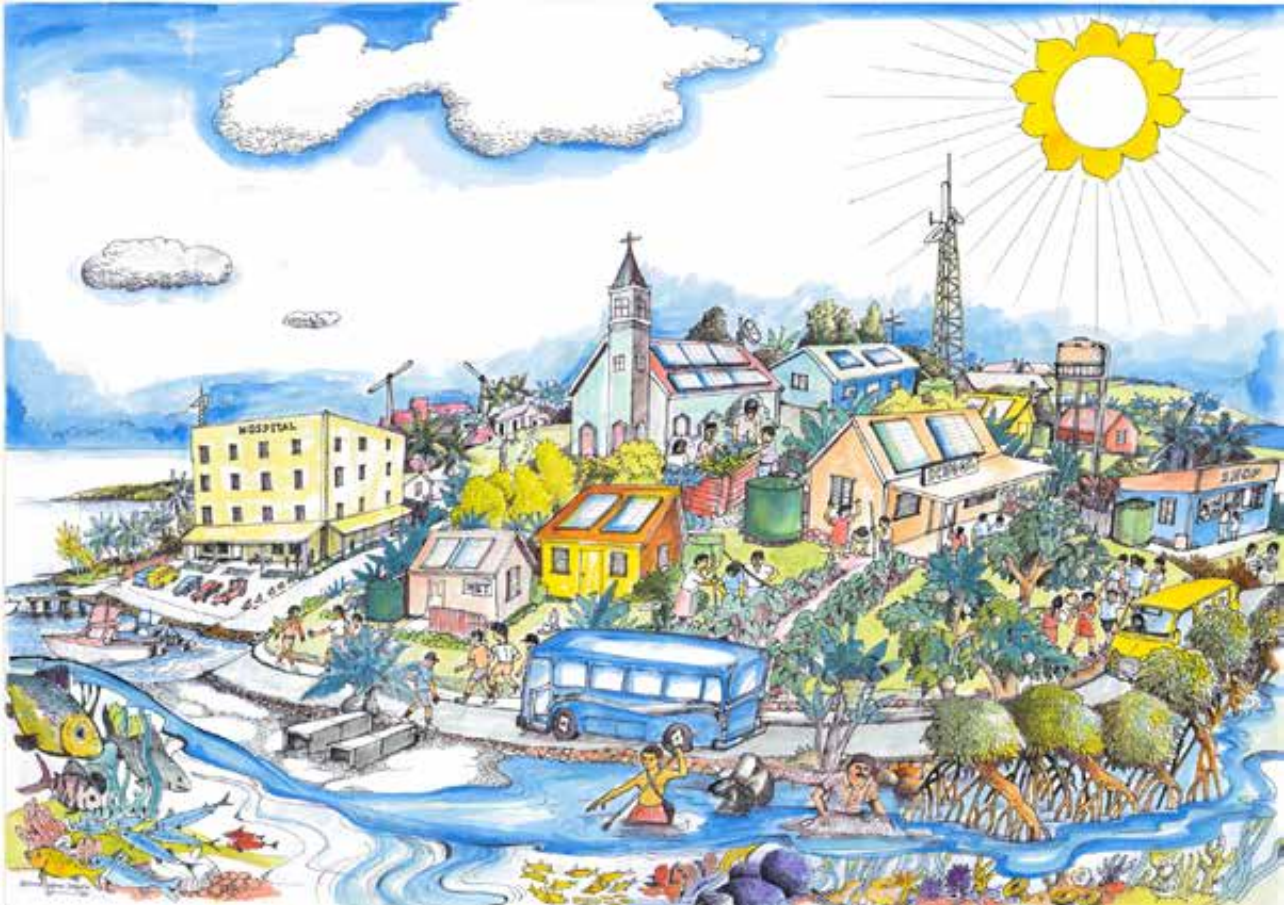
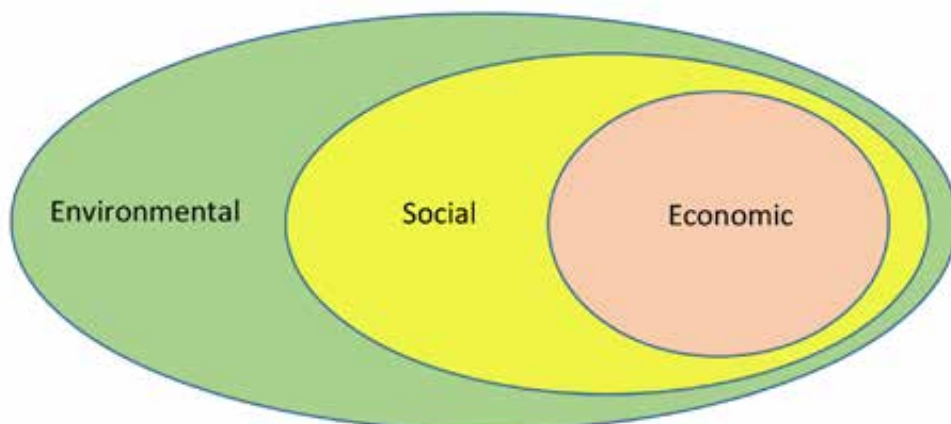


Figure 3.2: The relationship between the environmental, social, and economic targets for a Resilient Tonga, with the colours corresponding with the targets below



3.2 Targets for a Resilient Tonga

1.	Every coastal community has a special management area and protected coastal environment
2.	Redesigned and resilient roads, coastal areas, buildings, and other infrastructure
3.	Resilient homes, schools, and community halls (i.e. incorporating design for Category 5 cyclones, a minimum of 30,000 litre water storage capacity for homes, solar power and hot water, bio-digesters for biogas production, organic gardens, food preservation)
4.	A transport system that is not reliant on fossil fuels
5.	100 per cent renewable energy
6.	Resilient low chemical input or organic farming systems
7.	30 per cent of land in Tonga utilised for agro-forestry or forestry
8.	Native biodiversity is fully protected and enhanced
9.	The capacity for food self-sufficiency in times of crisis, and significantly reduced reliance on imported food
10.	Well-managed water resources and sufficient water for all in times of shortage
11.	Development and full implementation of a zero-waste policy
12.	All families and communities understand climate change and the need for disaster preparedness and have taken action to be resilient
13.	Strengthened parliamentary and institutional capacities working towards achieving resilience targets
14.	Resilience measures are mainstreamed into applicable laws and are integral to all public and private sector policies, plans and development programmes and projects
15.	Resilient agriculture with enhanced crop production and food security
16.	Education for resilience is incorporated into curricula at all levels of primary, secondary and tertiary education
17.	A gender-responsive and equitable society
18.	An innovative and proactive private sector that is a model for resilience
19.	An economy that works harmoniously with the need for a resilient environment and society
20.	Sustainable funding for climate change and resilience building needs



4. Policy guiding principles

Implementation of the Tonga Climate Change Policy will be guided by the following principles:

1. A Resilient Tonga for the future

A Resilient Tonga requires an approach that brings together traditional knowledge and values with 21st century knowledge and technology in order to address the realities of climate change.

2. Strong leadership and good governance

The realisation of a Resilient Tonga will require clear, strong and consistent governance.

3. A holistic, multi-faceted, multi-sectoral approach

A holistic, multi-faceted, multi-sectoral approach will be adopted. Inherent in this approach will be the precautionary principle, ensuring that risks are managed broadly and beyond the direct impact of climate change.

4. Integration and mainstreaming

The design and development of a Resilient Tonga will require proactive change, involving an integrated approach to adaptation, mitigation and disaster risk reduction. This will be mainstreamed into all applicable laws, policies, plans and activities, from national to local level.

5. Community ownership, stakeholder participation and collaboration

The realisation of a Resilient Tonga will require strong community ownership, participation of all stakeholders, and collaboration between all government ministries, as well as between government, the private sector and civil society.

6. Equity and fairness

Initiatives, programmes and projects will ensure the equitable accessibility and distribution of all benefits, information and support to marginal and disadvantaged groups, recognising their differing vulnerabilities to the adverse effects of climate change.

7. Gender considerations

In recognising that men and women face different social, environmental, and economic situations, gender issues will be considered in all planning and implementation processes. A better understanding of the vulnerabilities and capacities of different gender groups to deal with the adverse effects of climate change will be promoted.

8. Ongoing capacity development

Ongoing capacity development will be required at all levels to ensure a sustained effort towards the common goal of building resilience.

9. Long-term sustainability

Initiatives and programmes will be designed to deliver long-term, positive, environmental, social, and economic benefits that are founded on ensuring self-sufficiency at all levels of Tongan society.

10. Multi-disciplinary science and evidence-based responses

Policy formulation, planning and action will be based on scientifically and technically sound data and information, while at the same time recognising the value of traditional knowledge.

5. Policy objectives and outcomes

Effective implementation of this policy requires a fully integrated approach to ensure that all the six identified policy objectives and associated policy outcomes work together as a coherent whole. This is captured in Figure 5.1, which also identifies the planning process that links community planning to island strategic development plans, national policies and plans, and the Tonga Strategic Development Framework (TSDF) 2015–2025.

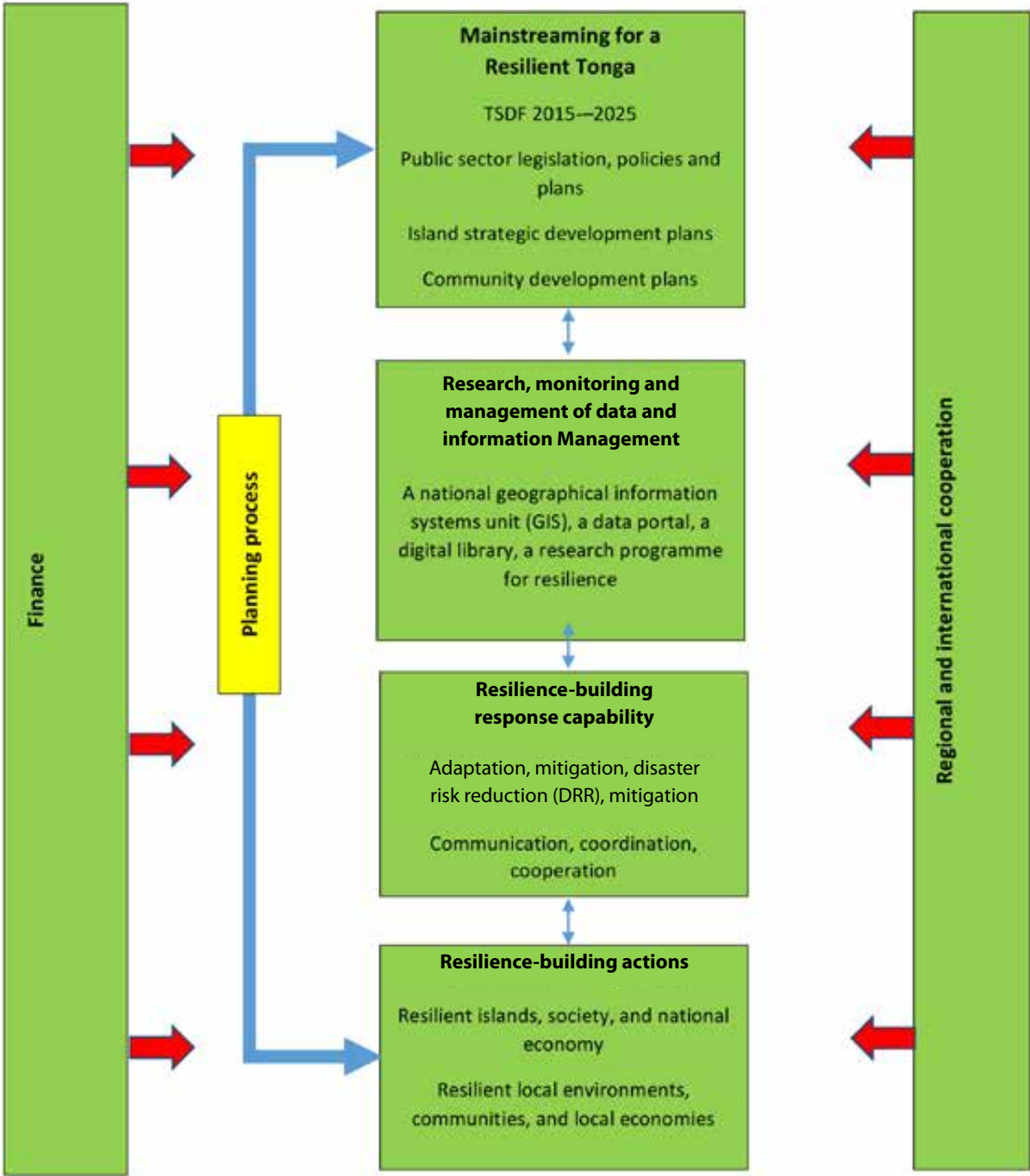


Figure 5.1: Schematic showing the inter-relationship between the six policy objectives and the important linkage with the planning process

The following objectives and associated outcomes are to be achieved by 2020. They are all aimed at achieving the targets for a Resilient Tonga by 2035.

5.1 Objective 1: Mainstreaming for a Resilient Tonga

To fully mainstream the goal of a Resilient Tonga into government legislation, policies and planning at all levels

Sub-objectives

- ▶ To strengthen existing decision-making structures, in particular the National Environment and Climate Change Committee and the Environment and Climate Change Standing Committee in Parliament.
- ▶ To fully embed the goal of a Resilient Tonga through planning, design and execution of programmes in all government ministries, with supporting guidelines (incorporating the targets for a Resilient Tonga) and ongoing capacity development; with climate change staff across all ministries required to report to and meet regularly with the Department of Climate Change to ensure a fully coordinated approach.
- ▶ To implement a fully coordinated resilience planning approach across all relevant government ministries to ensure that they have actionable and costed plans that fully integrate the targets for a Resilient Tonga (with a priority focus on biodiversity, education, energy, fisheries, forestry, health, infrastructure, land, water, and youth), and supporting policies and legislation where necessary.
- ▶ To develop standard resilience guidelines (incorporating the targets for a Resilient Tonga)

for all community engagement activities, which are to be implemented through strengthened partnerships between government, civil society, and the private sector, with Ministry of Internal Affairs strengthened in its coordinating role, and all community development plans and island strategic development plans progressively aligned with the goal of a Resilient Tonga.

Outcomes

- ▶ Existing decision-making structures are strengthened, in particular the National Environment and Climate Change Committee and the Environment and Climate Change Standing Committee in Parliament.
- ▶ The goal of a Resilient Tonga is fully embedded in the thinking and planning of all government ministries, with supporting guidelines (incorporating the targets for a Resilient Tonga) and ongoing capacity development; with climate change staff across all ministries reporting to and meeting regularly with the Department of Climate Change.
- ▶ A fully coordinated resilience planning approach across all relevant government ministries is implemented, with all ministries having actionable and costed plans that fully integrate the targets for achieving a Resilient Tonga.
- ▶ Standard resilience guidelines (incorporating the targets for a Resilient Tonga) are developed for all community engagement activities; they are implemented through strengthened partnerships between government, civil society, and the private sector; the Ministry of Internal Affairs is strengthened in its coordinating role; and all community development plans and island strategic development plans are aligned with the goal of a Resilient Tonga.



5.2 Objective 2: Research, monitoring and management of data and information

To implement a coordinated approach to the collection, monitoring, management, analysis, and use of all relevant data and information; and to develop a coordinated, multi-sectoral approach to research for building a Resilient Tonga

Sub-objectives

- ▶ To increase national capacity to undertake data and information collection and analysis, including gender analysis, to support resilience building.
- ▶ To develop effective data and information hubs, building on the existing environment and climate change portal, that make all relevant data and information readily available to all (including the private sector, civil society organisations, and communities) focused on achieving a Resilient Tonga. Specific data and information hubs of importance include a national geographical information system unit, a data portal, and digital library.
- ▶ To develop fully operational monitoring systems, focusing in particular on ground water, soil health, and coastal monitoring, and a comprehensive climate early warning system.
- ▶ To develop and implement a fully coordinated, multi-disciplinary 'Research for Resilience Programme'.

Outcomes

- ▶ National capacity to collect and analyse data and information, including gender analysis, to support resilience building is increased.
- ▶ Data and information hubs are established with all relevant data and information readily available to all.
- ▶ Fully operational monitoring systems, focusing in particular on ground water, soil health, and coastal monitoring, and a comprehensive climate early warning system are established.
- ▶ A fully coordinated, multi-disciplinary 'Research for Resilience Programme' is developed and implemented.

5.3 Objective 3: Resilience-building response capability

To develop the capability for resilience-building responses throughout government, the private sector, and civil society

Sub-objectives

- ▶ To establish necessary mechanisms to ensure that all government agencies, the private sector, and civil society organisations are working together in a fully coordinated manner for all resilience-building activities across all sectors.
- ▶ To implement ongoing capacity building on resilience in a consistent and coordinated manner for all government ministries, the private sector, and civil society to ensure a 'whole of Tonga' approach to achieving the goal of a Resilient Tonga.
- ▶ To implement a fully coordinated approach to community awareness raising on climate change and resilience, involving all civil society organisations that are working with or are part of communities and including strengthening the important role of the arts and media in fostering the essential behaviour change that will be required throughout Tongan society in order to achieve a Resilient Tonga.
- ▶ To ensure that understanding of a Resilient Tonga is incorporated into all school and tertiary education curricula.


Outcomes

- ▶ Mechanisms are established to ensure that all government agencies, the private sector and civil society organisations are working together in a fully coordinated manner.
- ▶ Ongoing capacity building on resilience is implemented in a consistent and coordinated manner for all government ministries, the private sector, and civil society.
- ▶ A fully coordinated approach to community awareness raising and behaviour change on climate change and resilience is implemented, including strengthening the important role of the arts and media.
- ▶ Understanding of a Resilient Tonga is incorporated into all school and tertiary education curricula.

5.4 Objective 4: Resilience-building actions

To implement actions that are designed to build a Resilient Tonga by 2035 at national, island, and community level

Sub-objectives

- ▶ To begin the progressive implementation of national level actions from relevant sector plans that are aimed at achieving the identified targets for a Resilient Tonga by 2035 
- ▶ To fully implement community development plans that are aligned with the goal and targets of a Resilient Tonga in 23 champion villages, one in each district throughout Tongatapu and the outer islands.

Outcomes

- ▶ National level actions from relevant sector plans that are aimed at achieving the identified targets for a Resilient Tonga by 2035 are implemented.
- ▶ Community development plans that are aligned with the goal and targets of a Resilient Tonga are fully implemented in 23 champion villages, one in each district throughout Tongatapu and the outer islands.

5.5 Objective 5: Finance

To secure and mobilise the required finances and resources to build a Resilient Tonga by 2035

Sub-objectives

- ▶ To ensure that all relevant stakeholders have access to finance and resources to achieve the goal and targets for a Resilient Tonga through the Tonga Climate Change Fund.
- ▶ To develop and implement a development partners coordination mechanism for all relevant funding to ensure full alignment with the revised *Joint National Action Plan on Climate Change and Disaster Risk Management*.
- ▶ To develop and implement a strategy for supporting communities, including women, youth, and vulnerable groups, to directly access relevant funding to implement community development plans that are fully aligned with the goals and targets of a Resilient Tonga.
- ▶ To develop simplified and harmonised procedures for disbursement of relevant funds to communities.

- ▶ To support effective and responsible financial management.

Outcomes

- ▶ All relevant stakeholders have access to finance to achieve the goal and targets for a Resilient Tonga through the Tonga Climate Change Fund.
- ▶ A development partners' coordination mechanism is developed and implemented for all relevant funding to ensure full alignment with the revised *Joint National Action Plan on Climate Change and Disaster Risk Management*.
- ▶ A strategy is developed and implemented for supporting communities to directly access relevant funding to implement community development plans that are fully aligned with the goals and targets of a Resilient Tonga.
- ▶ Simplified and harmonised procedures are developed for disbursement of relevant funds to communities.
- ▶ Effective and responsible financial management is supported.

5.6 Objective 6: Regional and international cooperation

To develop and maintain strong regional and international partnerships and to contribute fully to all relevant negotiations aimed at the required transformation to a resilient and sustainable future

Sub-objectives

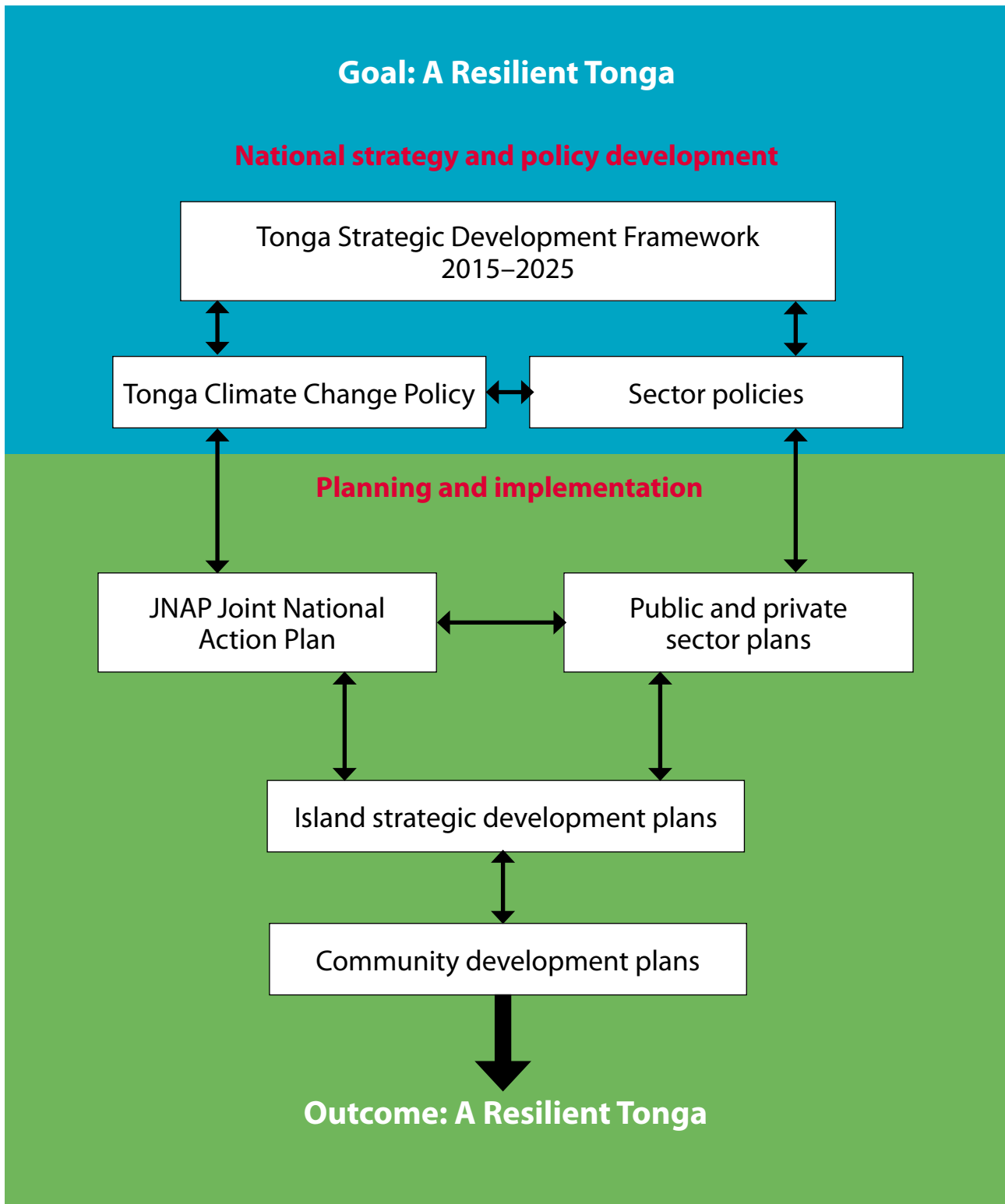
- ▶ To continue to participate in all relevant regional and international fora and negotiations, and to strongly promote the policy goal and associated targets of a Resilient Tonga by 2035.
- ▶ To identify and work with regional and international agencies that are best able to support the required transformation to a Resilient Tonga by 2035.

Outcomes

- ▶ The policy goal and associated targets of a Resilient Tonga by 2035 are strongly promoted through all relevant regional and international fora and negotiations.
- ▶ The transformation to a Resilient Tonga by 2035 is supported by regional and international agencies.

6. Implementation

This policy provides the vision, goal, and objectives for achieving a Resilient Tonga. The mechanism for implementation will be through the revised *Joint National Action Plan on Climate Change and Disaster Risk Management*, along with all other plans (at sector, island, and community level) that are fully aligned with the goal and targets of this policy.



Annex 1: Climate change and climatic extremes

The executive summary of Chapter 29: Small Islands from the Fifth Assessment Report (AR5) of the Intergovernmental Panel on Climate Change provides key points that are of great relevance to this policy. The salient points are listed below.

1. Current and future climate-related drivers of risk for small islands during the 21st century include sea-level rise, tropical and extratropical cyclones, increasing air and sea surface temperatures, and changing rainfall patterns (*high confidence; robust evidence, high agreement*).
2. Sea-level rise poses one of the most widely recognized climate change threats to low-lying coastal areas on islands and atolls (*high confidence; robust evidence, high agreement*).
3. Given the inherent physical characteristics of small islands, the AR5 reconfirms the high level of vulnerability of small islands to multiple stressors, both climate and non-climate (*high confidence; robust evidence, high agreement*).
4. Small islands do not have uniform climate change risk profiles (*high confidence*).
5. There is increasing recognition of the risks to small islands from climate-related processes originating well beyond the borders of an individual nation or island. Such transboundary processes already have a negative impact on small islands (*high confidence; robust evidence, medium agreement*).
6. Adaptation to climate change generates larger benefit to small islands when delivered in conjunction with other development activities, such as disaster risk reduction and community-based approaches to development (*medium confidence*).
7. Adaptation and mitigation on small islands are not always trade-offs, but can be regarded as complementary components in the response to climate change (*medium confidence*).

The final point is provided in full because of its cautionary message:

8. The ability of small islands to undertake adaptation and mitigation programs, and their effectiveness, can be substantially strengthened through appropriate assistance from the international community (*medium confidence*). However, caution is needed to ensure such assistance is not driving the climate change agenda in small islands, as there is a risk that critical challenges confronting island governments and communities may not be addressed. Opportunities for effective adaptation can be found by, for example, empowering communities and optimizing the benefits of local practices that have proven to be efficacious through time, and working synergistically to progress development agendas.

The most recent report of the Pacific-Australia Climate Change Science and Adaptation Planning Program (*Climate Variability, Extremes and Change in the Western Tropical Pacific: New Science and Updated Country Reports 2014*) provides the following future projections for Tonga for the period to 2100.

1. El Niño and La Niña events will continue to occur in the future (*very high confidence*), but there is little consensus on whether these events will change in intensity or frequency;
2. It is not clear whether mean annual rainfall will increase or decrease and the model average indicates little change (*low confidence in this model average*), with more extreme rain events (*high confidence*);
3. Drought frequency is projected to decrease slightly (*low confidence*);
4. Ocean acidification is expected to continue (*very high confidence*);
5. The risk of coral bleaching will increase in the future (*very high confidence*); and
6. Sea level will continue to rise (*very high confidence*).

Recent weather events in Tonga, particularly in Ha'apai (a sequence of drought, Tropical Cyclone Ian, and another drought), are a window to a future that will increasingly involve multiple stresses from the above projections, along with pre-existing environmental, social and economic stresses.

Climate change and extreme weather events are increasingly inter-related, the former being an underlying influence on the latter. Natural disasters, both from climate and geological hazards, will cost Tonga increasingly more. The Tonga Country Risk Profile in Country Note: Tonga generated by the Pacific Catastrophe Risk Assessment and Financing Initiative concludes that:

Tonga is expected to incur, on average, 15.5 million USD [approx. TOP 35 million] per year in losses due to earthquakes and tropical cyclones. In the next 50 years Tonga has a 50% chance of experiencing a loss exceeding 175 million USD [approx. TOP 400 million] and casualties larger than 440 people, and a 10% chance of experiencing a loss exceeding 430 million USD [approx. TOP 1000 million] and casualties exceeding 1700 people.

To put these figures in perspective, Cyclone Ian was estimated to have incurred about TOP 38.5 million worth of damage and losses to the agriculture and fisheries sectors in the four directly affected districts of Ha'apai. Damage is estimated at TOP 33 million and estimated losses at TOP 5.4 million.

Annex 2: Level of achievement of 2006 climate change policy objectives and strategies and Joint National Action Plan (JNAP) goals and objectives

Table A1: Alignment between the 2006 Tonga Climate Change Policy objectives and strategies and JNAP 2010–2015 goals and objectives; and extent to which these have been achieved

Objective	Strategies	2006 Tonga Climate Change Policy: policy objectives and strategies			JNAP 2010–2015 goals and objectives		
		Extent achieved	Goal	Objectives	Extent achieved		
		Fully achieved			Fully achieved		
		Partially achieved			Partially achieved		
		Not achieved			Not achieved		
Objective 1 To amend the existing framework or to endorse the proposed climate change framework	1.1 Legislation to be formulated ruling that all specific climate change-related issues concerning climate change mitigation, adaptation, and vulnerability assessment fall under the auspices of the Department of Environment. 1.2 The Department of Environment to amend, strengthen and fill in the gaps in legislation, where mandate over the issue cannot be obtained.						
Objective 2 To mainstream climate change issues into all environmental, social and economic processes including enactment and amending existing legislations	2.1 Strengthen the networking capacity of government, non-governmental organisations and the private sector to implement climate change policy/initiatives.		Goal 1 Improved good governance for climate change adaptation and disaster risk management (mainstreaming, decision making, organisational and institutional policy frameworks)	To develop an enabling policy and the capacity to strengthen planning and decision-making processes with the incorporation of relevant climate change and disaster risk management considerations			

2006 Tonga Climate Change Policy: policy objectives and strategies		JNAP 2010–2015 goals and objectives	
	<p>2.2 Establish a National climate change team from all relevant sectors and stakeholders to oversee and monitor progress. The team is to:</p> <p>(a) be responsible for mainstreaming climate change issues into their respective ministries, departments and organisations; and</p> <p>(b) ensure that relevant acts and regulations are reviewed and responses strengthened across all relevant sectors.</p>		To strengthen institutional arrangements and capacity for climate change and disaster risk management in Vavau, Ha'apai, Eua and in the Niuaus
	2.3 Establish village committees composed of town officers with members from the community to work closely with the national climate change team. This will generate the necessary grassroots interest.		
<p>Objective 3</p> <p>To improve and strengthen the collection, storage, management, analysis and use of data (including data on greenhouse gases, vulnerability and climate) in order to monitor climate and sea-level changes and their effects.</p>	<p>3.1 Review existing data and data collection, and develop an integrated approach for data aggregation and mechanisms for sharing with private and public sector agencies.</p>	<p>Goal 2</p> <p>Enhanced technical knowledge base, information, education and understanding of climate change adaptation and effective disaster risk management</p>	To improve the science and technical knowledge base in key government agencies
	3.2 Seek technical assistance from relevant regional and international agencies in carrying out research, and collecting and updating data.		To increase relevant education and community awareness programmes
	3.3 Build both human and technical capacity for management and storage of climate-related data.		To strengthen evidence-based decision and policy making through the use of relevant and updated information

2006 Tonga Climate Change Policy: policy objectives and strategies		JNAP 2010–2015 goals and objectives		
	3.4 Train and draw on local personnel whose local knowledge of the area will be of utmost value.			
	3.5 Establish a national database to avoid duplication of information and for better security and access.			
Objective 4 To promote the raising of awareness and understanding of climate change, climate variability, sea-level changes, mitigation, vulnerability and adaptation responses.	4.1 Increase the technical capability to address and promote awareness of climate change issues.			
	4.2 Promote and host – on a frequent basis – climate change awareness programmes, training and workshops.			
	4.3 Develop effective communication mechanisms and strengthen partnerships through the establishment of village committees to raise awareness at the community level			
Objective 5 To protect populations, resources and assets and vulnerable areas that are at risk from climate change impacts.	5.1 Identify vulnerable areas and develop adaptation options that are cost-effective and culturally sensitive to reduce vulnerabilities (e.g. foreshore construction, tree planting).	Goal 3 Analysis and assessments of vulnerability to climate change impacts and disaster risk	To implement appropriate coastal protection systems	
	5.2 Extensive consultation and cooperation amongst government ministries, local communities and all relevant stakeholders in prioritizing adaptation options that can be implemented to reduce vulnerability.		To improve fisheries and coral reef management in view of climate change	

2006 Tonga Climate Change Policy: policy objectives and strategies		JNAP 2010–2015 goals and objectives	
	5.3 Encourage the participation of communities in the planning, management and implementation of adaptation measures in their communities.		To strengthen community-based capacity in vulnerability analysis
	5.4 Enforce and enact new regulations to support the building code and all other relevant provisions prohibiting sand removal, mangrove cutting, vehicles that emit fumes and free ranging animals.		To strengthen the capacity for implementing and enforcing of impact assessment recommendations
	5.5 Investigate alternative sites for possible relocation of settlements from low-lying vulnerable areas.		To assess water resources and supply capacity in capital, villages and outer islands
			To assess the impact of climate change on vector-borne, water-borne and nutrition-related diseases
		Goal 4 Enhanced community preparedness and resilience to impacts of all disasters	To increase the resilience of school buildings and the tourism sector to climate change impacts and disaster risks
			To ensure food and water security after disaster events
			To increase disaster preparedness, responses and recovery of community
			To strengthen weather monitoring networks and forecasting centres
			To strengthen early warning systems
Objective 6 To mitigate the causes of human-induced climate change.	6.1 Identify and measure levels of different sources of greenhouse gas emissions in the Kingdom (energy, agriculture, waste, forestry)	Goal 5 Technically reliable, economically affordable and environmentally sound energy generation to support the sustainable development of the Kingdom	To achieve 10% reduction of greenhouse gas emissions based on 2000 levels (93 Gg CO ₂ e) by 2015 by implementing renewable energy and energy efficiency programmes

2006 Tonga Climate Change Policy: policy objectives and strategies		JNAP 2010–2015 goals and objectives	
	6.2 Formulate and implement programmes to reduce greenhouse gas emissions (encourage tree planting, promote the use of renewable energy resources, run cleaner vehicles, reduce waste generation and combustion)		To improve energy security through improved planning and response mechanisms
	6.3 Enact and enforce regulations to prohibit human activities that are detrimental to the environment (sand removal, deforestation, burning of solid waste, substandard vehicles).		
		Goal 6 Strong partnerships, cooperation and collaboration within government agencies and with civil societies and non-governmental organisations	To engage civil societies, non-governmental organisations, and the private sector in implementation of this plan
			To strengthen partnerships within government agencies and with civil societies, non-governmental organisations and the private sector

Annex 3: Alignment of existing legislation, policies, and plans

Table A2: Extent to which current legislation, policies and plans are aligned with a Resilient Tonga

	Legislation	Policy	Plan
Sector/focal area	Fully aligned with a Resilient Tonga		
	Partially aligned with a Resilient Tonga		
	Not aligned with a Resilient Tonga		
	A priority for completion/development; and to be fully aligned with A Resilient Tonga		
	Needs to be reviewed		
Finance and planning	2015 Tonga Strategic Development Framework (TSDf)		
	Public Financial Management Act	CFRGA	National Infrastructure and Investment Plan
Climate change	Climate Change Fund Bill Ozone Layer Protection Act	Climate Change Policy	Revised Joint National Action Plan
Environment	Environment Management Act and EIA Act		Revised National Biodiversity Strategy and Action Plan
Energy	Renewable Energy Act	Renewable Energy Policy	Tonga Energy Roadmap
	Energy Bill		
Meteorology	National Emergency Management Act		
Disaster risk management	National Emergency Management Act		JNAP, National Emergency Management Plan
Internal affairs	District and Town Officers Act Fono's Act		Community development plans and island strategic development plans
Infrastructure	National Spatial Management Act		Building Code
	Building Control and Standards Act		Urban Infrastructure Development Plan
Lands and natural resources	Land Act	Land Use Policy	Land Use Plan
Women	Family Protection Act	National Policy on Gender and Development	Strategic Plan
Culture and youth	Parks and Reserves Act Polynesian Heritage Trust Act Preservation of Objects of Archaeological Interests Act	National Youth Policy	Tonga National Youth Strategy and Action Plan
	National Cultural Policy	National Cultural Plan	

	Legislation	Policy	Plan
Health	Public Health Act 2008 Health Services Act 1991 Health Promotion Act 2007		Tonga National Strategy to Prevent and Control Non-communicable Diseases
Agriculture		Agriculture Policy	Agriculture Sector Plan
Fisheries	Fisheries Management Act SMA Act		Fisheries Sector Plan
Forestry	Forests Bill 2015	Forestry Policy	Forestry Plan
Tourism	Tourism Act 1976		Tonga Roadmap
Water	Water Resources Bill	National Water Policy	Water Plan
Education	Education Act 2014	Education Policies	
Chamber of Commerce and industries			Public Private Sector Plans

