KINGDOM OF TONGA

INTENDED NATIONALLY DETERMINED CONTRIBUTIONS

Towards achieving the objective of the United Nations Framework Convention on Climate Change.

4 December 2015

Contents

Key Messages

Climate Change continues to pose irreversible threat to the people of Tonga, its society, livelihoods, and its national environment. The interference to the climate system from human-caused climate change is already affecting Tonga's development, livelihood of its people and future. The World Risk Report has ranked Tonga as one of the world most at-risk country for natural hazards, and sea level rising.

Tonga makes a negligible contribution to global greenhouse gas emissions, with low per capita emissions of 2.95 tCO_2e whilst notably; the increasing frequency of strong destructive tropical cyclones has affected Tonga's development with damages on average costing 20 percent of GDP. Extensive coastal erosions across the Kingdom has prompted Government to direct over 30 percent of mobilized development assistance to address it during the last six years, and lack of climate proofing investments further risks Government's poverty alleviation commitments and national development.

Irreversible loss and damage from extreme weather events and coastal erosions are critical areas whereby national response are limited influencing the designed national contributions through reducing emission and also on creative smart resilience investments.

Taking into account its negligible emission and limited capability, Tonga's intended contributions are designed to be quantified at the national level cascaded to the sector level as follows:

- 50% of electricity generation from renewable sources by 2020. In 2015 renewable energy accounts for approximately 9% of total electricity generation, with confirmed and funded investments taking this to 13% in 2016.
- 70% of electricity generation from renewable sources by 2030
- Improve Energy efficiency through reduction of electricity line losses to 9 percent by 2020 (from a baseline of 18 percent in 2010)
- To double the 2015 number of Marine Protected Areas by 2030
- Sector Emission Reduction Targets: Transport, Agriculture, Environment Friendly Waste Management and Reforestation
- Other Sectors Climate Resilience: Public Infrastructures, foreshore protection, buildings and houses.

INDC is designed for both reduced emission and increased investing in climate resilience, Tonga makes an explicit call for a more cost-effective national response and avoids the much bigger costs caused by climate inaction. To facilitate this high level commitment, Government has raised climate change to Ministerial level, establishment of the Legislative Assembly Standing Committee for Climate Change, developing of National Climate Change Policy, revision of the Joint National Action Plan to Integrate Climate Change and Disaster Risk Reduction, and development of the third Climate Change National Communication.

Tonga's INDC will also require basic information and data so that they can be understood clearly by key stakeholders to achieve consensus in setting realistic emission reduction targets and smart resilience investments. The intended contribution also include adaptation, mitigation and means of implementation: TSDF national planning framework with its national goal to achieve a more inclusive, sustainable and effective land administration, environment management, and resilience to climate and risk, finance initiatives and capacity building.

Overall, Tonga's INDCs should raise the Kingdom ambition to contribute towards a robust and ambitious legally binding COP21 climate change agreement.

Section 1: Introduction

This island Kingdom of Tonga is located in the Central South Pacific. It lies between 15° and 23° 30' South and 173° and 177° West. Tonga consists of four clusters of islands extended over a north-south axis: Tongatapu (260sqkm) and 'Eua (87sqkm) in the south, Ha'apai (109sqkm) in the middle, Vava'u (121sqkm) in the north and Niuafo'ou and Niuatoputapu (72sqkm) in the far north. Nuku'alofa, the capital is situated in Tongatapu, the largest island.

Tonga's archipelago is situated within 200km of the subduction zone of the Indian- Australian and the Pacific tectonic plates which is part of the Pacific Ring of Fire where intense seismic activities occur and a potential source of tsunami. Most of its atoll islands including the main island are very flat with an average altitude of 2–5 meters and hence Tonga is highly vulnerable to sea level rise, storm surges and tsunami inundation.

In June 2012, the population of Tonga was estimated at 103,219 which is five times higher than 1901, with most of this growth existed between the 1930s and 1970s. Tongatapu is the most populous island and has the highest population density. Increased population, along with urbanisation and development has resulted in substantial pressure on, and degradation of, land and marine resources. This in turn has reduced the resilience of Tonga's environment and its people to climate change impacts and disaster risks.

Since June 2013, Tonga moved from a lower middle to upper middle-income bracket, with a nominal GDP per capita for 2013/14 of about $7,636 or about US$3,800. Because of Tonga's large receipts of remittances, running at over 20% of GDP, Gross National Income (GNI) per capita (about US$4,500 in 2013) is a better measure of the actual income going to Tongans. Since 2005 Tonga's GNI per capita has grown considerably faster than the average for the region, increasing from about the same as the regional average to 35 percent greater. However, these figures are average figures for Tonga and do not give a clear indication of distribution or inequality. The latest Household Income Expenditure Survey (HIES) of 2009 indicates an increase in the percentage of the population living below the poverty line increasing to 22.5 percent compared to 16.2 percent in the 2001 HIES. The increase was greatest on the outer islands increasing from 11.8 to 22.9 percent.

The current anthropogenic greenhouse gases and warming of the atmosphere have negatively impacted Tonga's environment, its people and their livelihoods. The most recent report from the Pacific-Australia Climate Change Science and Adaptation Planning Program (PACCSAP) provided the following future projections to 2100 for Tonga:

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);*
6. Sea level will continue to rise *(very high confidence).*

Recent climate and weather events in Tonga, particularly in Ha'apai (a sequence of drought, Cyclone Ian, and further drought), are a window to a future that will increasingly involve multiple stresses from the above (1-6) along with the pre-existing environmental, social, and economic stresses. Building greater resilience to existing extreme natural events and the threat of climate change is essential to ensure the sustainable progress that is desired. These and other potential threats require Tonga to become better equipped to plan and respond o the unexpected. This requires considerable foresight in planning and improved monitoring and evaluation of progress.

Section 2: National Response

The INDC recognises that Climate Change is the single biggest issue that will determine the future of Tonga over the coming decades and will require a 'whole of Tonga' level of cooperation and coordination.

The Tongan Strategic Development Framework 2015-2025: A more progressive Tonga: Enhancing Our Inheritance (TSDF 2015-2025), presents the country's new development framework. TSDF sets one of its seven Goal to commit the Kingdom to 'a more inclusive, sustainable and effective land administration, environment management, and resilience to climate and risk' and identifies the high level societal results required to improve the quality of life of Tongan citizens which include *inter alia*:

1. Informing all national stakeholders and development partners of the broad Organisational Outcomes that are needed to support the country's National Outcomes and Impact;
2. Guides the formulation of sector plans, MDA corporate plans and the medium term budgetary framework (MTBF) through which resources are allocated;
3. Guides the development of Government external economic relations and the country strategies and assistance programs of development partners;
4. Provides indicators, with targets, to facilitate monitoring and measurement our high level progress.

The TSDF 2015-2025 is designed to achieve the desired national impact of a ***"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

While resilience to climate and risk is an explicit component of Outcome F it is essentially a cross-cutting issue that is of relevance to all seven National Outcomes. In support of the TSDF the INDC response to support Tonga's nationally determined contributions are approached in two national process and two contributing clusters:

1. National Process;
   a. Political and national drivers: strong national political leadership led by Government with cascaded governance reporting to Cabinet and to a Parliament Standing Committee required and supported by strong governance and national implementation
   b. Sectoral and technical drivers: provide the national process to facilitate bottom-up engagement of sectors, private sector and economy wide process to identify and analyse options required for reduced emission. It is important for this driver to ensure sufficient time is needed for establishing emissions pathways by sectors.
2. Contributing Clusters to build a Resilience Tonga;
   a. Reduce emissions
   b. Investment in resilience

Section 3: Approach to Building Resilience to Climate Change

Within the national response context adopting the TSDF 2015-2025 the framework for building resilience to climate change in Tonga will use the new Climate Change Policy (2015-2020).

The purpose of the new Tonga Climate Change Policy is to provide a clear vision, goal, and objectives to direct responses to climate change and disaster risk reduction over the next five years. The policy, and the associated, soon to be revised, Joint National Action Plan for Climate Change Adaptation and Disaster Risk Management (JNAP). The Climate Change Policy 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-sectoral coordination.

The overall focus is towards the goal of **'A Resilient Tonga'**, aimed at achieving outcomes that are realised more widely than can be achieved through a more conventional, compartmentalised approach. Rather than address climate change adaptation, mitigation and disaster risk reduction in a fragmented manner, a holistic approach is taken to build resilience. There are five action areas:

1. Mainstreaming for a Resilient Tonga – To fully mainstream the goal of a Resilient Tonga into government legislation, policies, and planning at all levels;
2. Research, Monitoring, Management of Data, and Information – To implement a coordinated approach to the collection, monitoring, management and use of all relevant data and information; and to develop a coordinated, multi-sectoral approach to research for building a Resilient Tonga;
3. Resilience Building Response Capability – To develop the capability for resilience building responses throughout government, the private sector, and civil society;
4. Resilience Building Actions – To implement actions that are designed towards the building of a Resilient Tonga by 2035 at national, island, and community level;
5. Finance – To implement actions that are designed towards the building of a Resilient Tonga by 2035 at national, island, and community level.

Table 1. Approach to Building Tonga's Resilience.

INDC Action Areas	**National Process**		**Contributing Clusters**	
	National	**Sectoral**	**Emissions Reduction**	**Investing in Resilience**
1. Mainstreaming for a Resilient Tonga	TSDF, Cabinet, LA Standing Committee	Legislations, regulations, NIPS, MEIDECC, JNAP,	Mitigation, adaptation, RE 50 Percent Target, Forestry Targets,	Technology transfer, capacity building
2. Research, Monitoring, Management of Data, and Information	Census, Sectoral Assessments, Scientific Assessments	Energy, Transport, Building Infrastructures, Agriculture, Forestry, Water, Waste, Environment	Determine scientific targets for the Sectors	New innovation, high technology, energy efficient appliances and disincentive for inefficient appliance
3. Resilience Building Response Capability	Mainstream TSDF M&E, Climate Change Policy	Finalize Sector Pathways	Revised JNAP Climate Change Policy Actions Recommended options	New initiatives to invest resilience economy wide infrastructure, buildings, sea wall and foreshore protection, Incentives to invest resilience energy efficient appliances
4. Resilience Building Actions	Annex 1	Sectoral targets	Reduced Emission Pathways	Smart Investments,

				climate proofing public infrastructure, housing, communities, region and islands
5. Resourcing and finance: To implement designed actions towards the building of a Resilient Tonga by 2035	Costed options targeting to mobilize finance sourced from recurrent (local), national (economy wide) and international and global facilities	Costed Policy options	Costed Pathways and Implementation Plans	Costed Options and Implementation Plans

Integral to the policy is the planning process which links national, island, and community planning (under Objective 1: Mainstreaming) with action (under Objective 4: Resilience Building Actions).

The mechanism for implementation will be through a new Joint National Action Plan for Climate Change Adaptation and Disaster Risk Reduction (JNAP), along with all other plans (at sector, island, and community level) that are fully aligned with the goal and targets of the policy. The new JNAP, to be finalised by mid-2016 at the latest, will be fully aligned with the climate change policy objectives. Specific activities will be identified, with measureable indicators to align with the TSDF 2015-2025, and also be fully costed. This will be indeed crucial for negotiating and securing of funding from donors for implementation of this plan.

The achievement of the climate change policy objectives will be heavily reliant on donor support to develop or revise policies for all relevant sectors to ensure full alignment with the goal of a Resilient Tonga.

A new climate change policy and JNAP with further identified costed activities will be prepared by 2020. Funding to implement this policy and plan will be strongly dependent on donors support.

Section 4: Sector Policies and Plans

Annex 1 provides an outline of the sector legislation, policies, and plans aligned with the goal of a Resilient Tonga. Focusing on sector policies and plans in particular it is clear that there are significant gaps that need to be addressed. Climate resilience is addressed as a cross-cutting issue with both adaptation and mitigation benefits whereby key resilience building statements cover:

1. Halting deforestation and degradation of indigenous forests;
2. Maintaining national parks, reserves and protected areas;
3. Establishing and managing forest reserves;
4. Promoting reforestation and rehabilitation of cleared and degraded forests with climate change resilient, and ecologically and socially appropriate tree species;
5. Promoting integrated agroforestry in areas earmarked for agriculture;
6. Discouraging tree removal on tax allotments;
7. Encouraging tax allotment holders to plant and manage trees on their properties.

In addition the importance of trees for protection of coastal areas is identified. All of the above are important adaptation measures which will provide significant mitigation co-benefits. The latter are discussed more fully in the mitigation section.

There are also significant gaps with sector plans. Aside from the current, and soon to be revised, JNAP the most important recent plan is the Tonga Agriculture Sector Plan (TASP). The goal of the TASP is to "increase and sustain resilient agriculture livelihoods". There are four strategic objectives aimed at meeting this goal:

1. To develop a climate resilient environment;
2. To improve the enabling environment;
3. To develop diverse, resilient farming systems for the Kingdom's islands;
4. To increase and sustain rural incomes across the Kingdom.

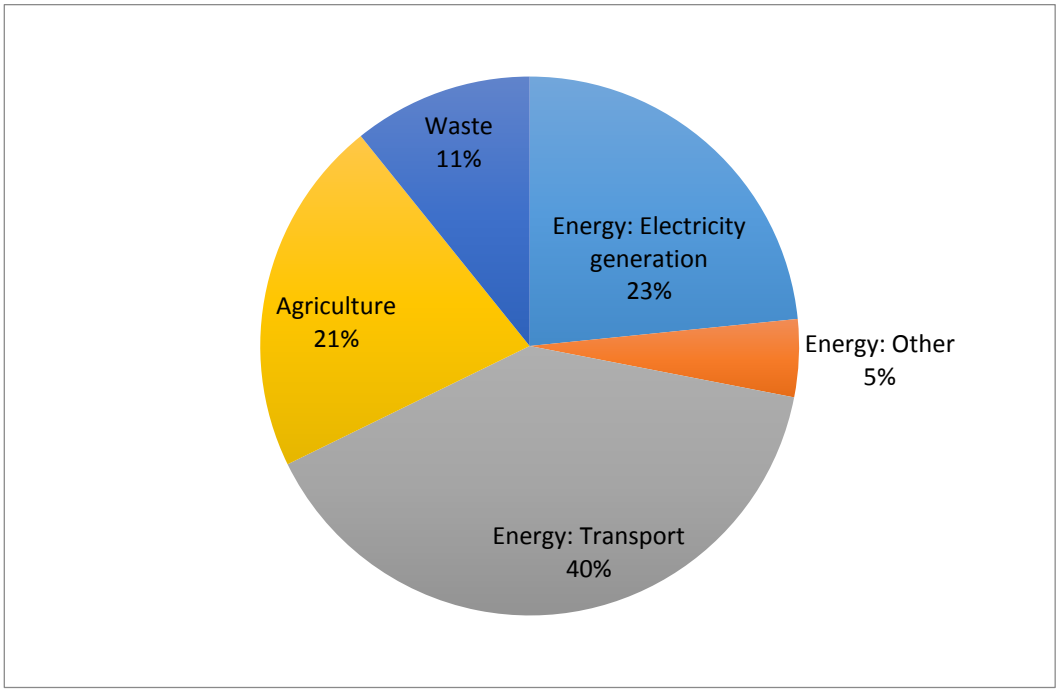
The TASP recognises the importance of, and includes strategies to support, climate-resilient agricultural production systems which are driven by healthy soils, secure and sustainable water supplies, diverse farming systems, and adaptive rural communities. The TASP contains fully costed programmes and activities covering a five year timeframe, and includes a results framework which includes specific indicators and targets.

Section 5: Mitigation context

Tonga, like other SIDS, makes a negligible contribution to global greenhouse gas emissions, with low per capita emissions of 2.95 tCO_2e, and total emissions of 300.54Gg CO_2e (2006 data). When land use and forestry is taken into account, Tonga is a net carbon sink, with its forests absorbing substantially more greenhouse gas emissions than is emitted through all other sources. Nonetheless, as a country with much at stake in regard to climate change and variability and natural hazards, Tonga is strongly committed to climate change mitigation. Its primary focus on poverty alleviation and climate resilient development has many co-benefits in the area of mitigation.

The sectoral breakdown in Figure 1 shows the energy sector, with transport (primarily land based transport) then electricity generation as the highest sources of emissions, followed by the agriculture and waste sectors.

Figure 1: Breakdown of Tonga's GHG emissions, excluding land use change and forestry (LUCF) (2006 GHG Inventory)



Within land use change and forestry, forest and grassland conversion of biomass represents a source of slightly larger magnitude than energy industries and transport combined. However this is offset by removals from forests, making Tonga a net carbon sink overall, in the order of 1691.97 Gg CO_2e.

Thus the reduction of emissions from the energy sector, and the maintenance of Tonga's forest resources and preservation of forest ecosystem services for a climate resilient future should be the primary focus of mitigation actions into the future.

Energy: Electricity Generation

The dominance of energy as a GHG emitting sector underscores Tonga's current reliance on imported oil for its development needs, which supplies all transport fuel, much of the energy for water pumping, and over 90% of grid-supplied electricity. As a consequence, the Tongan economy and electricity consumers in particular have been exposed to high and volatile electricity prices linked to oil prices over the last fifteen years. This is more acute than some other larger Pacific Island countries, as Tonga does not have hydropower potential.

Energy is a fundamental building block for the Kingdom in its social and economic development and in enhancing the livelihood and wellbeing of all Tongans. Accessible and affordable electricity that is environmentally responsible and commercially viable is considered a key catalyst for sustainable economic growth. Further, accessible, affordable and sustainable electricity is crucial to achieve the Government's primary target of 'poverty alleviation' including increasing access to electricity from 89 to 100%. Increased access to electricity, along with additional growth in commercial and residential demand was forecast in 2010 to lead to a 50% increase in electricity consumption by 2020 in the absence of action on renewable energy and energy efficiency.

This reliance on oil imports is incompatible with the aspirational goal of the Tonga Climate Change Policy, to achieve a resilient Tonga by 2035. Recognising the issue as a matter of national significance, in 2010 the Tongan Government released the *Tonga Energy Road Map (TERM) 2010-2020* a "ten year road map to reduce Tonga's vulnerability to oil price shocks and to achieve an increase in quality access to modern energy services in an environmentally sustainable manner".

Under the Roadmap, Tonga's initial target was to supply 50% of electricity generation through renewable resources by 2020. Furthermore, reducing the level of electricity network losses to reach at most 10% of total electricity generation in the country. While the targets was ambitious, it represented a clear direction and indication from the Government that reducing the vulnerability of the country to future oil price shocks is a key objective, and that renewable energy is expected to be a major element of a strategy to enhance energy security and reduce climate change for the Kingdom. There is already a plan to increase from 50% to 100% of RE in total electricity production by 2030. The Government has been proactively working towards the RE target, with over a million litres of diesel fuel oil projected to be saved per annum from March 2015. The Government also aims to replace all diesel-based water pumping engines by 2017 using solar power.

Implementation of the Tonga Energy Road Map will help Tonga to achieve its energy strategic objectives of accessible to affordable energy prices, improve accessible to clean energy and reliable power supply. That will lead to increased economic growth, which improve quality of life for all Tongans.

Energy: Transport

While transport fuel (primarily for land transport) is the largest component of energy sector emissions and the biggest driver of oil imports, it is not currently covered by the Roadmap. Due to the lack of available technological solutions for the transport sector and limited national focus on this area to date, the ability to quantify the mitigation potential or cost associated with the transport sector opportunities is limited. However, the Government of Tonga is in the process of developing transport sector measures to include in the TERM strategies, and has undertaken training and public awareness actions on vehicle maintenance, public transport and bicycle usage. The Kingdom is particularly interested in biofuels for both transport and electricity generation, developed in alignment with Tonga's resilience focus, ensuring sustainable production and replanting. Tonga is participating in regional transport sector mitigation

efforts being developed by the Secretariat of the Pacific Community, and welcomes international assistance in the development of meaningful and wide ranging mitigation opportunities to reduce Tonga's oil dependence and GHG emissions in this sector. This is crucial for a resilient Tonga, especially the plan to include diesel engines efficiency services training to help reduce fossil fuel consumption in the country. Furthermore, the identified private sector interest on solar car public transport campaign for tourists would help add values to reducing petroleum consumption in the sector. Refer to transport actions included in Annex 2.

Land Use Change and Forestry

As identified in Section 4, the National Forest Policy (2010) is of particular importance in terms of adaptation and mitigation co-benefits. A suite of activities regarding forest preservation, forest management and regulation are planned, in alignment with Tonga's resilient development strategy. These will form part of an unquantified mitigation contribution, as mentioned in Section 6.

Agriculture

Emissions in the agriculture sector are principally a function of livestock numbers. Some mitigation co-benefits may result from plans to enhance the climate resilience of the agriculture sector (e.g. through improved soil management practices, development of agro-forestry systems, and increased use of biogas systems that also provide organic fertilizers). Additionally, improvements in animal welfare through greater water availability to stock and improvements in feed quality could likely lead to reduced methane emissions.

Section 6: Mitigation contribution

Information on Tonga's mitigation contribution is provided in the following tableaux form.

COUNTRY: Tonga	**DATE: October 2015**
Parameter	**Information**
Period for defining contribution (outcomes)	Contribution year/s: 2020, 2030 Implementation period: 2015 – 2030.
Type and level of contribution	Tonga's contribution is **50% of electricity generation from renewable sources by 2020**. In 2015 renewable energy accounts for approximately 9% of total electricity generation, with confirmed and funded investments taking this to 13% in 2016. Tonga's contributions will also include the following:. · **70% of electricity generation from renewable sources by 2030** · **Improve Energy efficiency through reduction of electricity Line losses to 9 percent by 2020 (from a baseline of 18 percent in 2010)** · **To double the 2015 number of Marine Protected Areas by 2030** · **Sector Emission Reduction Targets: Transport, Agriculture, Environment Friendly Waste Management and Reforestation** · **Other Sectors Climate Resilience: Public Infrastructures,**

COUNTRY: Tonga		DATE: October 2015
Parameter		**Information**
		foreshore protection, buildings and houses. Emissions reduction benefits of these activities have not yet been estimated; however additional emissions reductions delivered through these activities may be substituted for electricity sector contributions.
Data sources and methods		Estimates of GHG emissions are based on methodologies used in 3rd GHG Inventory, and Draft Third National Communication (both in development, using 2006 data) and IPCC 2006 Guidelines.
Estimated quantified emissions impact		In 2006 electricity generation contributed 40 Gg CO_2e as an emissions source. The Tonga Energy Roadmap Business as Usual forecast predicts a 35% increase in diesel consumption for electricity generation from 2006-2020, assuming continued economic and population growth, increasing electricity access to 100%, and no GHG abatement measures. A 50% renewable energy contribution in 2020 would equate to a reduction of 9.4 million litres of diesel per annum, or approximately 27 Gg CO_2e.
Coverage	Sectors	Energy - Electricity (23% of 2006 emissions) Transport Agriculture Waste
	Gases	Carbon dioxide (CO_2); Methane (CH_4); Nitrous oxide (N_2O)
	Geography	Whole country
Planning Processes		This INDC was prepared primarily using pre-existing national policy documents, and sector policies and plans to ensure accurate reflection of national development priorities, with pre-existing stakeholder support. The INDC was reviewed by Tonga's Climate Change Technical Group, including representation of all key relevant agencies/Government Ministries, before formal Cabinet endorsement.

Section 7: Climate Financing and Resourcing the INDC

Prior to COP21, Tonga's commitment over the past six years recorded over 30 percent of development assistance supported Tonga's climate change. In addition to Government's ex-ante funding, Tonga does not have any dominant funding source for climate change but instead rely on the range of international and bilateral sources.

Government has consolidated MEIDECC as the vehicle to step up its ambition and mobilizing climate financing and resourcing including recurrent (local), national (economy wide) or transnational financing The INDC framework provides the strategy towards low emission and scaled up investment in climate resilient development of Tonga. The INDC can serve as a key component Tonga's climate action plans, financing and resource mobilization by adopting the following short to medium initiatives recommended by the 2015 Climate Financing and Risk Governance Assessment;

1. Open to access climate financing through multiple channels;

2. Explore multi-pronged approach to accessing climate funds but not limited to the Green Climate Fund, Adaptation Fund, Climate Technology Centre and Network Global Environment Facility;
3. Open Processes for Climate Financing Options
4. Commit appropriate recurrent budget to maintain stable, permanent, well trained cadre of climate financing staff to monitor and evaluate climate financing opportunities;

Section 8: Stakeholder Engagement

In preparation for COP21, Tonga has agreed to table its INDC under the TSDF framework where key stakeholder engagements at local, regional and national level, to the climate change are facilitated by the TSDF institutional arrangements for monitoring and evaluation on an annual basis.

In light of this IDNC, in partnership with economy wide counterparts, MEIDECC will host a broader set of stakeholder consultations post COP 21 after December 2015. The consultations will provide an opportunity to discuss Tonga's position, fill gaps and build a common understanding and approach towards the agreed Paris COP21 and Tonga's INDC. These stakeholder engagements will provide an opportunity to raise awareness, mobilize, inform and engage with key stakeholder groups and the general public around climate change issues, and climate change approach and response efforts at all levels.

Section 9: Statement on "Fair and Ambitious"

As noted, Tonga is classified as one of the most at-risk countries in the world in terms of its exposure to the unfolding effects of climate change. The current need for Tonga to invest large portions of its public service capacity in the ambitious quest to achieve our climate resilience objectives is a consequence of the emissions of other large countries over many generations as they developed and became wealthy.

Achieving the contributions set out in Tonga's INDC will require considerable support for capacity and technology investment.

Section 10: General caveats statement

The preparation of this INDC came at a time when Tonga is finalising its Third National Greenhouse Gas Inventory Report, a major component of its Third National Communication on Climate Change Project. This has meant that data on GHG emissions and emission projections are still provisional. Data provided in this INDC is therefore subject to revision. The Third National Greenhouse Gas Inventory Report, once completed, will provide a more comprehensive presentation of Tonga's circumstance, plans and needs.

Annex 1

Table 2: 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	TSDF		
	Public Financial Management Act		National Infrastructure and Investment Plan
			CFRGA
Climate Change	Climate Change Fund Bill Ozone Layer Protection Act	Climate Change Policy	Revised JNAP
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		
DRM	National Emergency Management Act		JNAP, National Emergency Management Plan
Internal Affairs	District & Town Officers Act Fono's Act		Community Development Plans and Island Strategic Development Plans
Infrastructure	National Spatial Management Act Building Control and Standards Act		Building Code Urban Infrastructure Development Plan
Lands & 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 Archealogical Interests Act	National Youth Policy	Tonga National Youth Strategy and Action Plan
		National Cultural Policy	National Cultural 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 2012		Tonga Tourism Roadmap 2013-17
Water	Water Resources Bill	National Water Policy	Water Plan
Education	Education Act 2014	Education Policies	

Annex 2

Specific strategies, policies, plans and actions, including timing and support needs

The table below provides a summary of current priority items that Tonga wishes to highlight as needing support or that are significant initiatives that the government will take from their own budget resources.

These relate principally to mitigation actions, due to the current availability of information. This table does not provide details on general resilience building and adaptation. For this to be properly done would require a detailed facilitated process. This has not been possible to do given time and budget constraints. As an important general point, the investments required to deliver a resilient future for Tonga in the face of climate change will be very significantly larger than just those addressing investments in the energy sector.

Item	Planned period of implementation	Conditional on additional support? Y	N	Support partner(s) identified? Y	N	Notes
Priority enabling activities:						
Smart Grid (SCADA Upgrade | Central Control | GIS Enhancement)	2016-2017		√	√		Smart Prepay Metering already funded to $4.2m TOP
Ring Distribution Network Topology	2016-2017		√	√		World Bank have seed funds to start transformation.
Fourth feeder	2016-2017		√	√		
Energy Policy and development of Energy Bill						
Other Energy Sector Reforms/Regulatory Development (Electricity Tariff Review, Petroleum Supply Assessment, Data Repository Updating and Networking, Capacity Development)	2015-2020				√	SPC and UNEP
Priority near-term investments:						
Solar Data Collection	2016-2018	√			√	OIREP. Current funding $6m TOP.
Large 3rd Party Solar Generation | Medium 3rd Party Solar Generation | Small 3rd Party Solar Generation	2016-2020	√			√	US$ 30m in investment required to contribute to 50% RE goal.
Wind Farm |Ha'apai Micro Wind | Outer Island Wind Data Collection	2016-2018	√			√	MFAT/JICA. Current funding $40m TOP.
3rd Party Wind Generation	2017-2019	√			√	
'Eua Biomass | Tongatapu Biomass	ASAP	√			√	Current funding $4.6m TOP.
Vava'u Biomass	2020-2022	√			√	
Development of new RE sources: Coconut Oil |	2020 – 2025	√			√	

Heat Recovery | Bio-gas | Tidal						
Solar water pumping (Phase I, II and IIIa)	2014-2015		√	√		Current funding $2.85m TOP.
Solar water pumping (Phase IIIb, Tourism and Agricultural Sectors)	2016-2025	√			√	
Solar Freezer System (Phase I Vava'u and Ha'apai Outer Islands)	2016		√	√		Current funding $2m TOP.
Solar Freezer System (Phase II Tongatapu and Niuas)	2017-2020	√			√	
Solar Home System Phase 1 [Off Grid]	2016		√	√		Current funding $0.6m TOP.
Solar Home System Phase 2 [Off Grid, main islands]	2019-2020	√			√	
PV Mini-Grid System (Phase 1) for Ha'ano, 'Uiha, Ha'afeva, Nomuka, Niuatoputapu islands	2016		√	√		Current funding $2.4m TOP.
PV Mini-Grid System (Phase 2) for Hunga, Falevai, Niuafo'ou islands	2018-2025	√			√	
Development of energy storage strategy	2016 – 2017	√			√	OIREP Ha'apai will be a lighthouse project.
Energy Efficiency strategy	2016-2017				√	Building on PEEP and PEEP2
Enforcement of Minimum Energy Performance Standards Regulation [Cooling Equipment]	2013-2017				√	SPC AusAid. (AUD 2.7m)
Additional activities to achieve 50% renewable electricity generation by 2020:						
Network Efficiency: & Power System Monitoring: Village Electricity Network Upgrade	2014-2016		□	□		Funded by NZ (40m NZD)
Diesel Engines Fuel Efficiency Services Training	2016-2020	□			□	
Solar Vehicle Public awareness Tour Project	2015-2020	□			□	Identified Private Sector Investment Interest
Additional activities to achieve 100% renewable electricity generation by 2030:						
Geothermal Power Generation	2020-2030	□			□	JICA interest
Biomass and Waste Power Generation	2020-2030	□			□	China interest
Investment in Resilience:						
Scientific and technology transfer	2015-2030	□			□	JICA interest
Disaster Resilience	2015-2030	□			□	World Bank
Sea Wall and Foreshore Protection	2015-2030					ADB and EU
Climate Proofing						
Public Infrastructure	2015-2030					World Bank
Housing	2015-2030					TBC