



GOVERNMENT OF TONGA

JOINT NATIONAL ACTION PLAN 2 ON CLIMATE CHANGE AND
DISASTER RISK MANAGEMENT
2018-2028

Monitoring and Evaluation System Guide



Prepared by Department of Climate Change, Ministry of Meteorology, Energy, Information, Disaster Management, Environment, Climate Change and Communications (M.E.I.D.E.C.C) in consultation with the JNAP task force and national stakeholders, Tonga.

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ACRONYMS

FRDP	Framework for Resilient Development in the Pacific
FPR	Framework for Pacific Regionalism
JNAP	Joint National Action Plan on Climate and Disaster Risk Reduction
M&E	Monitoring and Evaluation
MEIDECC	Department of Climate Change, Ministry of Meteorology, Energy, Information, Disaster Management, Environment, Climate Change and Communications
ORI	Outcome-based Resilience Indicators
PA	Paris Agreement
PRI	Process-based Resilience Indicators
ROR	Resilience Outcome Reporting (ROR)
RTAR	Resilient Target Area Reporting (Focal Point/Stakeholders)
SDGs	Sustainable Development Goals
SFDRR	Sendai Framework for Resilient Development
SIDS	Small Island Developing States
SAMOA	SIDS Accelerated Modalities of Action
TCCP	Tonga Climate Change Policy
TSDF	Tonga Strategic Development Framework
UNFCCC	United Nations Framework Convention on Climate Change
UNSDGs	United National Sustainable Development Goals

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Executive Summary

As the second ranked country in the 2018 World Risk Index¹, Tonga's national sustainable development efforts is and can be dangerously undermined by climate change and disasters. Efforts and investments in resilient development are, therefore, vital as is the need to monitor, evaluate (M&E) and adaptively management them. The importance of monitoring and evaluating resilient development is particularly needed as Pacific Island governments such as Tonga approach the development, implementation and reporting on Nationally Determined Contributions (NDCs), National Adaptation Plan (NAP) processes, as well as the Sendai Framework for Disaster Risk Reduction and overarching United Nations Sustainable Development Goals (SDGs).

The M&E of resilient development in the Pacific region has been largely, if not completely donor driven and project or program focused. The absence of robust analyses of how resilience investments are reducing vulnerability at aggregate levels hinders the learning and adaptive management necessary to ensure decision-making, prioritization and resource allocation at sub-national, national and regional levels is informed and managed by lessons from past investments and efforts.

Tonga's *JNAP2 M&E System* looks at progress towards implementing resilient development policies, plans and measures (*process*) its effectiveness (*outcomes*) in terms of addressing its national sustainable goals (*impact*). Data and information from the various sectors that is and will be affected by climate change and disasters will be a core part of operationalizing the JNAP2M&E System, required at sub-national, community and project levels.

This *Guide* is intended for resilient development decision-makers, implementers, technical advisors, beneficiaries in Tonga as well as regional and international partners. Its objective is to instruct the operationalization of the JNAP2 M&E System and the use of its findings in informing resilient development prioritization, decision-making and reporting in way that facilitates a culturally embedded process of learning that is specific to Tonga. Indigenous notions of data gathering, synthesis and learning exemplified in the *Kakala Research Framework* (KRF)² is at the heart of this M&E system.

The *Guide* leads the user through the four interrelated building blocks of understand the policy **context** framing the M&E system, the focus of the data and information gathered that comprises its **content**, the process in which data gathering and synthesis will be **operationalized**, and how results may be presented via **products** for varied resilient development purposes such as decision-making, reporting and adaptive management.

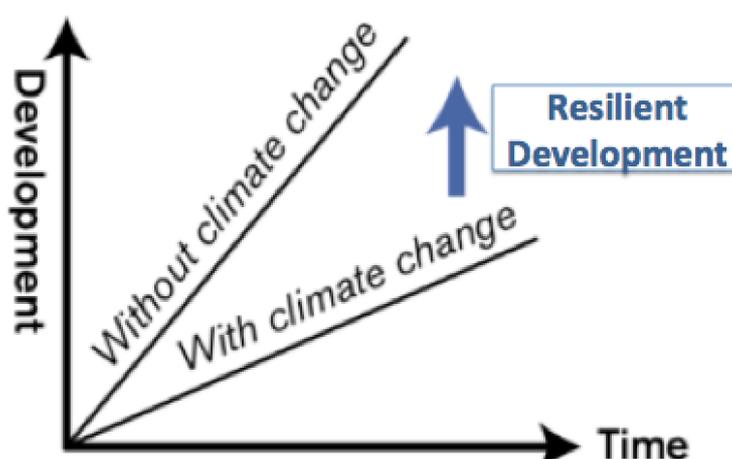
¹ <https://www.rnz.co.nz/international/pacific-news/383558/vanuatu-and-tonga-top-the-world-for-disaster-risk>

² Thaman, K. H. (2009). Towards cultural democracy in teaching and learning with specific references to Pacific Island Nations (PINs). *international Journal for the Scholarship of Teaching and Learning*, 3(2), 6.

1.0 Introduction

Climate and disaster resilient development occurs within a sustainable development agenda and monitoring and evaluation (M&E) is important for aligning and strengthening both processes **Error! Bookmark not defined.** **Monitoring** is the **systematic and continuous collection of information** for enabling stakeholders to track if an intervention is on its way to achieving its objectives³. **Evaluation** is a **systematic assessment of the worth of the intervention at a particular point in time**, such as if a project has effectively achieved its objectives³. Resilient development, under the JNAP2, includes the three inter-related objectives of climate and disaster risk reduction, low-carbon development and mitigation and disaster preparedness, response and recovery. The JNAP2 M&E System assesses if the implementation of resilient development interventions are reducing vulnerability and risks to climate change and disasters and if such detected changes contribute to the achievement of national sustainable development goals, as shown in Figure 1.

Figure 1: What resilient development M&E should measure⁴



Aligning resilient and sustainable development M&E enables policy and programming efficiency as the institutional factors that determine poverty also shape vulnerability to climate and disasters⁵. For the purpose of this report: **institution** refers to formal (values, norms, customs and culture) and informal (policies, laws, regulations, organizations) rules and mechanisms that influence individual and collective activities and engagement; **vulnerability** means “the susceptibility of being harmed when exposed to an external shock or hazard”; **resilience** means “the ability to continue functioning in the face of shocks and hazards”; and **climate and disaster impacts and hazards** means climate and disaster related extremes, trends and events that have the potential to deter countries from achieving their national sustainable development goals⁶.

³ Price-Kelly, H., Hammill, A., Dekens, J., Leiter T. and Olivier, J. (2015). *Developing national adaptation monitoring and evaluation systems: A guidebook*, IISD & GiZ

⁴ GiZ, 2018

⁵ Gupta, J., Termeer, C., Klostermann, J., Meijerink, S., van den Brink, M., Jong, P., ... & Bergsma, E. (2010). The adaptive capacity wheel: a method to assess the inherent characteristics of institutions to enable the adaptive capacity of society. *Environmental Science & Policy*, 13(6), 459-471.

⁶ Brooks, N., Rai, N., & Anderson, S. (2018). How integrated monitoring and evaluation systems can help countries address climate impacts. IIED Briefing. IIED, London.

The JNAP2 M&E system adopts a holistic approach to resilience M&E by assessing:

- How institutions and governments are managing climate and disaster risks (**process**)
- How institutions and governments are influencing vulnerability and resilience of people and systems on the ground (**outcome**)
- How changing vulnerabilities and resilience is affecting longer-term development outcomes and wellbeing in the context of changing climate and disaster hazards (**impact**)

This JNAP2 M&E System Guide (a.k.a *The Guide*) is structured according to four key building blocks³ that include:

1. The **Context** of the JNAP2 M&E system
2. The **Content** to be monitored
3. The **Operationalization** of its design process, and
4. The **Products** that will facilitate its use.

2.0 Context

The ‘Context’ of the JNAP2 M&E system describes:

- i. How the JNAP2 M&E System fits with broader policy frameworks and existing institutional process (**Policy Context**)
- ii. What the purpose of the JNAP2 M&E System is and the intended use of results (**Purpose**)
- iii. What are the levels of application and aggregation (**Scale**)

2.1 Policy Context

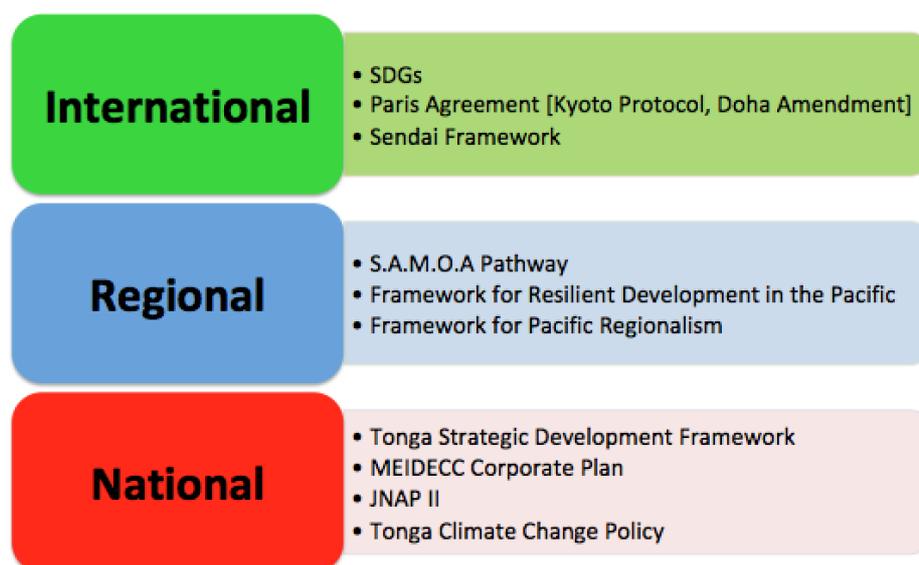
An understanding of how resilient development is addressed in the broad policy context provides a clear understanding of the policy priorities and mandate of the JNAP2 M&E System. An examination of the policy context also identifies key climate and disaster related decision-making, resourcing and accountability processes that the JNAP2 M&E results could inform. These processes are framed by interrelated policies at:

- **Global level:** United National Sustainable Development Goals (SDGs); the Paris Agreement (PA) under the United National Framework Convention on Climate Change (UNFCCC); and the Sendai Framework for Disaster Risk Reduction (SFDRR)
- **Regional level:** SIDS⁷ Accelerated Modalities of Action (SAMOA) Pathway; the Blue Pacific Identity and the Framework for Resilient Development (FRDP); and the Framework for Pacific Regionalism (FPR).
- **National level:** Tonga Strategic Development Framework (TSDF); the Tonga Climate Change Policy (TCCP); and the JNAPII

(see *Figure 2*)

⁷ Small Islands Developing States (SIDS)

Figure 2: Relevant Policies and Frameworks the frame the JNAP2 M&E System



Global

Three key related global frameworks overarch the JNAP2 M&E System, as all commonly seek to reduce vulnerability and strengthen resilience to climate and disasters. The three policy frameworks include SDGs, SFDRR and the Nationally Determined Contribution/National Adaptation Process (NDC/NAP) under the Paris Agreement⁸. The SDGs comprise 17 global goals set by the United Nations General Assembly in 2015 for the year 2030 (see Figure 2). The SFDRR comprises 7 targets for disaster risk reduction while the NDCs seeks to assess mitigation, adaptation and climate financing achievements and lessons (see Table 2).

Table 1: SDG, SFDRR and NDC Themes

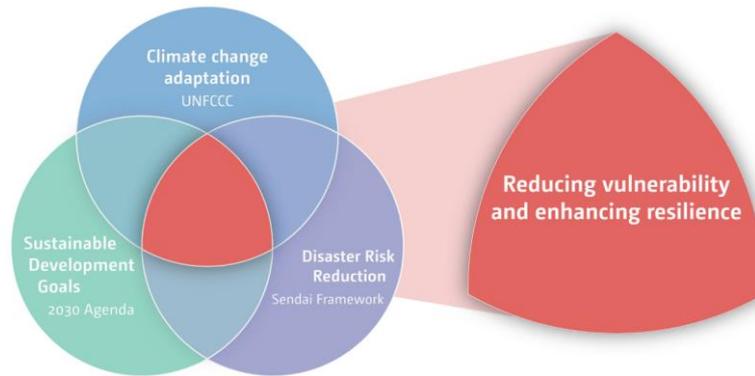
SD Goals 1 to 17	SFDRR Targets A to G	NDCs
<ol style="list-style-type: none"> 1. No Poverty 2. Zero Hunger 3. Good Health and Wellbeing 4. Quality Education 5. Gender Equality 6. Clean Water and Sanitation 7. Affordable and Clean Energy 8. Decent Work and Economic Growth 9. Industry, Innovation and Infrastructure 10. Reduced Inequalities 11. Sustainable Cities and Communities 12. Responsible Production and Consumption 13. Climate Action 14. Life Below Water 15. Life on Land 	<ol style="list-style-type: none"> A. Global Disaster Mortality B. Number of People Affected by Disasters C. Direct Economic Loss D. Damages to Infrastructure and Disruptions to Basic Services E. Progress in the Number of Countries with National and Local DRR Strategies F. Development Cooperation to Developing Countries G. Availability and Access to Multi-Hazard Early Warning Systems and Disaster Risk Information and Assessments 	<p>Mitigation</p> <ul style="list-style-type: none"> ▪ Assess mitigation progress ▪ Impact assessment & lessons <p>Adaptation</p> <ul style="list-style-type: none"> ▪ Assess adaptation progress ▪ Lessons & Adaptive Management <p>Finance</p> <ul style="list-style-type: none"> ▪ Track climate Finance Flows (international, national & private) ▪ Assessing appropriate financing requirements for NDC implementation

⁸ Price-Kelly, H., Hammill, A., Dekens, J., Leiter T. and Olivier, J. (2015). *Developing national adaptation monitoring and evaluation systems: A guidebook*, IISD & GiZ

16. Peace Justice and Strong Institutions		
17. Partnerships for the Goals		

While the scope, structure and focus of the SDGs, SFDRR and NDC reporting requirements vary, they nevertheless commonly seek reduce vulnerability and enhance resilience to climate and disasters (see Figure 3). Specific overlapping reporting linkages exist between the SDG and SFDRR as well as the SDG and NDC/NAP processes.

Figure 3: Integration of SDG, SFDRR and UNFCCC for Resilient Development



For example, five indicators are commonly shared by five SFDRR (A, B, C, D & E) and four SDG (1.5, 11.5, 11.b, 13.1) Targets as shown in Figure 4.

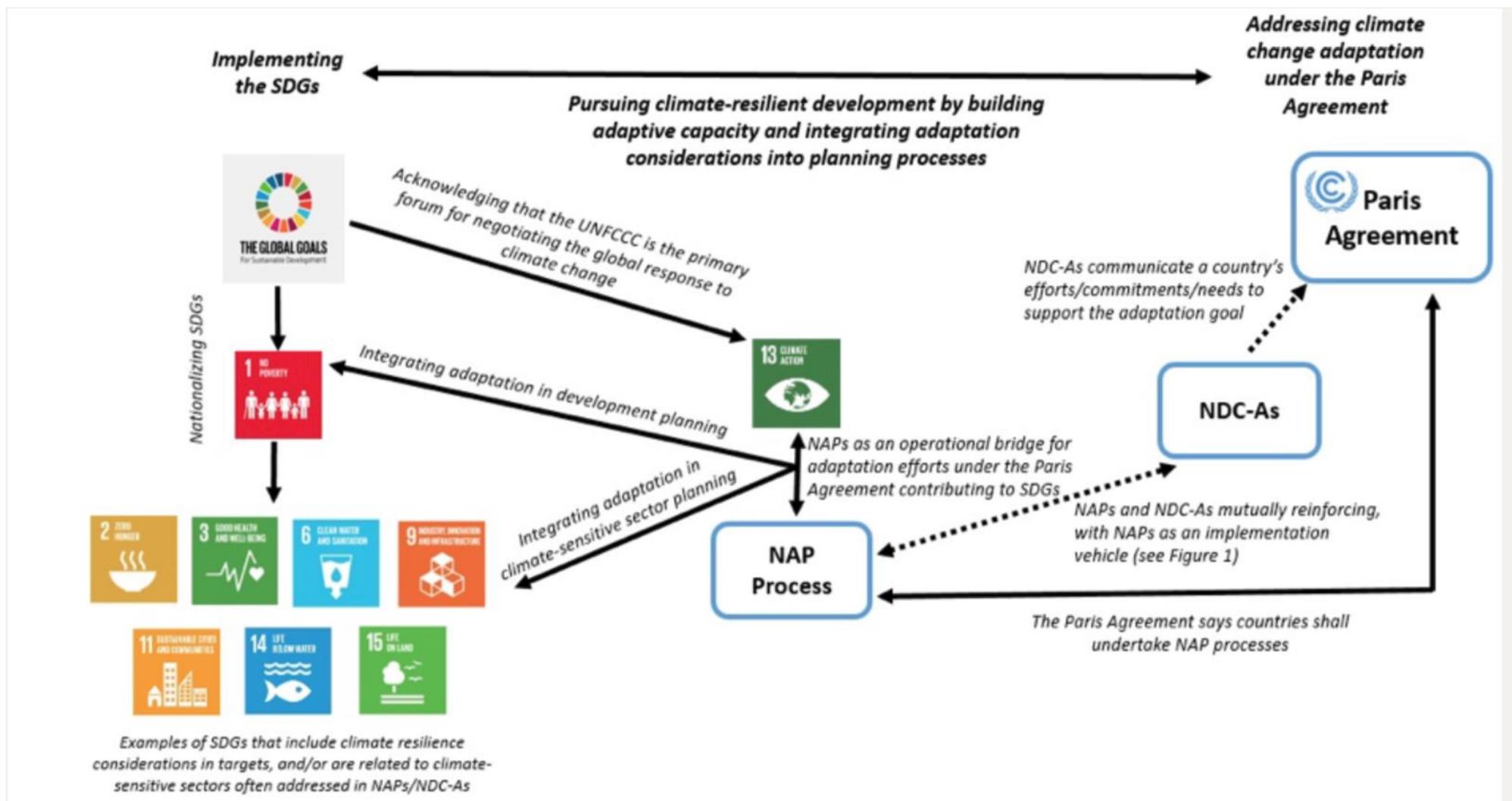
Figure 4: SDG and SFDRR Linkages



In terms of process, the NDCs are increasingly used to mobilize the implementation of the PA and the SDGs by facilitating the integration of climate adaptation and mitigation objectives into development planning processes. As depicted in Figure 4, implementing the SDGs addresses climate change adaptation under the PA by:

- Recognizing, via SDG 13 (Climate Action) that the UNFCCC is the primary forum for negotiating global response to climate change
- Using the NAP (JNAP2 for Tonga) process as an operational bridge for:
 - integrating adaptation into development planning via SDG1 (No Poverty), and
 - integrating adaptation in climate-sensitive sector planning, particularly SDG 2 (Zero Hunger), 3 (Good Health and Well-Being), 6 (Clean Water and Sanitation), 9 (Industry Innovation and Infrastructure), 11 (Sustainable Cities and Communities), 14 (Life Below Water) & 15 (Life on Land)

Figure 4: Linking NDCs to the Implementation of the SDGs⁹



⁹ Ref

Regional

From the outset, the evolving development of the “Blue Pacific” identity, endorsed at the 2017 Forum Leaders meeting, will continue to shape the priorities and mandate for resilient development at the regional level, with national consequences. The Blue Pacific is about creating shared stewardship of the Pacific Ocean regionally as guided by Pacific Islands Regional Ocean Policy (PROP) five strategic actions of:

- Improving our understanding of the ocean;
- Sustainably Developing and Managing the use of Ocean Resources
- Maintaining the Health of the Ocean
- Promoting the Peaceful Use of the Ocean
- Creating Partnerships and Promoting Cooperation

The PFR has five objectives related to: livelihoods, inclusive and equitable growth, good governance and human, environmental and political security.

Other key regional frameworks of significance to the JNAP2 M&E System are the SAMOA Pathway, FRDP and FPR. The SAMOA Pathway is similar to the SDGs in that it includes broader sustainable development priorities that includes climate change and disaster risk reduction, albeit specifically and separately.

The three goals of the FRDP frames resilient development according to: adaptation and disaster risk reduction; low carbon development (mitigation); and disaster preparedness, response and recovery respectively. In terms of vertical alignments: Goal 1 FRDP is captured in SDG 13, SFDRR Targets E and G, and the adaptation component of the NDC; Goal 2 aligns with the SDG7 and mitigation component of the NDC; while Goal 3 aligns with SFDRR Targets A to D which are also included in SDGs 1, 11 and 13 (see Figure 3).

Table 2: Blue Pacific SAMOA Pathway, FRDP and NDC Themes

Blue Pacific Identity & PRF	FRDP	SAMOA Pathway
<p>Blue Pacific regional stewardship of the ocean based on</p> <ul style="list-style-type: none"> ▪ Improving our understanding of the ocean; ▪ Sustainably Developing and Managing the use of Ocean Resources ▪ Maintaining the Health of the Ocean ▪ Promoting the Peaceful Use of the Ocean ▪ Creating Partnerships and Promoting Cooperation <p>PRF Objectives</p> <p>1: Livelihoods and Environment</p> <p>2: Inclusive and Equitable Economic Growth;</p> <p>3: Good Governance</p> <p>4: Security (Human, Environmental and Political)</p>	<p>Goal 1: Strengthened integrated adaptation and risk reduction to enhance resilience to climate change and disasters</p> <p>Goal 2: Low carbon development</p> <p>Goal 3: Strengthened disaster preparedness, response and recovery</p>	<ol style="list-style-type: none"> 1. Sustained and sustainable, inclusive and equitable economic growth with decent work for all 2. Climate Change 3. Sustainable Energy 4. Disaster Risk Reduction 5. Oceans and Seas 6. Food Security and Nutrition 7. Water and Sanitation 8. Sustainable Transportation 9. Sustainable Consumption and Production 10. Management of Chemical Waste Including Hazardous Waste 11. Health and Non-Communicable Diseases 12. Gender Equality and Women’s Empowerment 13. Social Development 14. Biodiversity 15. Invasive Alien Species 16. Means of Implementation, Including Partnerships

National

The Tonga Sustainable Development Strategy 2015-2025 (TSDF) is the overarching policy framework of the JNAP2 M&E system and of which 69 SDG indicators are embedded. Outcome F of the TSDF is specifically about, “a more inclusive, sustainable and effective land administration, environment management, and resilience to climate risk”. [SEP]

The JNAP’s **vision** is for “A Tonga that is Resilient to the impacts of climate change and disaster risks, and is able to protect and safeguard its present and future citizens” while its **mission** is “To develop a Resilient Tonga through an inclusive, participatory approach that is based on good governance, builds knowledgeable, proactive communities and support a strong, sustainable development pathway.” The JNAP2 also has **22 Resilient Tonga Targets (RTT)** that covers climate adaptation and disaster risk reduction, climate mitigation and disaster preparedness, response and recovery. For design purposes (of the JNAP2 M&E System), the 22 RTTs are sector-specific and cross-sector targets as shown in Table 2, demonstrating an integration of adaptation and mitigation with national development goals and processes (see Figure 4). The distinction between the two categories of targets is such that:

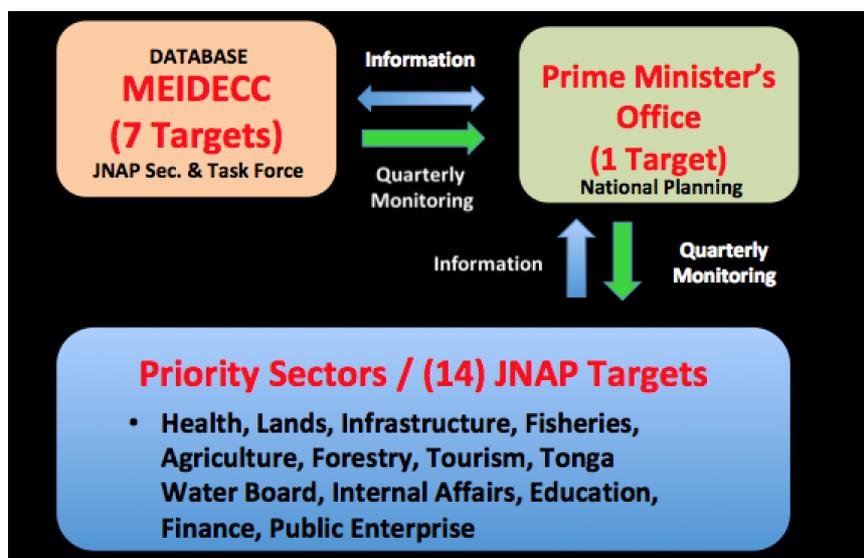
- **Sector-specific Targets:** relate to addressing disaster and climate risks and impacts within sectors.
- **Cross-sector Targets:** relates to the integration and coordination of resilient development nationally (by the Climate Change Department of the MEIDECC).

Table 2: Resilient Tonga Targets and Focal Points

14 Climate-Sensitive Sectors	8 Coordination and Integration Targets
T1. Coastal Resilience	T12. Community Resilience (CCA, DRR & DRM)
T2. Infrastructure - Transport & Communications	T13 National Decision-Making (JNAP)
T3. Infrastructure - Public and private buildings and structures	T14. Mainstreaming
T4. Fisheries	T16. Climate Information Services and Early Warning Systems
T5. Energy	T17. Gender and social inclusion (GESI)
T6. Agriculture	T19. Sustainability (Prime Minister’s Office)
T7. Forestry and agroforestry	T20. Climate Finance
T8. Biodiversity	T22. Information Knowledge Management System
T9. Tourism	
T10. Water	
T11. Waste/Ocean pollution	
T16. Education	
T28 Private Sector	
T21 Health	

As shown in Table 2 and depicted in Figure 5, the 22 targets are divided such that 14 are specific to priority resilience sectors, 7 cross-sectoral targets related to capacity development, coordination and integration functions of MEIDECC while the target of integrating the JNAP2 M&E results into TSDF/SDG planning and reporting processes has been allocated to the National Planning Division of the Prime Ministers Office.

Figure 5: Functions of the 22 Resilient Tonga Targets in the JNAP2 M&E System



The JNAP2 aims to achieve the 22 Tonga Resilience Targets via six key objectives, namely

- i). Mainstreaming Climate Change & Disaster Risk Management approaches
- ii). Research, monitoring & management of data information
- iii). Resilience-building response capacity
- iv). Resilience- building actions
- v). Financing
- vi). Regional & International Cooperation

Each 6 Objectives collectively include 25 sub-objectives and 85 activities.

2.2 Purpose

Purpose is central to the JNAP 2 M&E system as reflected its design and operationalization process. Three interlinked purposes define the proposed JNAP2 M&E system based on its objectives, outcomes and indicators:

2.1.1 Learning

Knowledge about the evolving resilient development context, needs and experience is important for determining what is working or not working and why. The development of a system of data and information gathering, synthesis and reporting between priority sectors of government, MEIDECC and the PMO will be key to facilitating the kind of learning from which a collective exchange and understanding the implementation of the JNAP2 implementation and its effects and lessons can be achieved.

It is important that the JNAP2 M&E system enables learning in culturally appropriate ways so as to yield more meaningful and relevant processes and results. For example the *Kakala* Learning Framework provides a means to link the *JNAP2 M&E* process to indigenous ways

of knowing via the *kakala* (garland) making and using process of *toli* (data gathering), *tui* (synthesis), *luva* (presentation) and *malie* (monitoring – was it worth it?) and *mafana* (evaluation). Moreover the use of *talanoa* as a mean on interviewing individuals and groups in a culturally meaningful way is also recognized.

2.1.2 Accountability

Accountability refers to reporting to national, regional and international stakeholders about progress and/or results of resilient development projects, programs and investment. The design of the JNAP2 M&E system is designed to support and contribute to the reporting towards the TSDF/SDG, SFDRR, NDC as well as to varied donor and project partners from the region and globally.

2.1.3 Adaptive Management

Monitoring and evaluation enables adaptive management, the process of “checking whether a policy, plan, or intervention is on track and adjusting the course of action accordingly” (Price-Kelly, et al, 2014). Therefore, the JNAP2 M&E system serves the **adaptive management** of decision-makers such as JNAP technical team and the Climate Change Standing Committee in Cabinet. Important decisions will be made on the collection of data by the system. The efficiency of the system and conciseness of the data collected and synthesis procedure enables a more robust and systematic way of informing decision-making, lesson sharing we well as means of discussing and adjusting the course of action in the JNAP implementation process when needed.

1.3 Scale

The JNAP2 M&E system will be applied via the 14 target-defined priority sectors and aggregated and synthesized by the JNAP Technical Working Group via M&E Sub-Working Group (Annex 1) with the coordination of the M&E Officer (Annex 2). It is important to note that aggregation can incorporate multiples sources and units of data, depending on each resilience indicator reporting requirements including quantitative analysis as well as a synthesis of qualitative results. As outlined in section 1.2, the JNAP2 ME System is mandated to be applied at community and national levels and across all *Tonga Resilience Target 2030* sectors.

2.0 Content

Content refers to the design of the system for M&E of resilient development, and the data and information required. Most M&E systems use indicators to define what will be measured and indicators should be linked to a ‘Theory of Change’ and ‘Results Framework’⁸.

2.1 FOCUS

The JNAP2 M&E comprises 22 *Tonga Resilience Targets* that are assessed according the extent its six objectives achieve expected outcomes of: mainstreaming; research and

monitoring; capacity building; on-the-ground implementation; finance and cooperation¹⁰. The objective comprises activities that have been designed to contribute to the institutional readiness of the country to deal with experienced and anticipated climate and disaster risks.

- **Process indicators** refers to monitoring the advancement in implementing policies, plans and/or interventions that address the three goals of FRDP (adaptation and disaster risk reduction, low carbon development and disaster management) or the institutional capacity to do so. It measures the changes in institutional processes and governance mechanism that related directly to addressing climate and disaster risks, such as the activities under the respective six objectives of the JNAP2. Each JNAP activity were adjusted to be process indicators for one or more sector-themed targets, where applicable.
- **Outcome indicators** refer to the changes that resulted from implementing the resilient development policies and actions, such as the JNAP2 activities. The outcomes indicators are expected to be finalised following the implementation of Activity 1.3.1, development of sector-based vulnerability baselines across all priority sectors. This activity will require sectors to define and assess **national adaptation, mitigation and disaster management indicators** by considering sector-specific climate-sensitive issues and JNAP activities as well as alignments with the SDG and the SFDRR indicators. **The process of developing sectors specific resilient indicators becomes the measuring, reporting and verification (MRV) of Tonga’s NDC.**
- **Impact Indicators:** refers to how the outcomes of the resilient development activities contributed to the achievement of national sustainable development goals (that have been mapped to *Resilient Tonga Targets*), as shown in Table 2.

Hence, the focus of the JNAP2 M&E system will be such that the focus of monitoring will be at the activities and output/process indicators levels in the context of all target areas, while the more evaluative exercises will be at outcome and impacts levels (where the SDG and SFDRR indicators are mapped to national Resilience Targets) as shown in Figure 6. A list of all process, outcome and impact indicators for the JNAP2 M&E systems is as listed below.

¹⁰ Government of Tonga. (2018). Joint National Action Plan 2 on Climate Change and Disaster Risk Management (JNAP 2) 2018-2028, Department of Climate Change (MEIDECC), Nukualofa, Tonga.

2.2 JNAP2 Process, Outcome and Impact Indicators

Systems Indicators (Based on the 6 Objectives of the JNAP)

Process Indicators	(Proposed) Outcome Indicators	Impact Indicators
All process indicators for JNAP Objective 1 activities	SO_1 -Mainstreaming: Proportion of Target Areas that reported adequate integration of climate and disaster resilience approaches into relevant policies, procedures and personnel capacity development programs.	SDG13.1.2 Number of countries that adopt and implement national disaster risk reduction strategies in line with the Sendai Framework for Disaster Risk Reduction 2015-2030
All process indicators for JNAP Objective 2 activities	SO_2 - Research Monitoring and IKM: Proportion of Target Areas with established and functioning resilience building research, M&E, and data and information knowledge management.	SDG13.2.1 Number of countries that have communicated the establishment or operationalization of an integrated policy/ strategy/plan which increases their ability to adapt to the adverse impacts of climate change, and foster climate resilience and low greenhouse gas emissions development in a manner that does not threaten food production (including a national adaptation plan, nationally determined contribution, national communication, biennial update report or other)
All process indicators for JNAP Objective 3 activities	SO_3 - Resilience Building Response Capacity: Proportion of Target Areas with established and functional mechanisms to of ensuring all government agencies, private sector, and civil society organizations are collaborating in a coordinated to manner towards implementing resilient building activities.	SDG13.3.1 Number of countries that have integrated mitigation, adaptation, impact reduction and early warning into primary, secondary and tertiary curricula
All process indicators for JNAP Objective 4 activities	SO_4 - Resilience Building Actions: Proportion of Target Areas with designed and implemented resilience-building projects and programs in outer islands and local communities.	SDG13.a.1 Mobilized amount of United States dollars per year between 2020 and 2025 accountable towards the \$100 billion commitment
All process indicators for JNAP Objective 5 activities	SO_5 – Finance: Proportion of Target Areas that secured and mobilized the required finance to address their respective Resilient Tonga/SDG Goals.	SDG13.b.1 Number of least developed countries and small island developing States that are receiving specialized support, and amount of support, including finance, technology and capacity-building, for mechanisms for raising capacities for effective climate change-related planning and management, including focusing on women, youth and local and marginalized communities
All process indicators for JNAP Objective 6 activities	SO_6 – Regional and International Cooperation: Proportion of Target Areas engaging in effective regional and international partnerships and contribute to a resilient and sustainable future.	

Target 1 Indicators (Coast)

Process Indicators	(Proposed) Outcome Indicators	Impact Indicators
<p>T1&4_1.3.1p: Vulnerability baselines for coastal sector developed.</p> <p>T1_1.3.2p: A costed and GESI factored resilient plan for coastal management developed.</p> <p>T1, 4, 12_1.3.3p: A multi-hazard disaster preparedness, response and recovery plans, including drill exercise for communities developed.</p> <p>T1_1.3.6p National coastal zone management plan and land use plan developed</p> <p>T1,10,12_1.4.3p Integrated water resource management plans for rural villages integrated with village specific national coastal zone and land-use</p> <p>T1&4_2.1.5p: Resilience indicators (process, outcomes and impacts) for the coastal sector developed.</p> <p>T1_2.2.3p: LIDAR surveys for all of Tonga complete</p> <p>T1_2.2.4p: Training on the management and use of the climate change portal and GIS-based systems completed (for all sectors)</p> <p>T1_2.3.2p: Monitoring system for currents, waves and ocean pH levels established</p> <p>T1,6&10_2.3.3p: Monitoring system for water, soil health and coastal erosion established</p> <p>T1&8_4.1.5p: Environmentally sensitive flood management response measures in 80% of coastal communities established</p>	<p>T1_10: Number of people living below the poverty line that live in flood prone areas _T1/T12^[SEP]</p> <p>T1_10: Number of people living below the poverty line that live in drought prone areas _T1/T12^[SEP]</p> <p>T1_40: Number of businesses located in areas of flood/coastal erosion risk _T1^[SEP]/T18</p> <p>T1_70: Number of properties lost due to coastal erosion per year^[SEP] _T1/T3/T12</p> <p>T4_60: Percentage of fisheries dependent households with livelihoods vulnerability reduced due to resilience-building activities.</p>	<p>SDG 1.2.1 Proportion of population living below the national poverty line, by sex and age^[SEP]</p>
	<p>T1_20: Number of properties flooded per year^[SEP] _T3/T1/T12</p> <p>T1_30: Number of properties located in river/coastal floodplain_ T3/T1/T12</p> <p>T1_50: Number of hospitals located in areas at risk from flooding/coastal erosion^[SEP] _T1/T3/T21</p> <p>T1_130: Percentage of households at reduced flood risk due to construction of new or enhanced defences_T1/T3/T12</p> <p>T1_140: Reduction of flood damage and disaster relief costs due to increased standards for flood protection and improved flood emergency preparedness_T1/T3/T12</p> <p>T1_150: Number of new major infrastructure projects located in areas at risk_T1/T2/T3</p> <p>T1_160: Mangrove preservation and afforestation to improve a coastal community's resilience to disasters. _T2/T8/T3</p> <p>T1_110: Number and magnitude <i>coastal</i> vulnerability problems perceived by local communities according to gender and age (T1/T12)</p> <p>T1_120: Number and magnitude <i>coastal</i> vulnerability problems perceived by disabled and marginalized groups according to gender and age (T1/T12)</p>	<p>SDG1.4.1 Proportion of population living in households with access to basic services</p>
	<p>T1_80: Number of hectares of productive land lost to soil erosion^[SEP] _T1/T6</p>	<p>SDG2.4.1 Proportion of agricultural area under productive and sustainable agriculture</p>
	<p>T1_100: Total length of sewerage and drainage network at risk from climate hazards_ T1/T3</p>	<p>SDG 6.3.1 Proportion of wastewater safely treated</p>
	<p>T1_90: Acidification of marine water^[SEP] _T</p>	<p>SDG14.3.1 Average marine acidity(pH) measured at agreed suite of representative sampling stations_ T1/T8</p>

	T1_10o: Total length of sewerage and drainage network at risk from climate hazards_T1/T3	SDG6.3.1 Proportion of wastewater safely treated
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Target 2 Indicators (Transport and Communications Infrastructure)

Process Indicators	(Proposed) Outcome Indicators	Impact Indicators
<p>T2_1.3.1p: Vulnerability baselines for transportation and communications infrastructure developed.</p> <p>T2_1.3.2p: A costed and GESI factored resilient plan for transportation and communications infrastructure developed.</p> <p>T2_1.3.3p: A multi-hazard disaster preparedness, response and recovery plan for transportation and communications infrastructure developed.</p> <p>1.3.11 Complete specific studies to determine the feasibility for Tonga to transition away from petrol and diesel (alternative sources) in the transport sector (shipping and vehicles);</p> <p>T2_2.1.5p: Resilience indicators (process, outcomes and impacts) for the transportation and communications infrastructure developed.</p> <p>T2&3_4.1.1p: <i>Tonga Coastal Resilience Project</i> replicated in outer islands;</p> <p>T3_3.6.7p: Strategies for the maintenance and adaptation of basic infrastructure and services (hospitals, roads, communication, water and sanitation, waste management) to climate stresses incorporated into CDPs</p> <p>T2&3_4.1.1p: <i>Tonga Coastal Resilience Project</i> replicated in outer islands;</p>	<p>T2_1o: Number and magnitude of <i>transportation and communications</i> related vulnerability problems perceived by local communities according to gender and age (T1/T12)</p> <p>T2_2o: Number and magnitude of <i>transportation and communications</i> related vulnerability problems perceived by disabled and marginalized groups according to gender and age (T1/T12)</p> <p>T2_3o: Percentage of climate resilient roads in the country</p>	<p>SDG1.4.1 Proportion of population living in households with access to basic services</p>

Target 3 Indicators (Public, Community and Private Buildings)

Process Indicators	(Proposed) Outcome Indicators	Impact Indicators
<p>T3_1.3.1p: Vulnerability baselines for public, community and private building infrastructure developed.</p> <p>T3_1.3.2p: A costed and GESI factored resilient plan for public and community building infrastructure developed.</p> <p>T3_1.3.3p: A multi-hazard disaster preparedness, response and recovery plan for public and community building infrastructure developed.</p>	<p>T3_8o: Number and magnitude of <i>buildings</i> related vulnerability problems perceived by local communities according to gender and age (T1/T12)</p> <p>T3_9o: Number and magnitude of <i>buildings</i> related vulnerability problems perceived by disabled and marginalized groups according to gender and age (T1/T12)</p> <p>T1_7o: Number of properties lost due to coastal erosion per year^{[[1]]} T1/T3/T1</p>	<p>SDG1.4.1 Proportion of population living in households with access to basic services</p>

T3_2.1.5p: Resilience indicators (process, outcomes and impacts) for the public and community building infrastructure developed.	T1_10o: Total length of sewerage and drainage network at risk from climate hazards_T1/T3	SDG6.3.1 Proportion of wastewater safely treated
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Target 4: Fisheries

Process Indicators	(Proposed) Outcome Indicators	Impact Indicators
<p>T4_1.3.1p: Vulnerability baselines for fisheries developed.</p> <p>T4_1.3.2p: A costed and GESI factored resilient plan for fisheries developed.</p> <p>T1, 4, 12_1.3.3p: A multi-hazard disaster preparedness, response and recovery plans, including drill exercise for communities developed.</p> <p>T8&4_4.2.1p: SMAs established in at least 80% of villages</p> <p>T4_4.2.2: Environmentally sensitive fishery resources enhancement programs including farmed coral and aquaculture of giant clam resourced;</p> <p>T4_4.2.3: Knowledge of fisheries managers about Fish Aggregation Devises (FADs), extending their use where appropriate and improving the design to be more resilient to the impact of storms and cyclones strengthened.</p>	<p>T4_1o: Distribution of warmth-adapted marine species^[1]_[SEP]_T4</p> <p>T4_2o: Decline in fish habitats due to temperature change_T4^[1]_[SEP]</p> <p>T4_3o: Decreased annual average fish catch as a result of temperature change_T4^[1]_[SEP]</p> <p>T4_4o: Number and magnitude of fisheries related vulnerability problems perceived by local communities according to gender and age (T1/T12)</p> <p>T4_5o: Number and magnitude of fisheries related vulnerability problems perceived by disabled and marginalized groups according to gender and age (T1/T12)</p>	<p>SDG14.7.1 Sustainable fisheries as a proportion of GDP in small island developing States, least developed countries and all countries_T4</p>

Target 5: Energy

Process Indicators	(Proposed) Outcome Indicators	Impact Indicators
<p>T5_1.3.1p: Vulnerability baselines for renewable developed.</p> <p>T5_1.3.2p: A costed and GESI factored resilient plan for renewable developed.</p> <p>T1, 4, 12_1.3.3p: A multi-hazard disaster preparedness, response and recovery plans, including drill exercise for communities developed.</p> <p>T5_1.3.8: Studies to determine what is required for</p>	<p>7.1.1 Proportion of population with access to electricity post-disaster</p>	<p>SDG7.1.1 Proportion of population with electricity</p>
	<p>7.2.1 Renewable energy share in the total final energy consumption</p>	<p>SDG7.2.1 Renewable energy share in the total final energy consumption</p>
	<p>7.a.1 International financial flows to developing countries in support of clean energy research and development and renewable energy production, including in hybrid systems</p>	<p>SDG7.a.1 International financial flows to developing countries in support of clean energy research and development and renewable energy production, including in hybrid systems</p>

<p>Tonga to achieve 100 percent renewable energy uptake by 2035 published</p> <p>T5_1.3.10: New energy sector plan based on lessons learnt from the Tonga Road Map and consistent with Tonga’s NDC published.</p> <p>T5_2.1.5p: Resilience indicators (process, outcomes and impacts) for the renewable developed.</p> <p>T5_3.6.6p: Energy efficiency Infrastructure initiatives accessible</p> <p>T5_4.1.3p: Tonga’s renewable energy infrastructure strengthened with grid-connection of the existing solar farms in line</p>	<p>7.b.1 Investments in energy efficiency as a proportion of GDP and the amount of foreign direct investment in financial transfer for infrastructure and technology to sustainable development services</p>	<p>SDG7.b.1 Investments in energy efficiency as a proportion of GDP and the amount of foreign direct investment in financial transfer for infrastructure and technology to sustainable development services</p>
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Target 6: Agriculture

Process Indicators	(Proposed) Outcome Indicators	Impact Indicators
<p>T6_1.3.1p: Vulnerability baselines for organic farming developed.</p> <p>T6_1.3.2p: A costed and GESI factored resilient plan for organic farming developed.</p> <p>T6_1.3.2p: A multi-hazard disaster preparedness, response and recovery plan for organic farming developed.</p> <p>T6_2.1.5p: Resilience indicators (process, outcomes and impacts) for the organic farming developed.</p> <p>T6_4.1.4p: Implement SMART agricultural and water management approaches in the context of climate change and disaster risks implemented</p>	<p>T1_80: Number of hectares of productive land lost to soil erosion^{T1}_{SEP}_T1/T6</p> <p>T6_10: Number and magnitude of vulnerability problems related to <i>agricultural chemical use</i> perceived by local communities, based on gender and age (T1/T12)</p> <p>T6_20: Number and magnitude of vulnerability problems related to <i>agricultural chemical use</i> perceived by disabled and marginalized groups according to gender and age (T1/T12)</p> <p>T6_30: Percentage of livestock insured against extreme and slow-onset weather events_T6</p> <p>T6_40: Percentage of farmland covered by crop insurance_T6</p> <p>T6_50: Increase in agricultural productivity through improved access and use of appropriate resilient technology^{T1}_{SEP}_T6</p> <p>T6_60: Increase in the percentage of organically grown climate resilient crops being used_T6^{T1}_{SEP}</p> <p>T6_70: Percentage of cultivated surface cultivated with drought resistant varieties^{T1}_{SEP}_T6</p> <p>T6_80: Reduction in vulnerabilities related to <i>agricultural</i></p>	<p>SDG2.4.1 Proportion of agricultural area under productive and sustainable agriculture</p>

	chemical use (from T4 vulnerability baseline indicators)	
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Target 7: Forestry and agroforestry

Process Indicators	(Proposed) Outcome Indicators	Impact Indicators
<p>T7_1.3.1p: Vulnerability baselines for forestry and agroforestry developed.</p> <p>T7_1.3.2p: A costed and GESI factored resilient plan for forestry and agroforestry developed</p> <p>T7_1.3.2p: A multi-hazard disaster preparedness, response and recovery plan for forestry and agroforestry developed.</p> <p>T7_1.3.4p: Forestry plan to ensure that it is fully aligned with JNAP 2 adapted targets for a <i>Resilient Tonga</i> published.</p> <p>T7_2.1.5p: Resilience indicators (process, outcomes and impacts) for the forestry and agroforestry developed.</p>	<p>T7_5o: Number and magnitude of <i>forestry</i> related vulnerability problems perceived by local communities according to gender and age (T1/T12)</p> <p>T7_6o: Number and magnitude of <i>forestry</i> related vulnerability problems perceived by disabled and marginalized groups according to gender and age (T1/T12)</p>	<p>SDG15.1.2 Proportion of important sites for terrestrial and freshwater biodiversity that are covered by protected areas, by ecosystem type ^[17] _[SEP]</p>

Target 8: Biodiversity

Process Indicators	(Proposed) Outcome Indicators	Impact Indicators
<p>T8_1.3.1p: Vulnerability baselines for special management areas and cultural heritage sites developed.</p> <p>T8_1.3.2p: A costed and GESI factored resilient plan for special management areas and cultural heritage sites developed.</p> <p>T8_1.3.3p: A multi-hazard disaster preparedness, response and recovery plan for special management areas and cultural heritage sites developed.</p> <p>T8_1.3.7p National Biodiversity Strategy Action Plan reviewed</p> <p>T8_2.1.5p: Resilience indicators (process, outcomes and impacts) for the</p>	<p>T1_16o: Mangrove preservation and afforestation to improve a coastal community's resilience to disasters._T2/T8/T3</p>	<p>SDG14.1 Proportion of population living in households with access to basic services</p>
	<p>T1_9o: Acidification of marine water ^[17] _[SEP]_ T1</p>	<p>SDG14.3.1 Average marine acidity(pH) measured at agreed suite of representative sampling stations_ T1/T8</p>

<p>special management areas and cultural heritage sites developed. T1&8_2.3.2p: Monitoring system for currents, waves and ocean pH levels established T8_3.6.5p-i: Appropriate conservation management programme that ensures at least 100 Special Management Areas established around Tonga by 2025. T8_3.6.5p-ii: Report on the implementation of SMAs and Monitoring and Evaluation available T12&8_4.4.1p: Natural resource management issues incorporated into 23 identified champion villages (one in each of the 21 Districts and 2 in Niuas) CDPs. T1&8_4.1.5p: Environmentally sensitive flood management response measures in 80% of coastal communities established T8&4_4.2.1p: SMAs established in at least 80% of villages</p>	<p>T7_50: Number and magnitude of <i>forestry</i> related vulnerability problems perceived by local communities according to gender and age (T1/T12)</p> <p>T7_60: Number and magnitude of <i>forestry</i> related vulnerability problems perceived by disabled and marginalized groups according to gender and age (T1/T12)</p>	<p>SDG15.1.2 Proportion of important sites for terrestrial and freshwater biodiversity that are covered by protected areas, by ecosystem type ^[T1]_[SEP]</p>
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Target 9: Tourism

Process Indicators	(Proposed) Outcome Indicators	Impact Indicators
<p>T9_1.3.1p: Vulnerability baselines for tourism developed. T9_1.3.2p: A costed and GESI factored resilient plan for tourism developed. T9_1.3.3p: A multi-hazard disaster preparedness, response and recovery plan for tourism developed. T9_2.1.5p: Resilience indicators (process, outcomes and impacts) for the tourism developed.</p>	<p>T9_10: Number of businesses located in areas of flood/coastal erosion risk_T1^[T1]_[SEP]/T18 T9_20: Number and magnitude of <i>tourism</i> related vulnerability problems perceived by local communities according to gender and age (T1/T12) T9_30: Number and magnitude of <i>tourism</i> related vulnerability problems perceived by disabled and marginalized groups according to gender and age (T1/T12) T9_40: Volume of water consumed by tourist facilities_T9 T4_50: Reduction in <i>tourism</i> related vulnerabilities (from T4 vulnerability baseline indicators)</p>	<p>SFDRR-C6: Direct economic loss to cultural heritage damaged or destroyed attributed to disasters. (T8/T9) SDG8.9.1 Tourism direct GDP as a proportion of total GDP and in growth rate ^[T1]_[SEP] SDG12.b.1 Number of sustainable tourism strategies or policies and implemented ac on plans with agreed monitoring and evaluation tools</p>

Target 10: Water

Process Indicators	(Proposed) Outcome Indicators	Impact Indicators
<p>T10_1.3.1p: Vulnerability baselines for water security developed.</p> <p>T10_1.3.2p: A costed and GESI factored resilient plan for water security developed.</p> <p>T10_1.3.3p: A multi-hazard disaster preparedness, response and recovery plan for water security developed.</p> <p>T10_1.3.4p: Water resources supply and management plan revised and fully aligned with JNAP2.</p> <p>T10_2.1.5p: Resilience indicators (process, outcomes and impacts) for water security developed.</p> <p>T1,6&10_2.3.3p: Monitoring system for water, soil health and coastal erosion established</p> <p>T10_1.3.4p: Water resources supply and management plan revised and fully aligned with JNAP2.</p> <p>T10_1.4.3p Integrated water resource management plans for rural villages integrated with village specific national coastal zone and land-use</p>	<p>T21_3o: Number of cases of water-borne diseases^[1]_{SEP} T10/T21</p> <p>T10_4o: Number and magnitude of <i>water</i> related vulnerability problems perceived by local communities according to gender and age (T1/T12)</p> <p>T10_5o: Number and magnitude of <i>water</i> related vulnerability problems perceived by disabled and marginalized groups according to gender and age (T1/T12)</p>	<p>SDG3.9.2 Mortality rate attributed to unsafe water, unsafe sanitation and lack of hygiene (exposure to unsafe Water, Sanitation and Hygiene for All (WASH) services)</p> <p>SDG6.1.1 Proportion of population using safely managed drinking water services</p> <p>SDG6.2.1 Proportion of population using safely managed sanitation services including a hand washing facility with soap and water</p> <p>SDG6.3.1 Proportion of wastewater safely treated</p> <p>SDG15.1.2 Proportion of important sites for terrestrial and freshwater biodiversity that are covered by protected areas, by ecosystem type^[1]_{SEP}</p>

Target 11: Waste/Ocean Pollution

Process Indicators	(Proposed) Outcome Indicators	Impact Indicators
<p>T11_1.3. 1p: Vulnerability baselines for waste management developed.</p> <p>T11_1.3.2p: A costed and GESI factored resilient plan for waste management developed.</p> <p>T11_1.3.3p: A multi-hazard disaster preparedness, response and recovery plan for waste management developed.</p> <p>T11_ 2.1.5p: Resilience indicators (process, outcomes and impacts) for waste management developed.</p> <p>T3_3.6.7p: Strategies for the maintenance and adaptation of basic infrastructure and services (hospitals, roads, communication, water and sanitation, waste management) to climate stresses incorporated into CDPs</p>	<p>T11_1o: Number and magnitude of <i>waste</i> related vulnerability problems perceived by local communities according to gender and age (T1/T12)</p> <p>T11_2o: Number and magnitude of <i>waste</i> related vulnerability problems perceived by disabled and marginalized groups according to gender and age (T1/T12)</p>	<p>SDG11.6.1 Proportion of urban solid waste regularly collected and with adequate final discharge out of total urban solid waste generated, by cities</p> <p>SDG12.4.2 Hazardous waste generated per capita and proportion of hazardous waste treated, by type of treatment</p>

Target 12: Community Resilience

Process Indicators	(Proposed) Outcome Indicators	Impact Indicators
<p>T12_1.3. 1p: Vulnerability baselines for community resilience developed.</p> <p>T12_1.3.3p: A multi-hazard disaster preparedness, response and recovery plan for community resilience developed.</p> <p>T12_1.4.1 Develop standard resilience guidelines for all community engagement activities;</p> <p>T12_1.4.3p: Resilient Tonga targets and vulnerability baselines¹¹ incorporated into community development plans</p>	<p>T1_1o: Number of people living below the poverty line that live in flood prone areas _T1/T12^[1]_[SEP]</p> <p>T1_1o: Number of people living below the poverty line that live in drought prone areas _T1/T12^[1]_[SEP]</p> <p>T1_7o: Number of properties lost due to coastal erosion per year^[1]_[SEP] _T1/T3/T12</p> <p>T4_6o: Percentage of fisheries dependent households with livelihoods vulnerability reduced due to resilience-building activities.T4/T12</p>	<p>SDG 1.2.1 Proportion of population living below the national poverty line, by sex and age ^[1]_[SEP]</p>

¹¹ From JNAP2 Activity 1.3.1

<p>T12_1.4.4p Resilient Tonga targets and vulnerability baselines¹¹ incorporated into all district and island development plans.</p> <p>T12&T17_1.5.1p Study to identify local knowledge regarding the distribution of responsibilities within the family in climate change adaptation and in preparation and response to natural disasters and climate stresses conducted¹²</p> <p>T12_1.5.2 Studies to estimate the cost of climate change and natural disasters impacts on community livelihoods. The case studies could be representatives of urban, rural and outer islands settings piloted¹²;</p> <p>T1, T12 & T17_1.5.3 Study of scenarios of relocation due to climate change and natural disasters impacts taking into considerations gender perspectives conducted</p> <p>T12_2.1.5p: Resilience indicators (process, outcomes and impacts) for community resilience developed.</p> <p>T12&22_2.1.7p: Research on Traditional Knowledge on climate conducted and disseminated¹¹</p> <p>T12_3.3.1p: Community climate and disaster resilience awareness raising and behavioral change program for communities and households throughout Tonga developed and implemented</p> <p>T12_3.3.2p: Community climate and disaster resilience awareness raising and behavioral change program involving the arts and the media developed and implemented</p>	<p>T1_20: Number of properties flooded per year^[T1] T3/T1/T12</p> <p>T1_30: Number of properties located in river/coastal floodplain_ T3/T1/T12</p> <p>T1_130: Percentage of households at reduced flood risk due to construction of new or enhanced defences_ T1/T3/T12</p> <p>T1_140: Reduction of flood damage and disaster relief costs due to increased standards for flood protection and improved flood emergency preparedness_ T1/T3/T12</p> <p>T1_150: Number of new major infrastructure projects located in areas at risk_ T1/T2/T3</p> <p>T1_160: Mangrove preservation and afforestation to improve a coastal community’s resilience to disasters. _ T2/T8/T3</p> <p>T1_110: Number and magnitude <i>coastal</i> vulnerability problems perceived by local communities according to gender and age (T1/T12)</p> <p>T1_120: Number and magnitude <i>coastal</i> vulnerability problems perceived by disabled and marginalized groups according to gender and age (T1/T12)</p>	<p>SDG1.4.1 Proportion of population living in households with access to basic services</p>
	<p>T4_40: Number and magnitude of <i>fisheries</i> related vulnerability problems perceived by local communities according to gender and age (T1/T12)</p> <p>T4_50: Number and magnitude of <i>fisheries</i> related vulnerability problems perceived by disabled and marginalized groups according to gender and age (T1/T12)</p>	<p>SDG14.7.1 Sustainable fisheries as a proportion of GDP in small island developing States, least developed countries and all countries_ T4</p>

Target 18: Private Sector

Process Indicators	(Proposed) Outcome Indicators	Impact Indicators
<p>T18_1.3. 1p: Vulnerability baselines for the private sector developed.</p> <p>T18_1.3.2p: A costed and GESI factored resilient plan</p>	<p>T1_40: Number of businesses located in areas of flood/coastal erosion risk_ T1^[T1]/T18</p>	<p>SDG 1.2.1 Proportion of population living below the national poverty line, by sex and age ^[T1] _[SEP]</p>

¹² This study should be part of the vulnerability baseline assessments in JNAP2 Activity 1.3.1

<p>for the private sector developed.</p> <p>T18_1.3.3p: A multi-hazard disaster preparedness, response and recovery plan for the private sector developed.</p> <p>T18_2.1.5p: Resilience indicators (process, outcomes and impacts) for the private sector developed.</p>	<p>T21_2o: Reduced work productivity due to heat stress^[1]_[SEP] T21/T18</p>	<p>SDG 3.8.1 Coverage of essential health services (defined as the average coverage of essential services based on tracer interventions that include reproductive, maternal, newborn and child health, infectious diseases, non-communicable diseases and service capacity and access, among the general and the most disadvantaged population)</p>
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Target 21: Health

Process Indicators	(Proposed) Outcome Indicators	Impact Indicators
<p>T21_1.3. 1p: Vulnerability baselines for health developed.</p> <p>T21_1.3.2p: A costed and GESI factored resilient plan for health developed.</p> <p>T21_1.3.3p: A multi-hazard disaster preparedness, response and recovery plan for health developed.</p> <p>T21_2.1.5p: Resilience indicators (process, outcomes and impacts) for health developed.</p>	<p>T21_1o: Number of people at high risk of heat stress^[1] T21/T12_[SEP]</p> <p>T21_2o: Reduced work productivity due to heat stress^[1]_[SEP] T21/T18</p> <p>T21_4o: Number and magnitude of <i>health</i> related vulnerability problems perceived by local communities according to gender and age (T1/T12)</p> <p>T21_5o: Number and magnitude of <i>health</i> related vulnerability problems perceived by disabled and marginalized groups according to gender and age (T1/T12)</p>	<p>SDG 3.8.1 Coverage of essential health services (defined as the average coverage of essential services based on tracer interventions that include reproductive, maternal, newborn and child health, infectious diseases, non-communicable diseases and service capacity and access, among the general and the most disadvantaged population)</p>

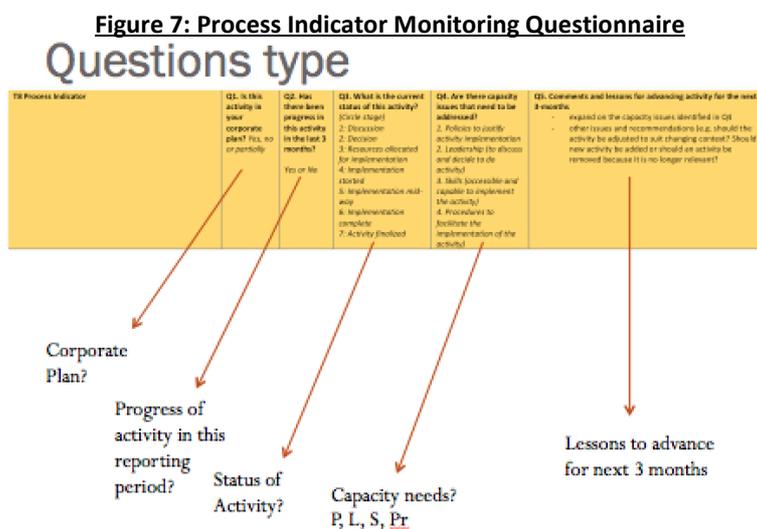
3.0 Operationalization

The data and information needed to fulfill the purpose of the JNAP2M&E system will be gathered and synthesized at three levels via priority sectors, JNAP Secretariat and National Planning Division (PMO) respectively, and arranged according to process, outcome and impact indicator reporting needs. This structure of data gathering, synthesis and reporting will be enabled via the enhancement of the existing JNAP institutional arrangements and will need to be supported by an on-going training capacity development program.

3.1 Process Indicators - Questionnaire and Database

The data required to assess national **process-based resilience indicators (PRI)** will be gathered from the 22 **Resilience Target Area Stakeholders (RTAS)**. The RTAS comprising government, civil society and private sector members who are involved the respective Target sectors. The RTS will be coordinated by the assigned **Resilience Target Area Reporting (RTAR) focal points** who will solicit the required data and information from the respective RTS members on a quarterly basis. The data and information gathered at this level will require the respective RTS' to report on the progress of the individual activities of the JNAP2. Each activity of the JNAP2 has been tagged to 1 or more relevant RTS' to report on.

The data and information needed to address process indicators will be gathered in the form of a standardized questionnaire for all Target areas (See Annex 2 for individual target questionnaires) that will filled quarterly by the respective 22 Target area focal points every 3 months. The questionnaires will be attached to the Quarterly Corporate Plan Reporting process administered by the National Planning Division. Each target focal point will be asked four questions for each allocated JNAP activity (see Figure 7).



Content: T8 – Ecosystem Resilience

- specifics to SMAs/cultural heritage

Objectives/Activities	Process Indicators
1.3.1p Vulnerability baselines	Provision of Monitoring and Evaluation reports from all sector plan developments to the Monitoring and Evaluation staff member on the JNAP Secretariat
1.3.2p Costed GESI factored resilience plan	Health sector plan published, approved by Parliament and disseminated
1.3.3p Multi-hazard disaster preparedness, response and recovery plan	Revised tourism sector plan published, approved by Parliament and disseminated
1.3.7p National Biodiversity Strategy Action Plan reviewed	New fisheries sector plan published, approved by Parliament and disseminated
2.1.5p Resilience indicators	SMART Indicators collected
2.3.2p Monitoring system for currents, waves and ocean pH levels	6 monthly reports provided to the JNAP Secretariat
3.6.5p-A Appropriate conservation program for 100 SMAs	Report on the implementation of SMAs and Monitoring and Evaluation available
3.6.5p-B Report on the implementation of SMAs and M& E available	Monitoring and evaluation report available
4.1.5p Environmentally sensitive flood management response (80%)	Six monthly reports on progress with implementation of the flood management system
4.2.1p SMAs established in at least 80% of villages	Increase fisheries resources production and the number of SMA communities

The questionnaire will be administered by the Planning Unit of the Office of the Prime Minister via the ministry corporate plan quarterly reporting process. The **JNAP2 activity monitoring questionnaire** will be attached to the **corporate plan quarterly reporting template**. The PMO Planning Unit will distribute and gather all filled questionnaires and from the respective ministries and share the filled JNAP2 questionnaires with **MEIDECC's M&E Officer** in charge of the **JNAP2M&E Database**. In due course, the JNAP Process Indicator questionnaire will be gradually integrated into the Corporate Planning Reporting process.

CP template										JNAP II M&E template												
Output: Mainstream Government priority agenda and M&E framework into sector, district and corporate plans & budgets																						
Activity	KPIs	2018/19 (baseline)	2019/20	2020/21	2021/22	T A R G E T S	INDICATORS #			T2 Process Indicator	Q1. Is this activity in your corporate plan? (Yes, no or partially)	Q2. Has there been progress in this activity in the last 3 months? (Yes or No)	Q3. What is the current status of this activity? (Early stage) a) Not started b) Resources allocated for implementation c) Implementation started d) Implementation not yet e) Implementation complete f) Activity finished	Q4. Are there capacity issues that need to be addressed? 1. Policies to justify activity implementation 2. Leadership (in absence and aside to do activity) 3. Skills (available and capable to implement the activity) 4. Procedures to facilitate the implementation of the activity	3. Comments and lessons for advancing activity for the next 3 months							
Conduct workshops to mainstream SDG/TSDF outcomes and indicators to corporate plans	Ratio of MDAs CPs clearly reflect TSDF II, relevant global and regional frameworks	2/26	12/26	22/26	27/26	1 7 - 2	17.2.1			JNAP Obj 1: Mainstreaming (Coastal Resilience) JNAP Obj 2: Research, monitoring and management of data and information (Coastal Resilience) JNAP Obj 3: Resilience-Building Capacity (Coastal Resilience) JNAP Obj 4: Resilience-Building Actions (Coastal Resilience) JNAP Obj 5: Finance (Coastal Resilience) JNAP Obj 6: Regional and International Cooperation (Coastal Resilience)												
Year	2018/19 (baseline)	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34	2034/35	2035/36	2036/37	2037/38	2038/39	2039/40

The JNAP M&E Database has been designed to facilitate synthesis, analysis and comparison across target sectors. The M&E Officer will be responsible to ensuring all questionnaire data is fully entered in the database as well as analyzing and reporting the findings to the M&E

Sub-Working group who will review the report and make recommendations to the JNAP Task Force on lessons learned and necessary adaptive management measures if needed.

3.2 Outcome Indicators – Vulnerability Assessments and Database

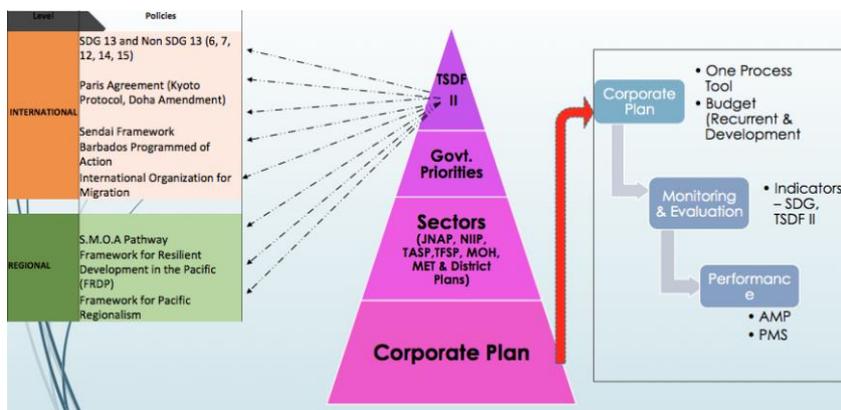
The assessment of national **outcome-based resilience indicators (ORI)** evaluation of resilience outcomes is proposed to be conducted annually by the **resilience outcome reporting (ROR)** focal point and stakeholders JNAP Taskforce. The data and information needed to address the outcome indicators will be derived from two sets of sources:

- i. vulnerability **baselines and indicators** (i.e. preferably via a national standardized vulnerability assessment)
- ii. resilience **interventions and outcome indicators** implementation processes (i.e JNAP2 activities)

Vulnerability baselines for Tonga are evidently absent at this current stage. However, the development of vulnerability baselines for each target sector is a key activity of the JNAP2 (Activity 1.3.1). The development and provision of target sector baseline assessments informs the development of resilience outcomes indicators that should be used by all future resilient development programs, projects and interventions.

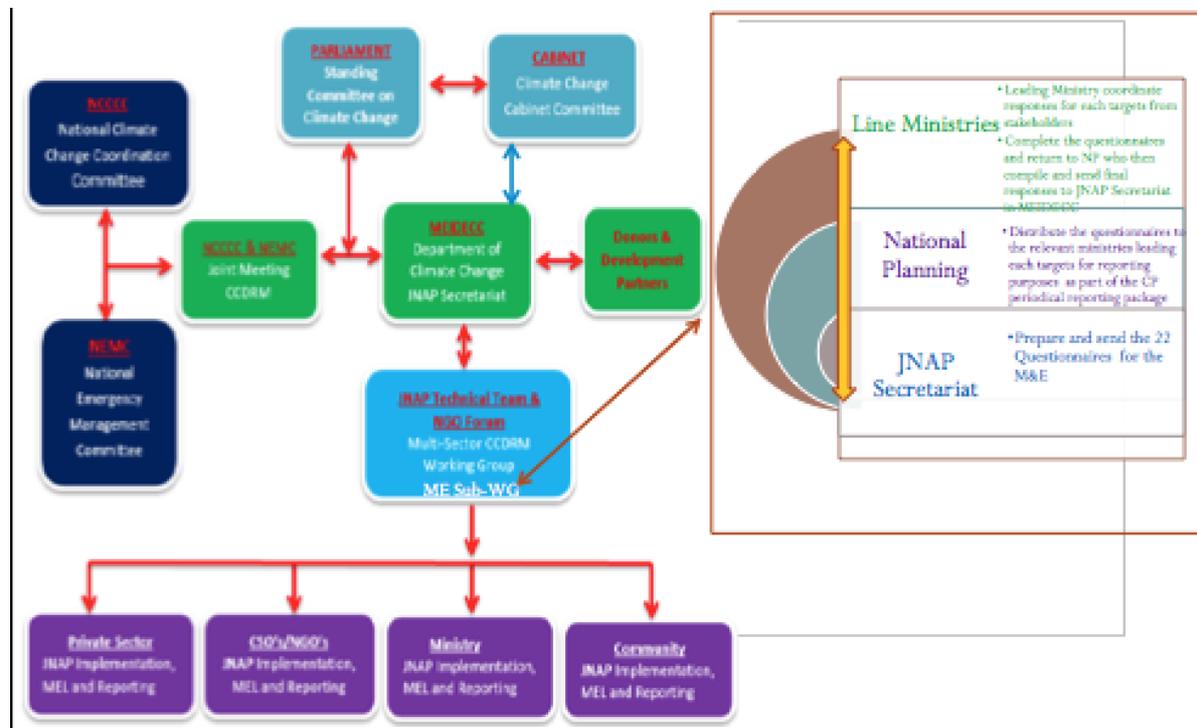
3.3 Impact Indicators – SDG/TSDF Data Integration

The results of the resilience process and outcome indicator results and recommendations may also be used to inform TSDF/SDG reporting requirement. A systematic process of integrating resilience and development reporting may be developed and operationalized with further technical and capacity development in the future.



3.4 Institutional Arrangements and Capacity

The JNAP2 M&E system will be operate within the existing institutional structure of the JNAP Secretariat, with the added support of a JNAP2 M&E working group. The developers of the JNAP2 M&E system will be the members will form a sub-working group within the JNAP Technical Team. The M&E sub-working group will be supported by an M&E Officer who will manage the reporting of M&E results and recommendations to the Technical Team and Taskforce. The results and recommendations made via the

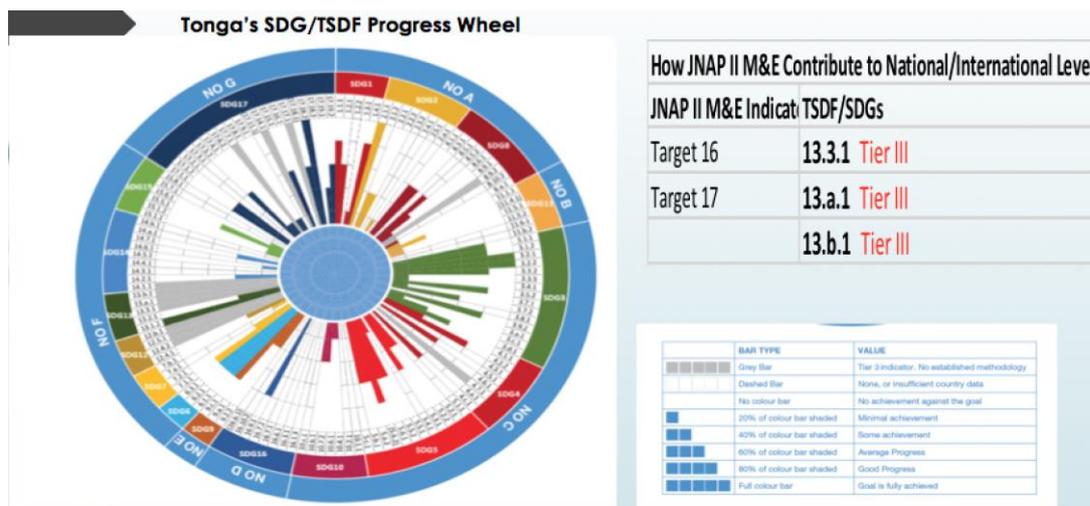


4.0 Product

The frequency and timing of communicating and reporting results of the JNAP2 M&E system will vary according to the scale in which data is gathered and synthesized and reporting demands of national, regional and international resilience reporting systems. The JNAP M&E is designed to serve multiple outputs and reporting purposes within the reporting framework of the SDG, SFDRR and the UNFCCC as follows.

4.1 SDG and TSDF Reporting

Results of the quarterly process-monitoring and annual (or more) outcome-evaluation of the JNAP2, enables a systematically enhanced data and information flow to the existing national SDG/TSDF reporting process. This is particularly significant for address reporting gaps related addressing ‘Tier 3’ indicators of the SDG. Tier 3 indicators are those that do not have an internationally established methodology for standard for reporting available. For example, JNAP M&E system may be recognized as a nationally recognized methodology for reporting towards SDG13.2.1, 13.3.1, 13.a.1 and 13.b.1, which are currently Tier 3 indicators. Moreover, the JNAP2 M&E system has structurally aligned the reporting of the 22 Resilient Tonga Targets with selected indicators of the SDGs and, as such, may be the basis of sector-specific and national reports towards the SDGs, national development process as well as for communicating with regional and international resilient development partners and donors.



4.2 Paris Agreement Reporting

As is, the purpose, structure and content of the JNAP2 M&E system generically characterizes the institutional and process foundational requirements of the Monitoring, Reporting and Verification (MRV) for NDC reporting. Pacific Island Countries are currently considering approaches to developing their respective MRV systems. In light of the stage Tonga is now in with the establishment of its JNAP2 M&E system, testing its use for reporting towards its next NDC (particularly adaptation component), due in March 2020, may provide a valuable opportunity for demonstrating more efficient national reporting process as well as identify and respond to ways in which the system may need to be strengthened to better meet the standards of the MRV requirements. Having an 'MRV-compliant' M&E system is expected to enable a more efficient process of reporting towards the following under the Paris Agreement:

- NDC (due March 2020)
- National Communications (due in 2024)
- Bi-Annual Update Report
- Development of the 2050 Long-Term Low-Emission Development Strategy

Activities	CP	Progress	Status	Capacity	Way forward
1.3.1p Vulnerability baselines	66%	66%	1-67%, 3-33%	1-67%, 2-50%	Urgent capacity needs for (strengthening Policy and leadership) to move this activity for next three months.
1.3.2p Costed GESI factored resilience plan	83%	67%	1-50%, 3-33%	33%-1,2,3	There is general inclusion of GESI in the implementation of activities, but no specific plans developed for SMA and Cultural heritage sites. Needs is on policy, leadership and skills
1.3.3p Multi-hazard disaster preparedness, response and recovery plan	57%	57%	1-57%, 4-28%	3-71%, 4-57%	To move this forward there is a great need for capacity building on for skills and procedures.
1.3.7p National Biodiversity Strategy Action Plan reviewed	83%	83%	4-40%, 20%-5-7	4-66%	The need to systematise procedure for review of NBSAP, and sourcing available funding, and transparency of sharing the report.
2.1.5p Resilience indicators	50%	50%	1-33%, 4,7-20%	3-50%, 33%-4	Most needs is to develop resilience indicators skills in all sectors
2.3.2p Monitoring system for currents, waves and ocean pH levels	67%	50%	1-67%, 4-33%	1-67%, 4-50%	Most capacity needs to move this forward is on policy. The monitoring of physical characteristics for Ocean involves Meteorology, Environment and Natural Resources whilst Fisheries, NGO and Environment focus on the benthic coverages, fish biomass, etc in ocean
3.6.5p-A Appropriate conservation program for 100 SMAs	71%	71%	4-42%, 5-28%	4-57%, 14%-2,3	There is somewhat efforts in beginning this activity, but with much need on procedures for the conservation of SMAs.
3.6.5p-B Report on the implementation of SMAs and M& E available	57%	71%	4-42%, 5-28%	4-57%, 2,3-28%	Activities has begun implementation however priority need is to strengthen procedures on reporting.
4.1.5p Environmentally sensitive flood management response (80%)	50%	50%	N/A-33%, 17%-4,5	2,4-33%, 3-17%	Most don't have this activity in their CP, to move this forward there is a need for leadership skills
4.2.1p SMAs established in at least 80% of villages	67%	67%	4-33%, 17%-1,2/NA	N/A-33%, 1,3,4-17%	Fisheries is the only key implementer of this activity with support via project based implementation from CC, Environment, NGO. To move this forward there is need to revisit capacity on policy, skills and procedures as well as financial mechanism in place.

4.3 Sendai Framework Reporting

The more established and sophisticated reporting process of the Sendai Framework Monitor creates challenges for meaningful engagement with countries that have less sophisticated reporting systems. While the JNAP2 M&E system does not directly meet the reporting specificities of the Sendai Framework Monitor, it nevertheless, creates a system of gathering, organizing, storing and dissemination local disaster related data in a way that supports learning, reporting and adaptive management in a more context and culture sensitive way. However, as is, the JNAP2 M&E system improves the organization of data for directly reporting to indicators of Target E of the SFDRR. As suggested towards reporting under the Paris Agreement, the JNAP2 M&E may also be tested for indirectly informing other indicators of the SFDRR for the purpose of strengthening its communications capability as well as reducing the burden of reporting nationally.

4.4 Climate and Disaster Financing Reporting

The development and operationalization of the JNAP2 M&E system creates an opportunity to demonstrate its robustness as a common reference point for accounting for the effectiveness of climate and disaster financed projects, programs and interventions, in a way that responds directly to Tonga's national resilient and sustainable development vision and aspirations as framed in the TSDF and JNAPs respectively. As such, its application and strengthening (as suggested above) within the context of SDG, Paris Agreement and SFDRR reporting may be used to negotiate a more streamlined reporting system to partners and donors with varied interests in terms of sector focus, scale and objective.

Annexes

Annex 1: ToR for JNAP2 M&E Sub-Working Group



GOVERNMENT OF TONGA

Joint National Action Plan 2 for Climate Change and Disaster Risk Management (JNAP2)

TERMS OF REFERENCE

Tonga JNAP2 M&E Working Group

I. General Information

JNAP Secretariat, established at the Department of Climate Change (DCC), is responsible for the implementation and monitoring and evaluation (M&E) of the JNAP 2. The JNAP Taskforce, comprising of senior representatives of respective line ministries as well as non-governmental and private sector organisations, makes decisions and supports the functions of the JNAP Secretariat. The time frame for completion of the JNAP 2 is 10 years, from 2018 to 2028. A critical early measure of success will be the completion of all relevant plans with climate resilience, encompassing Climate Change Adaptation (CCA), reduction of greenhouse gases (clean and efficient energy) and Disaster Risk Management (DRM) fully integrated. Successful completion of these plans is vital to further development and implementation of the JNAP 2.

II. Objective and Scope of the Working Group

The **JNAP2 M&E Working Group** shall be responsible for collectively reviewing the outcomes and recommendations of all JNAP2 M&E reports prior to delivery to the **JNAP Technical Team and NGO Forum** for submission and finalisation by the **JNAP Taskforce**. The **Working Group** will require that the **JNAP2 M&E Officer** or other individual and/or groups under Climate Change of MEIDECC assigned by JNAP Secretariat, develop the first draft of the JNAP2-related monitoring and/or evaluative reports with data and information sourced from the respective **JNAP M&E Focal Points** in at least 15 departments.

The tasks may vary in their frequency and technical requirements. For example, those tasks requiring the analysis of lessons from aerial photography and vulnerability mapping are best carried out by the Geology Section of MLSNR. It will be of central importance that the **Working Group** is involved in the development of recommendations to the **JNAP Task Force** based on the analyses of resilience process and outcome indicators.

The JNAP M&E WG shall assist in:

- Reviewing the progress report in implementing the JNAP2 activities in Tonga Resilience Target Areas based on identified process indicators compiling by JNAP M&E Officer.
- Identifying the barriers and opportunities for enabling and accelerating the implementation of the JNAP2.
- Reviewing the reported changes that result for the implementation of the JNAP2 based on identified outcome indicators.
- Identifying learning, capacity development and adaptive management needs, specific to each Target Area, to facilitate the implementation and M&E of the JNAP2.

III. Working Group Members

The Working Group will be formed by the developers of the JNAP2 M&E System who represent the varied government departments and non-governmental agencies. The Working Group must comprise of at least one representative of the **JNAP M&E Focal Points** as listed below.

Resilient Tonga Target Area	Agency
T1: Coastal Management	Ministry of Lands and Natural Resources
T2: Transport and Telecommunications Infrastructure	Ministry of Infrastructure
T3: Public, Community and Private Building Infrastructure	Ministry of Infrastructure
T4: Fisheries	Ministry of Fisheries
T5: Energy	Energy Department, MEIDECC
T6: Agriculture	Agriculture Department, MAFF
T7: Forestry and Agroforestry	Forestry Department, MAFF
T8: Biodiversity	Environment Department, MEIDECC
T9: Tourism	Ministry of Tourism
T10: Water Security	Tonga Water Board
T11: Waste/Ocean Pollution	Environment Department, MEIDECC
T12: Community Resilience	NEMO and Climate Change Department, MEIDECC Ministry of Internal Affairs
T13: National Decision-Making	JNAP Secretariat, MEIDECC

T14: Mainstreaming	MEIDECC
T15: Climate Information Services	Meteorology Department, MEIDECC
T16: Education	Ministry of Education
T17: Gender and Social Inclusivity (GESI)	Gender Department, Ministry of Internal Affairs
T18: Private Sector	Tonga Chamber of Commerce
T19: Sustainability	National Planning Department, Prime Minister's Office
T20: Climate Finance	Climate Change Department, MEIDECC
T21: Health	Ministry of Health
T22: Information and Knowledge Management (IKM)	JNAP Secreatriat, MEIDECC



GOVERNMENT OF TONGA

Joint National Action Plan 2 for Climate Change and Disaster Risk Management (JNAP2)

TERMS OF REFERENCE

JNAP2 Monitoring and Evaluation (M&E) Officer

I. General Information

JNAP Secretariat, established at the Department of Climate Change (DCC), is responsible for the implementation and monitoring and evaluation (M&E) of the JNAP 2. The JNAP Taskforce, comprising of senior representatives of respective line ministries as well as non-governmental and private sector organisations, makes decisions and supports the functions of the JNAP Secretariat. The time frame for completion of the JNAP 2 is 10 years, from 2018 to 2028. A critical early measure of success will be the completion of all relevant plans with climate resilience, encompassing Climate Change Adaptation (CCA), reduction of greenhouse gases (clean and efficient energy) and Disaster Risk Management (DRM) fully integrated. Successful completion of these plans is vital to further development and implementation of the JNAP 2.

II. Role of the M&E Officer

The M&E Officer will be responsible for managing the operationalization of the JNAP2 M&E System.

Major Functions/Duties: In close collaboration with the M&E Working Group, Climate Change Department and the National Planning Division, ensure the following:

- Develop and maintain the information knowledge and management system for effectively operationalizing the M&E of the JNAP2.
- Coordinate and support the establishment and functions of the JNAP2 M&E Working Group
- Ensure gender and social inclusion considerations are meaningfully incorporated into the operationalization and adaptive management of the JNAP2 M&E System
- Collect, enter, store and analyze the data and information gathered for the purpose of addressing Resilient Tonga Target process and outcome indicators.
- Monitor the quality of reporting from the Target Area Focal Points in terms stakeholder engagement and content scope and accuracy

- Compile quarterly JNAP2 implementation monitoring reports, including lessons and recommendations for adaptively managing the implementation process of the JNAP2 and solicit feedback and input of the JNAP2 M&E Working Group prior to submission to the JNAP Technical Team and the JNAP Taskforce.
- Disseminate and solicit the input of the JNAP2 M&E Working Group Members to all drafted JNAP-related M&E reports.
- Communicate the JNAP M&E results, lessons and recommendations for adaptive management to the JNAP Taskforce.
- Be responsible for the communication and promotion of JNAP2 M&E related activities.
- Contribute to annual progress reports and provide data and information for reports to donors.

Experiences & Qualification:

- Degree in climate change, environment, natural resource management or development related fields OR a degree in project management with experience in the climate change related projects.

Professional experience:

- At least three years' experience in planning, design and implementation of M&E systems; M&E methods and approaches and data/ information analysis
- Familiar with results-based management and other strategic planning approaches
- Experience on gender issues

The following attributes will be desirable:

- An understanding of climate change issues in in the Pacific Island region
- Familiar with participatory planning and monitoring processes
- Experience in applying monitoring and evaluation frameworks for climate change programs
- Previous working experience in communication and information management will be an asset
- High attention to detail and timeliness
- High level of integrity, credibility and confidentiality

Experience with international working environment desirable

