

Sendai Framework for Disaster Risk Reduction

Midterm Review Report
by the Government of Tuvalu




SENDAI FRAMEWORK
FOR DISASTER RISK REDUCTION 2015-2030

 **UNDRR**
UN Office for Disaster Risk Reduction

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Highlights and Introduction

Tuvalu participates in the Midterm Review of the Sendai Framework to take stock of national progress towards its commitment to achieving the goal of the Sendai Framework for Disaster Risk Reduction (SFDRR) and its seven global targets¹, using the four priorities for action² to prevent new, and reduce existing, disaster risks. Tuvalu considers the Midterm Review of the Sendai Framework an ideal opportunity to identify and strengthen existing disaster risk reduction good practices, and explore opportunities for collaboration to better mitigate disaster risks in Tuvalu.

Tuvalu is recognized internationally as one of the most climate-vulnerable states on Earth³. Tuvalu's geographical and physical characteristics, and close location to cyclone belts, make it extremely vulnerable to climate-induced disasters and extreme weather events such as cyclones, coastal flooding, storm surge and drought. The low topology puts inhabitants at risk of submerging under sea level as a result of the accelerated adverse impacts of climate change⁴. Tuvalu is a small island state located in the central Pacific, consisting of nine islands, which has a total land area of only 26 square kilometres (km²) and a

population of approximately 11,792 as of 2020⁵. Its average height above sea level is less than three metres and none of the islands is five metres above sea level. Tuvalu's atolls are extremely exposed to projected sea-level rise, increased severity of cyclones, severe coastal erosion and land loss, increases in ocean temperatures, and ocean acidification⁶.

Climate-induced disasters present a considerable challenge to the sustainable economic development of Tuvalu. The Tuvalu climate risk profile developed by the World Bank indicated that losses due to hazards could be expected to be an average of USD0.2 million per year and that in the next 50 years, Tuvalu has a 50 per cent chance of experiencing a loss exceeding USD4 million⁷. Moreover, in 2015, for example, nearly 20 per cent of Tuvalu's GDP was lost due to the damage caused by tropical cyclone (TC) Pam on properties and appliances, and loss to plantations and livestock. A total budget of AUD99.2 million was needed by the government to support affected islands in rebuilding and recovering from the effects of TC Pam⁸. Most recently, in November 2022, Tuvalu declared a state of public emergency due to a prolonged drought that caused a nationwide water shortage.

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- 1 The seven global targets include: (a) Substantially reduce global disaster mortality by 2030, aiming to lower the average per 100,000 global mortality rate in the decade 2020-2030 compared to the period 2005-2015. (b) Substantially reduce the number of affected people globally by 2030, aiming to lower the average global figure per 100,000 in the decade 2020-2030 compared to the period 2005-2015. (c) Reduce direct disaster economic loss in relation to global gross domestic product (GDP) by 2030. (d) Substantially reduce disaster damage to critical infrastructure and disruption of basic services, among them health and educational facilities, including through developing their resilience by 2030. (e) Substantially increase the number of countries with national and local disaster risk reduction strategies by 2020. (f) Substantially enhance international cooperation to developing countries through adequate and sustainable support to complement their national actions for implementation of the present Framework by 2030. (g) Substantially increase the availability of and access to multi-hazard early-warning systems and disaster risk information and assessments to people by 2030.
 - 2 The four identified priority actions include: (i) Understanding disaster risk; (2) Strengthening disaster risk governance to manage disaster risk; (3) Investing in disaster risk reduction for resilience (4) Enhancing disaster preparedness for effective response and to build back better in recovery, rehabilitation and reconstruction.
 - 3 ADB and World Bank Climate risk Tuvalu profile - <https://reliefweb.int/report/tuvalu/climate-risk-country-profile-tuvalu>
 - 4 Food for thought: Climate Change Risk and food insecurity in Tuvalu - <https://www.sciencedirect.com/science/article/pii/S2590061722000424>
 - 5 UNDRR, Disaster Risk Reduction in Tuvalu Status Report
 - 6 Government of Tuvalu, Tuvalu Tropical Cyclone Pam Recovery: Vulnerability Reduction Plan
 - 7 Pacific Catastrophic Risk Assessment and Financing Initiative, Country Profile Tuvalu September 2011 - <https://docslib.org/doc/12647145/pacific-catastrophe-risk-assessment-and-financing-initiative-public-disclosure-authorized>
 - 8 Government of Tuvalu, Tuvalu Tropical Cyclone Pam Recovery: Vulnerability Reduction Plan

Recent climate projections by the IPCC (2021)⁹ for small island nations such as Tuvalu are alarming. For instance, the observed global warming will continue, marine heat waves and ocean acidification will increase, sea-level rise coupled with storm surges and waves will exacerbate coastal inundation, and increased saltwater intrusion and severe coastal erosion that will cause shorelines to retreat along sandy coasts of most small islands and cyclones will be more intense. All these indicate that climate-induced disasters are becoming more catastrophic and costly, so vulnerable communities, especially in atoll nations such as Tuvalu, will be at risk, and efforts to achieve sustainable development will be difficult.

Given the unfavourable climate projections for Tuvalu and Tuvalu's national aspiration for a "climate and disaster-resilient Tuvalu", the Tuvalu Cabinet in September 2021 endorsed the formulation and implementation of the national building codes for Tuvalu (NBCT) to build community resilience to the impacts of climate change and associated risks. The NBCT is currently being reviewed and updated under the World Bank Global Facility for Disaster Risk Reduction and Recovery (GFDRR) Consulting Services¹⁰. Additionally, the government of Tuvalu has supported the implementation of the climate-resilient housing project on Nukulaelae since 2016, and the government is currently mobilizing funding to replicate this climate-resilient housing project in all the islands of Tuvalu. It is anticipated that the enforcement of the NBCT and implementation of climate-resilient housing

will strengthen the disaster and climate resilience of buildings and infrastructures across Tuvalu and ensure a safer inclusive environment for all Tuvaluans.

The Government of Tuvalu has strong institutional arrangements and policies in place for disaster risk reduction and was among the first to develop its national strategy to comprehensively manage and reduce the impacts of disasters. In 2008, the Disaster Management Act was formulated (amended in 2014 and 2021), which reflects the legal arrangement for disaster risk reduction (DRR) in Tuvalu. In 2012, the Tuvalu National Strategic Action Plan for Climate Change and Disaster Risk Management (2012-2016) and the National Disaster Management Arrangements 2012 (Parts 1 – 3) were developed. These frameworks place the National Disaster Management Office (NDMO) as the key agency responsible for coordinating disaster-management preparedness, response and recovery. In 2015, the Tuvalu Climate Change and Disaster Survival Fund Act was established by the Government of Tuvalu to enable it to provide vital services to the people, and as a measure of response to future climate-change impacts and disasters in Tuvalu¹¹. Most recently, in 2021, the Tuvalu Strategic Roadmap for Emergency Management (SREM) 2021-2023 was developed to support the implementation of the policy and plans outlined above, by establishing practical actions to be progressed through a multi-stakeholder approach overseen and coordinated through the National Disaster Committee .

9 Source: https://www.ipcc.ch/report/ar6/wg1/downloads/factsheets/IPCC_AR6_WGL_Regional_Fact_Sheet_Small_Islands.pdf

10 Pacific Region Infrastructure Facility - <https://theprif.org/document/tuvalu/building-codes-and-standards/tuvalu-national-building-code-1990>

11 Government of Tuvalu, <https://www.ilo.org/dyn/natlex/docs/ELECTRONIC/102715/124285/F-80030661/TUV102715.pdf>

12 Government of Tuvalu, Tuvalu Strategic Roadmap for Emergency Management (SREM) 2021-2023

Midterm Review of the Sendai Framework methodology and process

The following data-collection methods were used to inform the MTR report.

- A series of interviews were conducted with key informants from relevant government departments, NGOs and the private sector.
- Questionnaires were also used to collect information from key informants. The questions were based on the standard set provided in the United Nations draft report template, filtered for questions which were relevant to the individual organizations interviewed.
- Community consultations were conducted. The information obtained from the community-level consultations was used to inform the report.
- A desktop review of relevant and related documents was also conducted, and footnote references were included. The desktop literature review includes studies, assessment reports, and research related to the progress of implementation of the identified Four Priority Actions of the SFDRR. Government reports, and disaster and climate change policies, were also consulted to substantiate the information presented in the report.
- Information obtained from interviews and questionnaires was analysed and consolidated responses were integrated and highlighted in the report.
- A national validation workshop was organized with key local stakeholders to validate the findings of the report.

The report represents a snapshot of Tuvalu's disaster risk reduction activities and national progress towards achieving the goal and targets of the Sendai Framework. Due to time constraints, the MTR team was unable to conduct national consultations specifically dedicated to the MTR of the Sendai Framework. Moreover, due to staff turnover in the various government departments, some senior government officers from relevant departments seem not to be fully aware of what the Sendai Framework is and its significance in the context of DRR in Tuvalu.

Retrospective review

3.1 Progress towards the outcome and goal

Tuvalu demonstrates considerable progress toward achieving actions on the priority areas of the Sendai Framework:

- Priority 1: Understanding disaster risk.
- Priority 2: Strengthening disaster risk governance to manage disaster risk.
- Priority 3: Investing in disaster risk reduction for resilience.
- Priority 4: Enhancing disaster preparedness for effective response and to build back better in recovery, rehabilitation and reconstruction.

Tuvalu has made significant progress in mainstreaming DRR into legislation and policy. DRR and climate change adaptation (CCA) are top priorities for Tuvalu as espoused in the Te Kete: Tuvalu National Strategy for Sustainable Development 2021-2030¹³. The government has adopted a whole-of-country approach or multi-sectoral approach to address disaster risks effectively¹⁴. Mainstreaming DRR and CCA into sectorial and development planning, including at local level is making good progress, this is evidenced by the island disaster plans and island strategic plans¹⁵. Refer to Annex B for a comprehensive list of all legislation policies and plans that support the implementation of DRR activities and achieving the goal of the SFDRR.

The Tuvalu Disaster Management Act (2008)¹⁶ (amended in 2014¹⁷ and 2021¹⁸) is the main legislation that dictates legal actions that the Government of Tuvalu should undertake in response to the mitigation of any disasters. It also outlines standard procedures

for the utilization of disaster assistance donations, and coordinating procedures with external donors or development partners. Moreover, the development and implementation of the Tuvalu Strategic Roadmap for Emergency Management (SREM) 2021-2023 has strengthened the capacity of the Tuvalu NDMO to implement previous disaster risk management plans such as the Tuvalu National Strategic Action Plan for Climate Change and Disaster Risk Management 2012-2016 and the National Disaster Management Arrangements 2012 (Parts 1 – 3) in an effective and coordinated manner. The integration of DRR into legislation and policy is an effective and an ongoing approach that Tuvalu adopted to tackle anthropogenic and climate-induced disaster risks.

Tuvalu has also made significant progress in establishing and operationalizing proactive disaster-risk governance structures and arrangements to manage climate-induced disaster risks. Tuvalu has developed strong disaster-risk governance structures to manage disaster risks during normal operations and in times of crisis. In other words, Tuvalu has proactively established a disaster-management organizational structure that operates on two levels; Normal Operations (see diagram 1) and Emergency Operations (see diagram 2). The establishment of disaster-risk governance structures and the National Disaster Committee (NDC) and Island Disaster Committees (IDC) has helped the NDMO to deliver effective and coordinated disaster management efforts from the various key disaster risk management actors from government departments, NGOs and private enterprises, and proactively responded to disaster risks.

13 Refer to Te Kete: Tuvalu Strategy for Sustainable Development 2021-2030's Strategic Priority Area 1: Enabling Environment pg.3-5

14 National Disaster Management Arrangements (Parts 1 – 3)

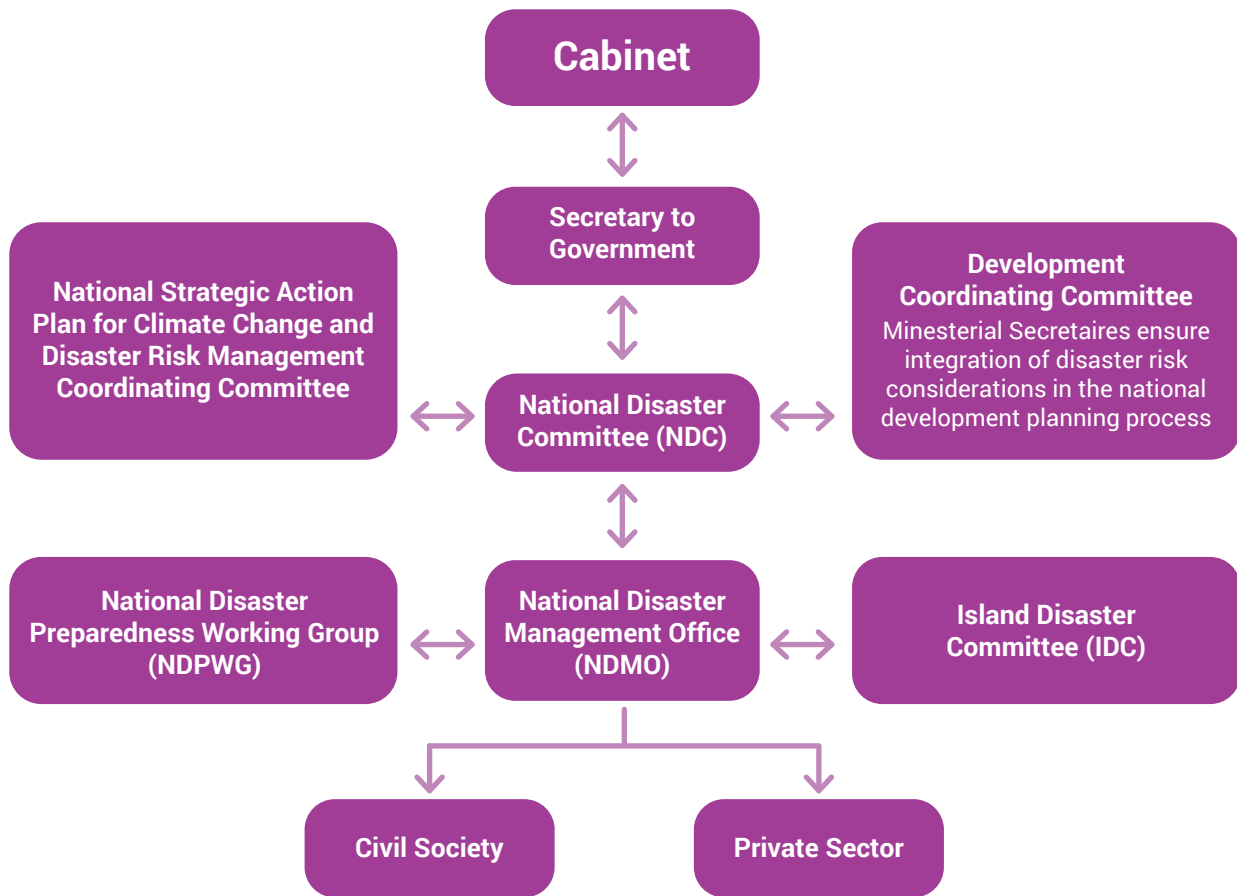
15 In 2015, through the NAPA project, the Tuvalu NDMO managed to develop island disaster management plans for each island of Tuvalu.

16 Tuvalu National Disaster Management Act (2008) - https://www.humanitarianresponse.info/sites/www.humanitarianresponse.info/files/documents/files/TUV_NDM_Act_2008.pdf

17 Source: <https://tuvalu-legislation.tv/cms/images/LEGISLATION/AMENDING/2014/2014-0013/NationalDisasterManagementCompensationAmendmentAct2014.pdf>

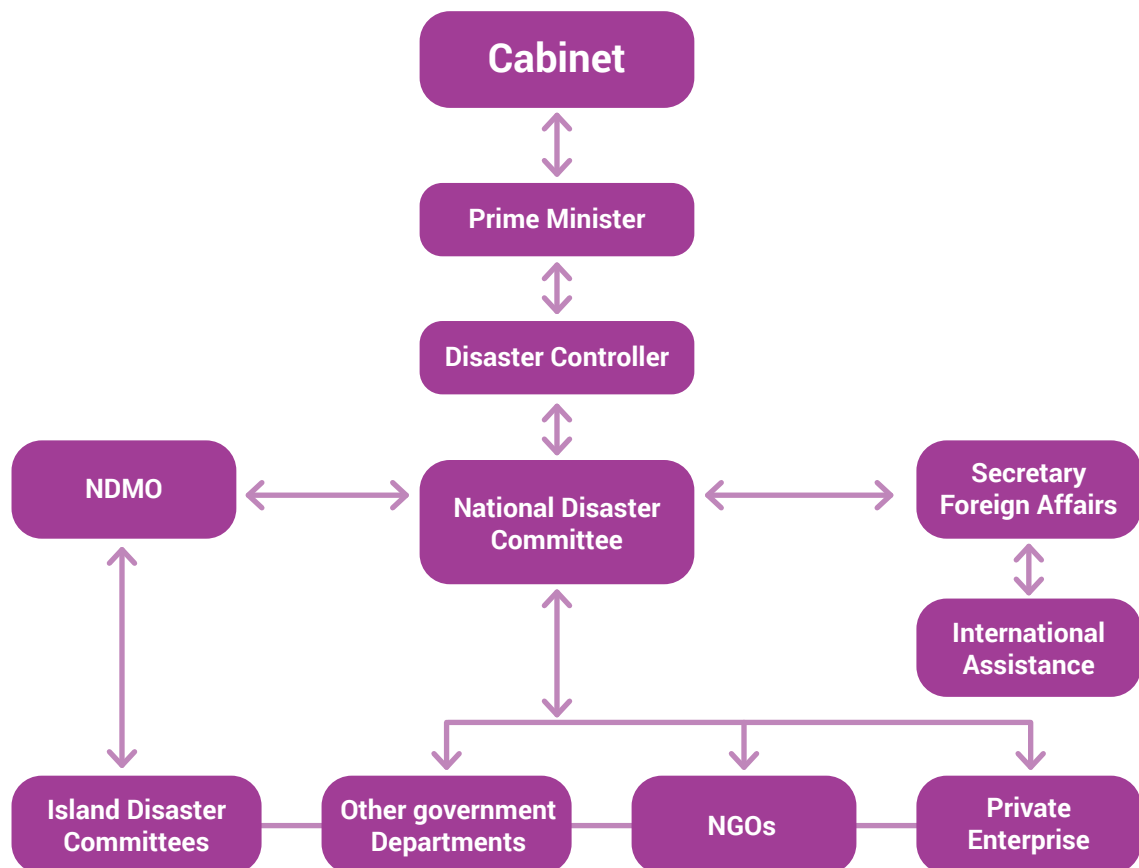
18 Source: <https://tuvalu-legislation.tv/cms/images/LEGISLATION/AMENDING/2021/2021-0002/NationalDisasterManagementAmendmentAct2021.pdf>

Diagram 1: Disaster-risk governance structures for normal operation



Source: Government (2012;2021)

Diagram 2: Disaster-risk governance structures during times of crisis (emergency)



Source: Government of Tuvalu (2012)

Tuvalu has been also investing in DRR, CCA and disaster preparedness to ensure resilience and effective response. Tuvalu has been very strategic in the utilization of funds available under national climate-related projects to support the implementation of local DRR, CCA and disaster preparedness initiatives. For instance, during the National Adaptation Programmes of Action (NAPA) II Project, Island Disaster Preparedness, Response, and Recovery Plans were created for each island. These plans have been helpful, as all Kaupule have used the new Warning SOPs in recent years, using the early-warning systems built on their islands. Additionally, through the Tuvalu Coastal Adaptation Project (TCAP), the government has been investing in

coastal-protection measures such as the construction of the reclaimed area in Funafuti and berm top barriers at selected sites (Nanumea and Nanumaga), to increase the resilience of coastal communities to the adverse impacts of climate change and sea-level rise. Moreover, the Tuvalu NDMO, Climate Change Department and the Red Cross have also been relentlessly conducting awareness programmes at community and national levels to improve risk awareness and life-saving skills, and strengthen local support networks to foster preparedness. The table below provides a summary of the policy and institutional arrangements for CCA and DRR in Tuvalu.

Table 1: Summary of policy and institutional arrangement for CCA and DRR in Tuvalu.

CCA and DRR policy and institutional arrangements	Climate change adaptation (CCA)	Disaster risk reduction (DRR)
Main Policy	Te Vaka Fenua o Tuvalu- National Climate Change 2020-2030	National Disaster Management Arrangements 2012 (Parts 1 – 3)
Policy implementation plans	Tuvalu National Strategic Action Plan for Climate Change and Disaster Risk Management 2012-2016	Tuvalu National Strategic Action Plan for Climate Change and Disaster Risk Management 2012-2016 Tuvalu Strategic Roadmap for Emergency Management (SREM) 2021-2023
Main legislation	Tuvalu Climate Change Resilience Act 2019	Tuvalu Disaster Management Act 2008
Supporting legislation	Tuvalu Climate Change Fund and Disaster Survival Fund Act 2015	Tuvalu Climate Change Fund and Disaster Survival Fund Act 2015
Coordinating agency	Tuvalu Climate Change Department, Ministry of Finance	Tuvalu National Disaster Management Office, Ministry of Public Works, Infrastructure, Environment, Labour, Meteorology, and Disaster (MPWIELMD)
Technical advisory committee	National Advisory Council on Climate Change (NACCC)	National Disaster Committee

Tuvalu has shown great commitment to supporting DRR and climate-change-related regional and international agreements and frameworks and honouring its obligation. Tuvalu's national DRR and climate-change-related policies are in alignment with regional and international agreements on DRR and climate change. Tuvalu submitted its first National Communication Report in 2015 to the UNFCCC, showcasing Tuvalu's determination and progress in achieving its Nationally Determined Contributions (NDC) as agreed in the Paris Agreement. Most recently in December 2022 at COP27, Tuvalu also submitted its updated NDC report demonstrating the Government of Tuvalu's commitment to the full, effective and transparent implementation of the Paris Agreement. On paper (policy documents and plans at national and regional levels), CCA and DRR are well integrated, and their role in wider development is established with recognition, especially at community level, and there is little practical difference between the two. However, in practice, human-resource constraints and departmental mandates result in a lack of coordination. This is reinforced by separate global frameworks for CCA and DRR. This leads to siloed

thinking in some instances, such as more emphasis on preparedness and response and less time for risk reduction, with limited links to CCA.

The lack of coordination between key stakeholders or national DRR actors is a major hinderance to the implementation of various climate-related and DRR policies and plans. For instance, one of the key respondents asserted that due to the lack of coordination and information sharing between DRR stakeholders, most of the stakeholders are not fully aware or well-versed with the various existing climate-related and DRR policies and plans. There are instances where government policies and plans are being drawn up, finalized and celebrated at meetings, but end up being placed on a shelf rather than actually being implemented, and only reviewed a few years later, with more funds spent on reviewing them. The lack of coordination and capacity constraints adversely affect the implementation of the various government policies and strategies, so the real impact of these policies and plans on the lives of the communities could be very limited.

3.2 Progress in risk assessment, information and understanding

Tuvalu has made great strides in conducting climate risk assessments and raising public awareness of these climate-related disaster risks. For instance, in 2020, the Climate Change Department, through the Tuvalu Integrated Vulnerability Assessment Project, conducted comprehensive climate-risk assessments on all the islands of Tuvalu and produced integrated vulnerability assessment reports (IVAR)¹⁹ for each island. The Tuvalu Integrated Vulnerability Assessment (2020) was conducted to assess, identify and prepare Tuvalu and its people for the risks posed by climate change and disasters²⁰. In 2021, the Asian Development Bank (ADB) and the World Bank also produced the Tuvalu Climate Risks Profile²¹ to identify potential climate risks and entry points for national actors and disaster risk management practitioners. The Government of Australia has also developed a

Tuvalu Climate Risks Profile²² to provide the Australian Department of Foreign Affairs and Trade (DFAT) programme managers and implementing partners with easy access to essential risk information. Most recently, the UNDP and IOM (2022) also produced the Tuvalu National Climate Security Risk Assessment Report²³, which complements the ADB and World Bank (2021) Tuvalu Climate Risks Profile, but this time the focus was on the security implications of climate change to Tuvalu. The production and publication of post-disaster needs-assessment reports by the Tuvalu NDMO for TC Pam (2015) and TC Tino (2020), coupled with the production and wider dissemination of the various climate-risk assessment profiles for Tuvalu, demonstrated the significant progress made in disaster and climate risk assessment, sharing information, and understanding of these risks.

19 Source: <https://napglobalnetwork.org/wp-content/uploads/2021/01/napgn-en-2020-Tuvalu-IVA-report-Funafuti-community.pdf>

20 Source: <https://www.tuvaluiva.com/>

21 Source: <https://reliefweb.int/report/tuvalu/climate-risk-country-profile-tuvalu>

22 Source: https://www.dfat.gov.au/sites/default/files/pacific-risk-profile_tuvalu.pdf

23 Source: <https://www.undp.org/pacific/publications/climate-security-risk-assessment-profiles>

In Tuvalu, disaster and climate risk information obtained from climate-risk assessments, such as those mentioned earlier, are typically disseminated to the public via physical and digital platforms. For instance, printed or hard copies of risk assessment profiles and reports were distributed to government counterparts, NGOs and all other key national and local stakeholders. Moreover, reports and any other important climate risk information were also shared via the government and development partners' websites. This information was also shared by the government and development partners via social media posts (Facebook and LinkedIn) and local radio and television programmes. The findings of climate risk assessments were also shared via suitable national, regional and international conferences by the Government of Tuvalu and its development partners such as ADB, World Bank, DFAT, UNDP and IOM.

Despite best efforts to raise awareness nationally, the effective implementation of disaster risk management actions requires scaling-up. Given that Tuvalu does not have a central repository system for storing climate and disaster-related information, policies and plans, it is suggested that one must be established under the Tuvalu NDMO to improve this. Moreover, there is a need to increase and scale-up capacity development for all the national DRR actors on best DRR practices, to strengthen, adapt and maintain their capacity not only to be able to manage climate-induced disaster risks, but also to reduce disaster risks that arise from technical, chemical, biological and human sources. The table below provides a summary of Tuvalu's disaster risk context, which is based on the Tuvalu Country Hazard Profile²⁴.

Table 2: Summary of Tuvalu Country Hazard Profile²⁵

Disasters arise from natural sources or biological hazard
<ul style="list-style-type: none"> • Cyclone • King tide • Long distance swells • Earthquake or tsunami • Drought • Plague or epidemic
Disasters arise from technical and man-made sources
<ul style="list-style-type: none"> • Air disaster (aircraft accident) • Maritime disasters (including oil spills) • Fire or explosion • Hazardous material or toxic release
Other
<ul style="list-style-type: none"> • Declining rural production • Urbanisation (in particular Funafuti) • Migration from the islands • HIV/AIDS • Families with no access to land • Deteriorating natural environment • Poor waste management • Ineffective pollution control • Sea level rise

Source: Government of Tuvalu (2012; 2016)

3.3 Progress in risk governance and management

Some commendable successes have been made in the management and governance of risks at national level. DRR and CCA are top priorities for Tuvalu as espoused in the Te Kete: Tuvalu National Strategy for Sustainable Development 2021-2030. The government has adopted a whole-of-country approach or multi-sectoral approach to address disaster risks effectively. The government has been very successful in mainstreaming DRR and CCA concepts into line ministries cooperate and annual plans and local plans such as island disaster plans and island strategic plans. For instance, under the NAPA II Project, Island Disaster Preparedness, Response, and

Recovery Plans were created for each island. These plans have been helpful as the Kaupule (or the local island councils) have used the new Warning SOPs in recent years using the early-warning systems (EWS) built on their islands. For instance, during cyclones PAM and Tino, all the outer islands' kaupule and island disaster committees (IDC) managed to implement their disaster management plan and communicated with the National Disaster Committee (NDC) using the EWS built and installed on their islands. The production of these island disaster-management plans empowers the Kaupule and IDC to enforce disaster risk reduction

²⁴ Tuvalu National Disaster Risk Management Arrangements Part 1 (2012:p.15)

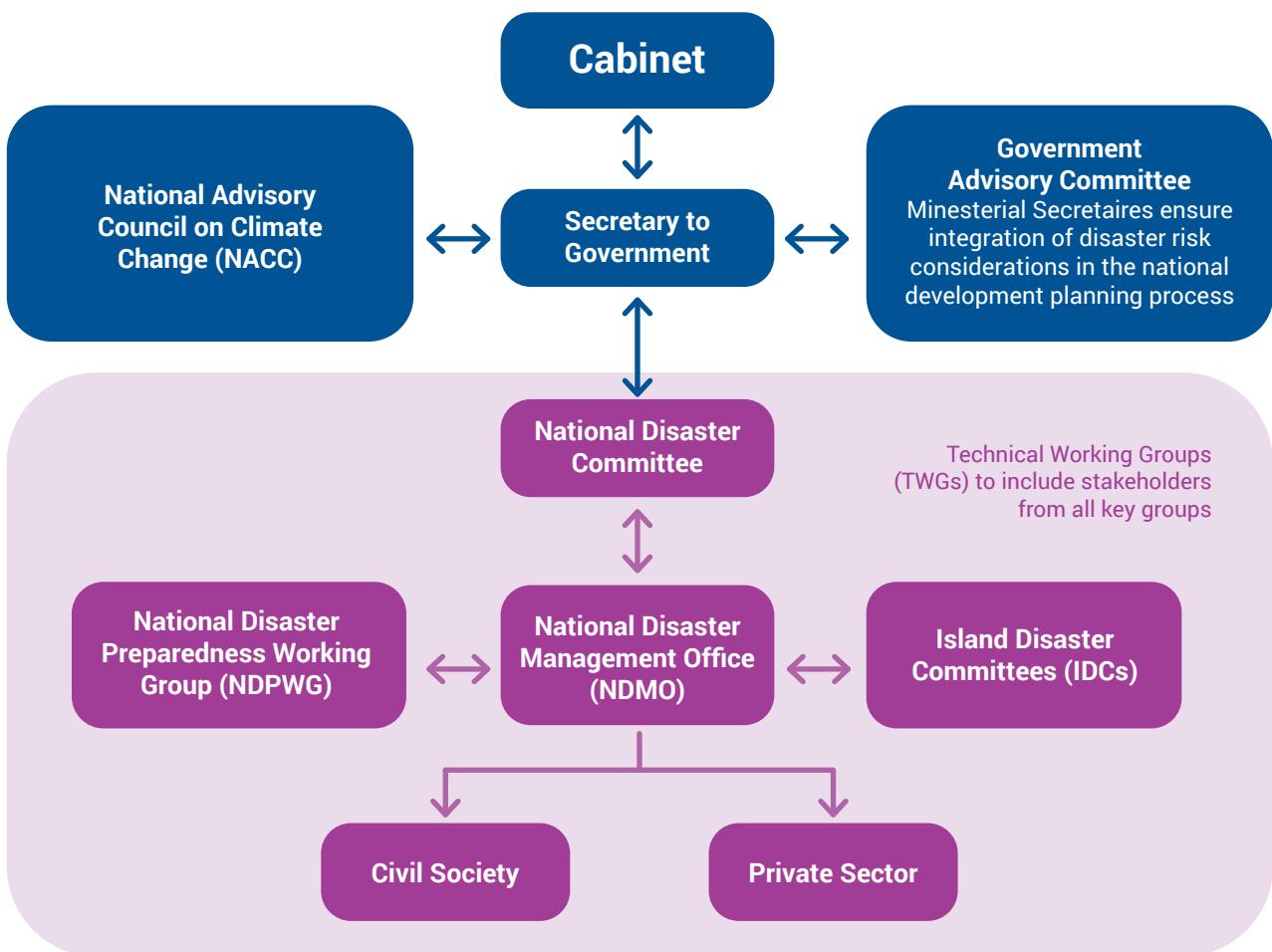
²⁵ Tuvalu's disaster risks/hazards described in government reports are not classified in accordance with the UNDRSS hazard classification system.

measures such as cutting down big trees that pose a risk to people’s houses and property, especially during cyclone seasons. The Nukulaelae ISP, KAFOA 2017-2020, integrates disaster risk management (DRM) and climate change adaptation (CCA) to maximize synergies and minimize overlaps. These island plans took an all-stakeholder approach, with meaningful engagement with communities from the bottom up.

The National Disaster Management (Amendment) Act (2021) provides for the pre- and post-effects of disasters in Tuvalu and other disaster-related matters. It is the main legislation that dictates legal actions that the Government of Tuvalu should undertake in response to any disasters, including provisions for DRR and disaster preparedness. Additionally, the National Disaster Risk Management Arrangement (Part 1-3)

also provides provisions for DRR arrangements in Tuvalu. The National Disaster Committee and Island Disaster Committee provide technical advice on the implementation of DRR initiatives in Tuvalu. Tuvalu has also established a strong disaster-management organizational structure that operates on two levels; Normal Operations and Emergency Operations. Refer to Diagrams 1 and 2 on page 7 for illustrations of the two operational structures. Currently, the National Disaster Management Office (NDMO) is the key agency responsible for coordinating disaster risk management, preparedness, response and recovery. However, a whole-of-country approach was adopted by the government to ensure effective coordination of disaster risk reduction response. Diagram 3 below shows the current disaster-management governance structure, which allows for a more coordinated disaster risk reduction and response.

Diagram 1: Disaster-risk governance structures for normal operation



Source: Government of Tuvalu (2021)

The National Disaster Committee (NDC), comprising multi-agencies, was established to act as an advisory and coordination body for disaster mitigation, preparedness, response and recovery. Through the NDMO, the National Disaster Preparedness Working Group (NDPWG) is responsible for the development of policy and training and awareness programmes aligned with the key DRM issues, as determined by the NDC. Island Disaster Committees (IDCs) play a key role in coordinating and managing disaster risk on each of Tuvalu's nine islands. The National Advisory Council on Climate Change (NACCC) provides advice to the Prime Minister and the Cabinet on how to coordinate a whole-of-government response to the challenges of climate change effectively, while the Government Advisory Committee (GAC) is the forum for discussion regarding the ongoing integration of DRM strategy into mainstream government business. In recognition of the need to address disasters from a multi-sectoral approach, the following government ministries and NGOs were also identified as key national agencies for disaster risk reduction.

- Office of the Prime Minister
- Ministry of Home Affairs
- Ministry of Foreign Affairs, Environment, Trade, Labour and Tourism

- Ministry of Finance & Economic Development
- Ministry of Transport, Communication
- Ministry of Public Utilities
- Ministry of Education, Youth & Sports
- Ministry of Health
- Ministry of Natural Resources
- Police
- Meteorological Office
- Red Cross

In responding to and managing disaster events, a coordinated response plan has been developed for each disaster and identified the control agency and support agencies and their respective disaster management roles and responsibilities. A Control Agency designation is given to the ministry or organization with primary jurisdiction whose responsibility is to lead and guide efforts to counter or manage the threat. Support Agencies are the ministries or organizations that must help the Control Agency. The responsible Control Agency and Support Agencies are also expected to deal with DRR or prevention aspects of the disaster or threat as per their mandates.

Table 3: Disasters and responsible control agency and support agencies

Emergency or threat	Control agency	Support agencies
Fire	Police, NDMO	PWD, Marine, Tuvalu Red Cross
Hazardous material spillage	Marine, Police, NDMO	Environment, Fisheries, Pacific Energy Ltd, Tuvalu Red Cross
Marine search and rescue	Police, NDMO	Marine, Tuvalu Media, Tuvalu Telecommunication Corporation,
Drought	NDMO Public Works Department (PWD)	Environment, Health, Tuvalu Red Cross, Tuvalu Media Department, Health, Police, Rural Development, Island Disaster Committee
Marine pollution	Marine	Police, NDMO, Tuvalu Media Department, Pacific Energy Ltd, Environment.
Aircraft crash	Travel	Police NDMO Red Cross
Tsunami	NDMO, Tuvalu Meteorological Service	Fire Service, Health, Tuvalu Red Cross, Tuvalu Telecommunication, Tuvalu Media Department.
King tide – long-distance swells	NDMO, Tuvalu Meteorological Service	Fire Service, Health, Tuvalu Red Cross, Tuvalu Media Department, Marine Department,
Exotic animal disease	Agriculture Department, NDMO	Health, Boarder Control Agency
Plant disease	Agriculture Department, NDMO	Health, Boarder Control Agency
Human disease - pandemic	Health, NDMO	Tuvalu Red Cross, Boarder Control Agency
Cyclone	NDMO, Tuvalu Meteorological Service	Tuvalu Red Cross, Tuvalu Media Department, Tuvalu Telecommunication Corporation, Rural Development, Police

Tuvalu has all the relevant policies, plans and strategies, and governance structures in place to manage and reduce disaster risks. However, local DRR actors need to work closely, share information and communicate regularly to ensure that DRR policies and plans are implemented in an effective and coordinated manner. During the inaugural Pacific Disaster Risk Reduction

Ministers Meeting in Nadi, Fiji (September 2022), Tuvalu Honorable Minister for Public Utilities & Environment, Ampelosa Tehulu, asserted that Tuvalu has restructured government departments and developed relevant policies, strategies, and plans to reduce disaster risks and the priority now for Tuvalu is the effective implementation of these policies and plans.

3.4 Progress in investment in risk reduction and resilience

Progress has been made in Tuvalu's effort to invest in disaster risk reduction and resilience. In 2015, the Government of Tuvalu established the Tuvalu Survival Fund (TSF) to allow the government to have access to a dedicated pool of funding to provide vital services to the people, especially in emergencies. The establishment of the TSF in 2015 has helped the government to effectively deliver immediate vital services to the people of Tuvalu in combating the devastating impact of climate change and disasters, and allowed the Government and the people of Tuvalu to respond to climate-change impacts and disasters in a coordinated and timely manner.

Tuvalu's emergency financial response to the COVID-19 pandemic must be also commended. At the beginning of the pandemic, the government quickly put together a significant fiscal stimulus plan worth AUD23.3 million (29 per cent of GDP)²⁶. It covered costs for medical supplies and vaccines, quarantine facilities, and assistance for the general public and private sector. Additionally, the island communities were permitted to spend their development grants (AUD4 million in total, 5 per cent of GDP) for COVID-related assistance to local people, and locals were given partial access to their retirement funds. The 2021 budget allocates AUD1.1 million (or 1.3 per cent of GDP) towards COVID-related expenses²⁷.

Tuvalu has been seeking to mobilize international resources for building resilience to climate change. After a six-year process, in 2019 Tuvalu became the second Pacific country accredited for direct access to the Adaptation Fund²⁸, a multilateral climate-finance facility²⁹. This gives Tuvalu more control over project management and implementation once a project proposal is approved. Accreditation with the Adaptation Fund facilitates accreditation with other international climate-finance facilities and fast-track accreditation with the Green Climate Fund (GCF). Tuvalu has nominated the Ministry of Finance as the

National Designated Authority (NDA) and is actively engaged with the GCF. To date, two GCF projects have been approved for a total of USD83 million and USD41 million: the Tuvalu Coastal Adaptation Project (TCAP), started in 2017, and the regional initiative, Enhancing Climate Information and Knowledge Services for resilience in five island countries of the Pacific Ocean, approved in November 2020. Aiming at strengthening capacities for engaging with the GCF, Tuvalu has secured access to readiness support with a first readiness grant, titled Institutional Strengthening of Tuvalu's NDA and Preparation of Country Programme, effective from April 2020. The National Adaptation Plan proposal, with a grant of USD3 million for three years, has been approved and is in the process of finalizing a legal agreement between the delivery partner (SPREP) and fund (GCF)³⁰.

However, there are issues related to accessing multilateral funding such as the Adaptation Fund, Green Climate Fund, and Global Environment Facility. For instance, application processes are too complex, take too long to complete, and are not responsive to country needs, with an average of 48 months from idea to decision for some multilateral funding. Additionally, the Council of Regional Organizations in the Pacific (CROP) agency mandates restrict access to funding and there is some confusion about what funding is for DRR and what funding is for CCA. Moreover, there are still issues with "harmonizing national and regional reporting systems". For instance, reporting multiple times in multiple formats is a major challenge. This is of particular relevance since Tuvalu has limited capacity within government departments. Tuvalu has a limited private sector, and development funding from donors can contribute around 50 per cent of the GDP. Additionally, the government provides the majority of employment opportunities, with DRR (including CCA) being the major employment sector. This means that access to development funding is essential and procedures to access funding need to be simplified.

26 IMF Country Report No. 21/176 TUVALU - <https://www.elibrary.imf.org/view/journals/002/2021/176/article-A001-en.xml>

27 Ibid

28 The Adaptation Fund was established in 2001 under the Kyoto Protocol of the UN Framework Convention on Climate Change to finance concrete adaptation projects in developing countries that are particularly vulnerable to climate change

29 Ibid

30 GCF (2021), Tuvalu Readiness Proposal - <https://www.greenclimate.fund/sites/default/files/document/tuvalu-ministry-finance-and-economic-development-tuv-rs-003.pdf>

3.5 Progress in disaster preparedness, response and build back better

Good progress has been made in strengthening disaster preparedness for effective response and building back better (BBB) in the post-disaster recovery stage. Witnessing the considerable devastation inflicted by tropical cyclone Pam in 2015, the Government of Tuvalu has scaled-up its investment in early-warning systems so that the people of Tuvalu would be better prepared for future cyclones. For instance, following cyclone Pam, the Offshore Wave Forecasting Modelling software was developed by the Pacific Community (SPC) specifically for Tuvalu and has allowed Tuvalu to provide and predict wave heights for all nine islands during a major wave event, with a lead time of up to three to five days³¹. Moreover, the installation of early-warning systems in all of Tuvalu's islands under the NAPA II Project in 2017 has greatly improved disaster preparedness in Tuvalu and increased resilience to climate-induced disasters such as cyclones. The installation of Chatty Beetle, a siren for warnings, and a dedicated HF radio network in all the islands of Tuvalu, have greatly helped the Tuvalu Meteorological Department to communicate weather, climate, and warning messages between the scattered islands of Tuvalu. It has been proven to be a very effective communication back-up in Tuvalu when Tuvalu's primary telecommunications and internet services fail.

The Tuvalu NDMO and Tuvalu Red Cross have been also conducting and performing community evacuation drills for disaster events such as tsunamis, tropical cyclones and fire accidents. The production of island disaster plans under the NAPA II Project also improves community preparedness and builds resilience for future disasters.

The creation of school response plans for disaster events such as tsunamis and fire is also a good example of progress made in strengthening disaster preparedness. In short, Tuvalu has made commendable progress in strengthening its capacity to respond effectively to disasters. A good example of a coordinated approach is the response to TC Tino. A rapid team of representatives from all sectors visited the areas affected by TC Tino to assess the damage first hand so that assistance for recovery and rehabilitation could be given as soon as possible.

Tuvalu also recognizes the need to use the reconstruction and recovery process following a disaster to improve the community's physical, social, environmental and economic conditions to create a more resilient community in an effective and efficient way. For instance, the adoption and implementation of building codes, particularly for the residential sector, is one of the primary priorities of the Ministry of Public Works, Infrastructure, Environment, Labour, Meteorology, and Disaster (MPWIELMD) Corporate Plan 2020–2023. Additionally, the government of Tuvalu has been supporting the climate-resilient housing project on Nukulaelae since 2016, and the government is currently mobilizing funding to replicate this project on all the islands of Tuvalu. Work on these is underway. The implementation of the TC Tino Recovery & Vulnerability Reduction Plan 2020 and the Tuvalu Infrastructure Strategy and Investment Plan (TISIP) Fakafoou – To Make New 2016-2025 are also prime examples of building-back-better initiatives in the post-disaster reconstruction and recovery stages.

3.6 Collaboration, partnership and cooperation

Partnerships with international development partners are key to Tuvalu achieving Sendai Framework goals. Memorandums of Agreement and Memorandums of Understanding have been used to build relationships among international and development funders, CROP agencies, and governments (participating in regional and bilateral-funded activities). It is recognized that the Pacific region cannot currently absorb the amount of development aid and climate finance available. A regional framework for climate finance might ensure that the Pacific region could access more of the funds available - for instance, the 2022 Forum Economic Ministers Meeting (FEMM) outcomes regarding the development of a Blue Pacific Economic Strategy. This could allow Tuvalu to have access to funding that would be transformational for Tuvalu.

The strong ties that small island developing states (SIDS), particularly Tuvalu, have forged with international development partners over many years, have led to the establishment of the Loss and Damage Fund Facility (LDFF) in 2022. The LDFF was established to provide financial assistance to nations most vulnerable and affected by the effects of climate change. This historic decision made by the United Nations Climate Conference (COP 27) was attributed to decades of pressure from climate-vulnerable developing countries³² (such as Tuvalu), and collaborative partnerships with global development partners³³.

Tuvalu's collaborative partnership with development partners during the pandemic has proven to be effective in responding to the impacts of COVID-19. For instance, at the

31 Source: <https://www.sprep.org/news/early-warning-systems-helping-to-build-resilience-in-tuvalu>

32 UNEP, What you need to know about the COP27 Loss and Damage Fund - <https://www.unep.org/news-and-stories/story/what-you-need-know-about-cop27-loss-and-damage-fund>

33 Tuvalu played a significant role in the establishment of the loss and damage fund with Tuvalu's Minister of Finance serving as the Pacific Champion for loss and damage, and as such negotiated on behalf of the Pacific region with development partners and global emitters to support the establishment of the loss and damage fund for climate-vulnerable developing countries.

start of the pandemic, Tuvalu was able to mobilise funding of AUD23.3 million (29 per cent of GDP) from its development partners which enabled Tuvalu to meet the expenditures on medical equipment and vaccines, quarantine facilities, and support to the population and private sector³⁴.

Tuvalu also recognizes the importance of building partnerships at community and national levels to reduce disaster risks. Climate change affects different sectors of the economy so this made the government adopt a multi-sectoral approach and inter-agency partnership to address disaster risks effectively, holistically and comprehensively.

For instance, the establishment of the National Disaster Committees and Island Disaster Committees to ensure effective coordinated responses to disasters. Also, at the start of the COVID-19 pandemic, the National COVID-19 Taskforce, comprising key government departments and NGOs, was established by the Government in 2020 to coordinate efforts at all levels. The table below provides a summary of some of the notable bilateral and multilateral partnerships that Tuvalu (NDMO) has established at the national, regional and international levels that contributes to the realization of the outcome and goal of the Sendai Framework.

Table 4: List of partnerships

Name of partnership	Descriptions
Australian Development Partnership	At the 2021 COP26, Australia increased its pledge to spend AUD \$700 million over five years to strengthen climate change and disaster resilience in the Pacific. Australia has provided approximately \$3.2 million in bilateral climate change and disaster resilience support to Tuvalu since 2016. With Australia's support, the Government of Tuvalu is undertaking significant economic reforms in fiscal sustainability and public financial management. These reforms aim to improve the transparency and accountability of government services and are a step toward strengthening economic resilience to climate shocks.
New Zealand and Tuvalu Statement of Partnership	The statement sets out the principles and priorities by which the Government of New Zealand and the Government of Tuvalu foster cooperation towards achieving the Sustainable Development Goals. Supporting national, regional and international undertakings towards achieving the aims of the Paris Agreement, including holding the increase in global average temperature to well below 2 degrees Celcius above pre-industrial levels, and to pursue efforts to limit the temperature increase to 1.5 degrees Celcius and above pre-industrial levels. Providing assistance to Tuvalu to improve systems and infrastructure that support mitigation and adaptation, and investment in building resilience to the impacts of climate change and disaster.
World Bank Group Establishment Agreement	The new agreement reflects the World Bank Group's rapidly growing engagement in the Pacific, with similar arrangements now in place in other countries across the region. The Establishment Agreement will enable the World Bank and IFC to deepen their connection, strengthening its support and opening the door to a range of areas critical to development and resilience. It will continue to bring in regional and global technical support and expertise in macroeconomics, education, health, public sector management, maritime transport, aviation, disaster resilience, and information and communications technology. The Tuvalu Second Resilience Development Policy Operation with a Catastrophe-Deferred Drawdown Option is World Bank support that is closely aligned with Tuvalu's National Strategy for Sustainable Development 'Te Kete'. The support aims to: (1) improve infrastructure by ensuring that a building code for climate resilience and safe buildings is in place and (2) strengthen disaster and climate resilience, especially at household level, to better recover from the impacts of disasters.
Asian Development Bank	Tuvalu has been a member of the Asian Development Bank (ADB) since 1993. ADB's assistance has concentrated on improving macroeconomic growth and stability, advancing renewable energy, upgrading transport assets, expanding health coverage and building disaster resilience. ADB grant support from its Pacific Disaster Resilience Program will provide Tuvalu with access to an immediate and flexible source of financing to respond to disasters triggered by natural hazards and health emergencies.
Pacific Partnership for Atoll Water Security	The partnership will facilitate improved knowledge sharing and advocacy between drought-affected Pacific SIDs, relevant development partners, and regional and international organizations. It will facilitate the practical sharing of information on water security, and drought resilience and preparedness activities undertaken in drought-affected countries and enable an effective voice of drought-affected atoll nations in international and regional forums.
Pacific Resilience Facility – Pacific Island Forum.	To build Pacific resilience in the face of more frequent and severe disasters and ongoing climate-change threats, the PRF will help vulnerable Pacific people exposed to climate change and disaster risks, particularly women and girls, children, the elderly and people with disabilities. It will build the resilience, preparedness and adaptive capacity of poor communities before disasters strike. The PRF will offer grants to governments for community-level projects that are crucial for disaster risk reduction on a small scale, ranging from USD50,000 to USD200,000.

34 IMF Country Report No. 21/176 TUVALU - <https://www.elibrary.imf.org/view/journals/002/2021/176/article-A001-en.xml>

3.7 Progress in achieving the Targets of the Sendai Framework

The activities and initiatives performed by the Government of Tuvalu, as outlined in this report, indicate that good progress has been made towards achieving the goal of the Sendai Framework. The table below

provides a summary of achievements (disaster risk reduction and management best practices) made across the four priorities for action of the Sendai Framework.

Table 5: Best practices delivered across the four Priorities for action of the Sendai Framework

Four Priorities for action of the Sendai Framework	Highlights of main achievements or best practices delivered across the four priorities for action of the SF
<p>Understanding disaster risk</p>	<p>Production of the Tuvalu Integrated Vulnerability Assessment Report (Government of Tuvalu, 2020).</p> <p>Production of the Tuvalu Climate Risk Profile (ADB and World Bank (2021).</p> <p>Production of the Tuvalu Climate Risks Profile (Australian Department of Foreign Affairs and Trade (DFAT) (2021).</p> <p>Production of the Tuvalu Climate Security Risk Assessment Profile (UNDP and IOM, 2022).</p> <p>Tuvalu NDMO, Climate Change Department, Red Cross, Department of Waste Management and Public Health Awareness Programs</p>
<p>Strengthening disaster-risk governance to manage disaster risk</p>	<p>In 2019, the Government of Tuvalu restructured the oversight of DRR and Climate Change effectively, where the Ministry of Finance oversees Climate Change, and the Ministry of Public Works and Infrastructure, Environment, Labour, Metrological and Disaster (MPWIELMD) oversees DRR.</p> <p>Since 2019, the Tuvalu NDMO has been expanded from a one officer to four officers, which will improve the implementation of the framework going forward.</p> <p>Establishment of the National Disaster Committee and Island Disaster Committee (2017).</p> <p>The production of island disaster-management plans and integration of DRR concepts into government policies, ministries’ corporate plans and local island strategic development plans.</p>
<p>Investing in disaster risk reduction for resilience</p>	<p>The establishment of the Tuvalu Survival Fund in 2016.</p> <p>Tuvalu was able to access and mobilize international resources to build resilience to climate-induced disasters. In 2017, Tuvalu was able to access funding from GCF to fund the multimillion Tuvalu Coastal Adaptation Project. In 2019, Tuvalu became the second Pacific Island country to have direct access to the Adaptation Fund.</p> <p>Establishment of bilateral and multilateral partnerships that facilitates accessibility to disaster and climate-related funding (pg18-20).</p>
<p>Enhancing disaster preparedness for effective response and building back better in recovery, rehabilitation and reconstruction.</p>	<p>In 2021, the Cabinet endorsed the formulation and implementation of the Building Codes in Tuvalu to reduce disaster risks and losses.</p> <p>Implementation of the climate-proof housing project on Nukulaelae island since 2016. The government is currently drafting a project proposal to GCF to replicate the climate-proof housing project in all the islands of Tuvalu.</p> <p>The installation of early-warning systems in all of Tuvalu’s islands under the NAPA II Project in 2017.</p> <p>Development and installation of the offshore Wave Forecasting Modelling software by SPC.</p> <p>The implementation of the TC Tino Recovery & Vulnerability Reduction Plan 2020 and the Tuvalu Infrastructure Strategy and Investment Plan (TISIP) Fakafoou – To Make New 2016-2025</p>

The lack of data available specifically relating to the seven global targets of the Sendai Framework is a major challenge to assessing Tuvalu's progress towards

the achievement of the SFDRR seven Global Targets for Tuvalu. Table 6 below provides an overview of the reporting and target-achievement progress.

Table 5: Best practices delivered across the four Priorities for action of the Sendai Framework

Target	Global Target	Reporting status	Progress achievement of Targets
A	Substantially reduce global disaster mortality by 2030, aiming to lower average per 100,000 global mortality between 2020-2030 compared with 2005-2015.	Reported from 2015 to 2021	Data lacking to make a substantial analysis
B	Substantially reduce the number of people affected globally by 2030, aiming to lower the average global figure per 100,000 between 2020-2030 compared with 2005-2015.	Reported from 2016 to 2021	Data lacking to make a substantial analysis
C	Reduce direct disaster economic loss in relation to global gross domestic product (GDP) by 2030	No reporting	No data available
D	Substantially reduce disaster damage to critical infrastructure and disruption of basic services, among them health and educational facilities, including through developing their resilience by 2030.	No reporting	No data available
E	Increase the number of countries with national and local disaster risk reduction strategies	Reported from 2016 to 2021	<p>Progress in E-1: National average score for the adoption and implementation of national DRR strategies in line with SF from the score 0.1 in 2016 to 0.45 in 2021.</p> <p>Progress in E-2: Number of local governments with DRR strategy in line with national strategies from 0 per cent in 2016 to 100 per cent in 2021.</p>
F	Substantially enhance international cooperation to developing countries through adequate and sustainable support to complement their national actions for implementation of this framework by 2030.	Reporting on 2020 and 2021	Limited analysis since reporting is only for two years.
G	Substantially increase the availability of and access to multi-hazard early-warning systems and disaster risk information and assessments to the people by 2030.	Reporting on 2020 and 2021	Limited analysis since reporting is only for two years.

Source: Author analysis (Sendai Monitor)

Contextual shifts, new and emerging issues and challenges

4.1 Context shifts and new issues – retrospective 2015 – 2022

Since 2015, changes in the context of DRR in Tuvalu were a combination of interconnected issues of environmental, socioeconomic and institutional change. Some of these environmental and socioeconomic issues include:

- Climate crises and extreme weather events with increased intensity and frequency – drought, cyclones, inundation and sea-level rise, especially for low-lying atoll nations such as Tuvalu.
- Lack of coping capacity.
- Disasters becoming more costly.
- Land loss (disappearance of lands and small islets) due to sea-level rise, and severe coastal erosion affecting coastal infrastructure and people's livelihoods.
- Food-insecurity issues exacerbated by the impacts of climate change.
- Water scarcity due to unpredictable drought, contamination of underground water sources, and lack of water storage facilities, both at household and government levels.
- Public-health emergency brought about by COVID-19.
- Climate-related security issues and threats as espoused in the Boe Declaration by Pacific Island Forum leaders.
- Lack of capacity to manage hazardous waste.
- Threats posed to local biodiversity by invasive species, pests and diseases.
- Urbanization and overcrowding due to rural-to-urban migration.
- Lack of financial capacity to respond to the impacts of disasters such as cyclones promptly. This led to the establishment of the Tuvalu Survival Fund in 2016.
- COVID-19 pandemic and weak medical capacity

Tuvalu's change in institutional coordination arrangement for effective disaster risk management is seen to play an important role in achieving the goals and targets of the SFDRR. In 2019, the Government of Tuvalu restructured the oversight of DRR and climate change where the Ministry of Finance oversees climate change, and the Ministry of Public Works and Infrastructure, Environment, Labour, Metrological and Disaster (MPWIELMD) oversees DRR. The Tuvalu NDMO has been expanded from one officer to four officers, which will improve the implementation of the framework going forward. The government also adopted a whole-of-country approach to overseeing DRR across the government and ensuring effective coordination of disaster risk reduction activities.

This change in context has led to improvements in risk governance, such as the coordinated creation of strategies and plans at local levels (including Island Disaster Preparedness, Response and Recovery Plans for each island – integrating DRR and CCA) to stop the emergence of new risks. Mainstreaming DRR and CCA into local development plans is a continuous process, so at the national level, there needs to be an adjustment in the way relevant policy, regulatory and legislative frameworks are developed. The COVID-19 pandemic continues to be a major public health risk for Tuvalu, considering its weak healthcare system in terms of human and financial capacity constraints, coupled with the limited medical facilities and equipment available. However, the Tuvalu Ministry of Health has made some progress in addressing health risks using an integrated risk-management approach. For instance, since the outbreak of the COVID-19 pandemic, the Ministry of Health quickly developed a Health Action Plan which was revised following a Preparedness and Response Risk Assessment conducted by WHO in March 2020³⁵. Additionally, the government also established the National COVID-19 Taskforce in March 2020 to coordinate efforts at all levels. Moreover, the Talaaliki

Plan (worst-case scenario) was also developed to provide a blueprint for action and to prepare for a worst-case scenario in which COVID-19 reached Tuvalu. The Ministry of Health, with assistance from the Tuvalu Red Cross, also managed to conduct successful community-based outreach vaccination campaigns. Hence, when COVID-19 reached Tuvalu on the 2 November 2022, the

government was well-prepared because vaccination rates were high. For instance, 97 per cent of the eligible population (five years and above) had received at least two doses of the COVID-19 vaccine and 81 per cent of the eligible population had also received at least one booster³⁶.

4.2 Emerging issues and future contexts – prospective (to 2030 and beyond)

The consultations carried out in line with the MTR of SFDRR aimed to improve Tuvalu's response to the challenges brought about by changes in context since 2015. While the topics of concern or issues raised during the bilateral consultations are consistent with the information obtained from the literature and the Tuvalu context, it is anticipated that DRR management actors or national stakeholders will encounter the various emerging issues highlighted below.

Disaster-management practitioners and national stakeholders are highly likely to continue to deal with the threats posed by climate change. Climate-induced disasters present considerable challenges for Tuvalu. The recent IPCC Sixth Assessment Report (2021) predicts that small low-lying atoll nations such as Tuvalu will be increasingly affected by climate change³⁷. Climate-induced disasters such as tropical cyclones will be more intense and costly. Land loss due to sea-level rise and severe coastal erosion will continue to be an alarming issue of concern for Tuvalu in the years to come. Hence, disaster-management practitioners and national stakeholders will need to mobilize resources for more investments in capacity-building, early-warning systems and practical adaptation measures to strengthen local capacity to respond to and mitigate the adverse impacts of climate-induced disasters.

Given the extreme vulnerability of Tuvalu to the adverse impacts of climate change, national stakeholders and disaster-management practitioners will encounter the security implications of climate change. These climate-related security challenges³⁸ include:

- displacement and human mobility due to degradation of livelihoods, food and water sources, and coastal erosion
- increased social tensions linked to access to land, fisheries resources and development funding
- challenges to the Blue Economy, particularly losses in fisheries and tourism revenue
- food security and a decline in health and productivity of Pacific people as local food-source degradation exacerbates dependency on unhealthy cheap imports, coupled with an existing and growing non-communicable disease crisis
- reduced coping capacity and increased vulnerability of at-risk populations due to successive and strengthened climate stressors and shocks
- impacts of sea-level rise on the jurisdictions of Pacific (SIDS), with uncertainty on maritime zones and boundaries.

Other emerging issues of great concern are listed and described below.

Lack of facilities to manage hazardous waste: There is a need to improve local waste-management practices to deal effectively with hazardous wastes from solar panels and batteries. Tuvalu is investing heavily, and will continue to, in renewable energy projects to achieve its ambitious target of 100 per cent renewable energy for power generation by 2030. The solar panel system is the most desirable renewable energy source in Tuvalu.

35 Source: <https://www.who.int/westernpacific/about/how-we-work/pacific-support/news/detail/11-11-2022-tuvalu-responds-to-the-country-s-first-community-transmission-of-COVID-19>

36 Ibid

37 Source: https://www.ipcc.ch/report/ar6/wg1/downloads/factsheets/IPCC_AR6_WGL_Regional_Fact_Sheet_Small_Islands.pdf

38 Source: <https://www.undp.org/pacific/publications/climate-security-pacific-project-brief>

However, solar panels are hazardous waste. Therefore, there is a need to improve waste-management facilities and build the capacity of the Tuvalu Department of Waste Management to manage the solar panel hazardous waste problem effectively. As Tuvalu continues to invest heavily in solar energy sources, Tuvalu needs to have an effective waste-management system in place to manage the solar panel toxic-waste problem.

There is also a need to build local capacity to manage oil spills and dispose of chemical waste in a safe and effective manner. In recent years, oil spills in the Funafuti lagoon, caused by foreign ships, have caused public criticism of the ability of local authorities to manage oil-spill incidents and impose a fine on the shipping company. Very recently, in 2022, a team from Environment and Education visited the Motufoua Secondary school to assess and develop a strategy for disposing of chemical waste from the science laboratory of the school in a safe location. An overseas specialist was engaged in this activity. In an earlier event, a similar team visited the Agricultural Research Station to manage the disposal of old chemical fertiliser of around 70 kilogrammes in a safe location. Hazardous waste, oil spills and plastic waste pose considerable threats to the natural environment and biodiversity.

Challenges with the implementation of the national building codes: In 2021, the Cabinet endorsed the formulation and implementation of a national building code. However, enforcing the national building codes will be cost-inhibitive, especially for low-income families. Therefore, there will be non-compliance issues arising from the implementation of the national building codes. Currently, the building code has not yet been implemented and issues on its cost implications have delayed the implementation of the building codes. Hence, high costs associated with the building codes are a major barrier to the enforcement of the national building codes.

Issues on land ownership right over reclaimed lands: The issue of land ownership rights over reclaimed lands has been a major challenge to the implementation of land-reclamation projects in Tuvalu. Under the Tuvalu Foreshore and Land Reclamation Act (2008), any reclaimed land, such as the land-reclamation area constructed in the Funafuti lagoon by the Tuvalu Coastal Adaptation Project, is regarded as crown lands. However, the Funafuti island community has strongly opposed the government's ownership right over the

land-reclamation site due to the strong community interest in controlling the reclaimed area for future community developments. Given that the Government of Tuvalu will be investing in land-reclamation projects as part of its Long-Term Adaptation Plan³⁹, the issue may remain a major hindrance to the implementation of land-reclamation projects in Tuvalu.

Impacts of dredging from the lagoon as part of land-reclamation project: The impacts of dredging in the lagoon in support of land-reclamation projects, especially in Funafuti, need to be investigated. Potential risks include the impacts on marine biodiversity and the lagoon ecosystem and impacts on coastal erosion, which have been acknowledged for many years by scholars⁴⁰. Dredging activities from the Funafuti lagoon are likely to continue given the ongoing reclamation project by the Tuvalu Coastal Adaptation Project. Additionally, *Te Lafiga o Tuvalu: Tuvalu's Long Term Adaptation Plan (2022)*⁴¹ also articulates Tuvalu's national aspiration to support land-reclamation projects to address the issue of sea-level rise and land loss. Considering that Tuvalu will continue to support and invest heavily in land-reclamation projects as part of its long-term adaptation plan, it is strongly recommended that environmental and social impact assessments (ESIA) are carried out before dredging from the lagoon takes place

Food, water and health insecurity issues: Food and water insecurity issues are ongoing concerns for Tuvalu. Tuvalu's inherent physical characteristics, such as small size (limited arable areas) and poor soil for agriculture, all contribute to food insecurity issues. Additionally, Tuvalu has no other water sources apart from rainfall and underground water, which is contaminated due to rising sea levels. The limited water storage facilities, both at household and government levels, make water shortage a constant issue of concern in Tuvalu. Climate change exacerbates food and water insecurity issues. Due to the limited local agricultural produce, the local population tends to rely heavily on imported foods. The most recent survey conducted by the Tuvalu Ministry of Health⁴², in collaboration with the World Health Organization, revealed that 95.8 per cent of people did not meet the recommended five minimum servings a day of fruits and vegetables. This contributes to the non-communicable diseases (NCD) crisis in Tuvalu, with 62.2 per cent of the population found to be obese⁴³. Food, water and health insecurity remain major issues of concern that require urgent action.

39 Source: <https://tcap.tv/news/2022/11/14/tuvalu-presents-long-term-adaptation-plan-ltap>

40 Source: https://www.researchgate.net/publication/245292965_Impacts_of_Dredging_on_Shoreline_Change

41 Source: <https://tcap.tv/news/2022/11/14/tuvalu-presents-long-term-adaptation-plan-ltap>

42 Source: <https://cdn.who.int/media/docs/default-source/ncds/ncd-surveillance/data-reporting/tuvalu/tuvalu-steps-report-2015.pdf>

43 Ibid, p.4

Lack of quality and accessible data: Tuvalu NDMO does not have a central repository system to store all the climate and disaster-related information. Hence, the challenge of accessing quality and accessible data by those who need it is an ongoing problem in Tuvalu. This affects the ability of the government, development partners and regional and international partners, private sector, local technical people and international consultants to obtain quality and relevant disaster-related information in a timely manner. The lack of quality and accessible data also hinders Tuvalu's ability to fulfil its national and international reporting obligation to the various multilateral agreements that Tuvalu is a party to, such as the Sendai Framework, Paris Agreement and SDGs. Most importantly, this could also affect Tuvalu's capacity to make sound and informed decisions in disaster risk management.

Challenges to accessing climate finance: Although funds for DRR have increased, the Pacific region needs to build capacity and structures to be able to access financing at a more meaningful level. The lack of climate and disaster-related data in Tuvalu to support project proposals to donors, coupled with the complexity of application processes, are major barriers to accessing multi-lateral funding. This is of particular relevance since Tuvalu has limited capacity within government departments. The establishment of the Loss and Damage Fund in 2022 is seen as a major achievement for the climate-vulnerable countries in the Pacific such as Tuvalu, but a simple and clear guideline to accessing the Loss and Damage Fund must be developed to ensure easy access to it. The FRDP (2016) recognizes the need for capacity development in climate finance in its priority areas by national and sub-national government administrations and regional organizations and other development partners. This is still a key issue for Tuvalu and remains a priority for the Pacific region.

COVID-19 public-health emergency: Like other countries, Tuvalu's economy has been affected by the effects of the pandemic. At the declaration of the global outbreak of COVID-19, the Ministry of Health quickly developed a COVID-19 Health Taskforce in January 2020. This was followed by the development of a Health Action Plan, which was revised following a Preparedness and Response Risk Assessment conducted by WHO in March 2020. The National COVID-19 Taskforce was also established by the Government in March to coordinate efforts at all levels. A Talaaliki Plan (worst-case scenario) was developed to provide a blueprint for action and to prepare for a worst-case scenario in which COVID-19 did reach Tuvalu. At the start of the pandemic, the authorities swiftly put together a large fiscal stimulus package of AUD23.3 million⁴⁴. It included expenditure on medical equipment and vaccines, quarantine facilities, and support to the population and private sector.

Tuvalu's effective emergency response to COVID-19 must be acknowledged. Tuvalu confirmed its first COVID-19 cases on 2 November 2022, after more than two-and-a-half years without any community transmission of COVID-19. This makes Tuvalu the last full WHO Member State in the Western Pacific Region to experience community transmission of COVID-19⁴⁵. Currently, there is no COVID-related death reported in Tuvalu and 80 per cent of Tuvalu's population has been vaccinated. This was achieved through effective community vaccine campaigns conducted by the Public Health Department. COVID-19 affected marginalized groups differently. Socio-economic situations of women and girls, LGBTQI+, persons with disabilities, youth, and older persons, worsened during the pandemic, including an increase in violence.

44 IMF Country Report No. 21/176 TUVVALU - <https://www.elibrary.imf.org/view/journals/002/2021/176/article-A001-en.xml>

45 Source: <https://www.who.int/westernpacific/about/how-we-work/pacific-support/news/detail/11-11-2022-tuvalu-responds-to-the-country-s-first-community-transmission-of-COVID-19>

Prospective review and recommendations

5.1 Recommendations for realizing the Outcome and Goal of the Sendai Framework

In light of the outcomes of the retrospective review and examination of the contextual shifts and new and emerging issues presented in the previous retrospective section, this section of the report outlines the recommendations for potential policy adjustments and new modalities for implementation for the second

half of the duration of the Sendai Framework to 2030. Table 6 below provides a summary of the proposed recommendations to address the emerging issues and challenges related to the achievement of the goal of the Sendai Framework, as identified in the previous section (section 4).

Emerging issues and challenges	Proposed recommendations
<p>Impacts of climate change</p>	<p>Extreme weather and climate events</p> <ul style="list-style-type: none"> • Operationalize and strengthen early-warning systems (EWS) to improve preparedness and reduce disaster losses. The Tuvalu National Disaster Management Office (NDMO)'s Early Actions Protocol or Standard Operation Procedure (SOPs) for all climate-induced disasters should be firmly grounded on early-warning system advice • Conduct community-based capacity-building and specific disaster-emergency drills • Review, update and implement island disaster plans • Develop the National Adaptation Plan (NAP) and support the implementation of climate-adaptation measures. <p>Rising sea levels and land loss</p> <ul style="list-style-type: none"> • Implement Tuvalu's Long-Term Adaptation Plan (LTAP) to support the implementation of coastal-protection measures such as the construction of seawalls and raising the lands above sea level through land-reclamation projects. <p>Impact on food security (agriculture)</p> <ul style="list-style-type: none"> • Implement climate-resilient farming techniques such as food cubes, and vertical farming • Introduce climate-resilient food crops • Improve water-storage facilities to solve irrigation problems. • Revive traditional food-acquiring skills. <p>Impact on water security</p> <ul style="list-style-type: none"> • Waive import custom duty costs for water tanks • Procure desalination plants for each of the outer islands to supplement water supplies during drought • Support the implementation of water-facility improvement projects.

Emerging issues and challenges	Proposed recommendations
(continued)	<ul style="list-style-type: none"> • Impact on people’s properties and public infrastructures • Enforce land-use planning to avoid the construction of new houses in disaster-prone areas (coastal accretion areas) • Implement the building codes to reduce disaster losses • Encourage the replenishment and continued investment into the Tuvalu Survival Fund to assist the government in fulfilling its obligation in providing compensation for disaster losses. <p>Climate-related security risks and challenges</p> <ul style="list-style-type: none"> • Support the implementation of the Te Vaka Fenua o Tuvalu: National Climate Change Policy 2021-2030, Tuvalu Long Term Adaptation Plan (LTAP) and Boe Declaration and Action Plan • Secure international recognition of Tuvalu’s statehood as permanent and its existing maritime boundaries as fixed, despite the effects of sea-level rise and climate change on Tuvalu’s land territory • Support implementation of both national and regional climate-related security initiatives.
Lack of capacity to manage hazardous waste	<ul style="list-style-type: none"> • Support capacity development on the sustainable management of hazardous waste, oil spills and plastic problems • Support and implement the 3Rs (reduce, reuse, recycle) of waste management • Secure partnerships with reputable overseas waste-management and recycling companies to facilitate exporting of plastic waste and other recyclable waste for recycling purposes • Develop a multi-agency coordinated plan to address marine pollution, oil spills, plastic problems and hazardous waste.
Threats posed by invasive species, pests and diseases on local biodiversity	<ul style="list-style-type: none"> • Ban the movement of live plants, green and mature coconuts, as well as food baskets made from green coconut leaves, between islands unless a thorough inspection is done, and clearance is given by agriculture extension officers. • Enforce compliance with biosecurity acts and border phytosanitary measures to avoid the entry of pests and diseases • Build local capacity in the management of pests, diseases and invasive species given the lack of expertise in the field of entomology in Tuvalu.
Challenges with the implementation of the national building codes	<ul style="list-style-type: none"> • With the increasing prices of building materials, it is recommended that the government should consider waiving import custom duty costs for building materials, and closely monitor the local retailing prices of building materials and home construction costs by local builders or contractors • Compliance to be funded by the government through CCA projects.
Issue on land ownership right over reclaimed lands:	<ul style="list-style-type: none"> • Conduct community-based awareness programmes on government legislation and policies concerning land reclamation activities.
Impacts of dredging from the lagoon as part of land reclamation project	<ul style="list-style-type: none"> • Environment and Social Impact Assessment (ESIA) must be carried out to identify potential social and environmental problems that may arise from all the reclamation (dredging) projects and also to develop Environment Management Plan (EMP) to minimize the risks. Dredging is a new concept to Tuvalu so these studies must provide practical risk-management strategies to mitigate risks posed by dredging activities.
Food, water and health insecurity issues.	<ul style="list-style-type: none"> • Support the implementation of projects to improve food, water and health security in Tuvalu. Local communities, vulnerable groups in communities and relevant stakeholders should be involved in the project design phase to ensure that these food and water-related projects respond to the needs and priorities of the local communities • Adopt a multi-stakeholder approach to addressing food, water and health-related issues.

Emerging issues and challenges	Proposed recommendations
Challenges to accessing climate finance.	<ul style="list-style-type: none"> • Support and conduct capacity development in climate finance to build the capacity of relevant national stakeholders to familiarize themselves with the application process, thus enabling them to have access to multilateral funding • Constantly update Tuvalu's climate and disaster-related information on the Sendai Framework monitor • Support continued investment in the Tuvalu Survival Fund every year • Allocate a reasonable budget for DRR initiatives and emergency response in the government's annual recurrent budget rather than relying on development partners
Impacts of the ongoing COVID-19 public health emergency	<ul style="list-style-type: none"> • Support the continuation of the public's vaccination campaign • Support medical procurement activities to facilitate the procurement of the required COVID-19 response supplies (equipment) • Support and conduct awareness programmes and capacity-building training for local health workers or COVID-19 first responders.
Urbanization and overcrowding	<ul style="list-style-type: none"> • Improve government services on the outer islands (decentralization of urban functions) • Create job opportunities on the outer islands by supporting development projects.

Source: Author's analysis

5.2 Risk assessment, information and understanding

In responding to the question on how risk knowledge and insight can be improved, including in improving understanding of the systemic and interconnected nature of risk, the following measures should be considered:

- **Support capacity development and education on DRR.** Developing capacity helps people to understand catastrophe risks (nature of risks) and how to prepare for a disaster, and to ensure that risk information and insight are consistently incorporated into all decision-making. Capacity-building should be an ongoing process and an integral part of the Tuvalu NDMO work to ensure a common understanding of the degree of cascading risk and develop ways to isolate, measure and manage or prevent systemic risk⁴⁶. Inclusive DRR-awareness programmes should be encouraged. The integration of DRR and CCA into school curriculums should be also supported.
- **Promote sharing of disaster and climate-related data and DRR best practices.** Sharing information should be encouraged amongst national stakeholders to ensure a less-siloed approach to DRR and well-informed DRR decision-making. The development of a disaster-risk communication plan is recommended in this regard.
- **Develop a disaster-risk assessment profile and tools and methodologies to understand hazards.** There are existing National Climate Risk Profiles for Tuvalu, but these mainly highlight climate-related risks. The development of a national disaster-risk assessment profile will greatly enhance understanding of all the types of disaster risks relevant to Tuvalu and will assist national stakeholders in implementing up-to-date and realistic disaster-risk management actions. The development of the Tuvalu Disaster Risk Profile should be used as an opportunity to classify local hazards in accordance with the UNDRR's hazard-classification system.⁴⁷
- **Scaling-up the role of the private sector.** Encourage engagement with the private sector by raising awareness of the importance of DRR and understanding risk in relation to various private-sector activities.

⁴⁶ There is a need to enhance the knowledge and capacity of policymakers to better understand the interdependencies between sectors that can contribute to the vulnerability of communities to disasters and adopt measures required to reduce and manage them by mainstreaming DRR through all sectors.

⁴⁷ Source: <https://www.undrr.org/publication/hazard-definition-and-classification-review-technical-report>

- **Constantly update the Sendai Framework Monitor.** Tuvalu made its first report on the SFM in 2021. There are concerns with the quality of data available on the Sendai Framework Monitor. For example, small incidents are not always reported. This gap in reporting may not reveal the true extent of progress made at community level as smaller incidents are where DRR actions may have the most impact at local level. For example, some monthly inundation at high tides over three metres. There is a need to regularly update information on the Sendai Framework Monitor to record all the information regardless of the magnitude of the disaster. Targets C and D were never reported, but it's essential to report these targets to understand the economic loss and damage and disruption to critical infrastructures and services.
- **Introduce climate and disaster lessons in schools.** Climate and disaster concepts should be integrated into existing school curricula to ensure children learn about simple ways of mitigating climate and disaster risks.
- **Support contextualization of disaster-risk information.** There is a need to ensure disaster-risk information, forecast, and early warnings are informed by locals and customized to the local context so that information is accessible, inclusive and impact-based. An early warning should be written constructively and concisely and must be translated into the Tuvaluan language. Use sign language to convey early-warning messages to people with disabilities.
- **Support early introduction and high-quality inclusive education in sign language to ensure effective communication with people with disabilities.** This ensures the full participation of people with disabilities in all DRR-related activities so that they are well-informed about any emergency.
- **Improve the management, monitoring, data collection, use and reporting of disaster-risk information.** There is an urgent need for a more coherent and collaborative approach to defining and monitoring hazards and their interlinkages, to support all aspects of disaster risk reduction, including the development and implementation of assessments, strategies, management measures, monitoring and reporting. The Tuvalu NDMO should be the main agency responsible for the management of disaster-risk information and all disaster-risk information from other sectors or agencies must be made available to the Tuvalu NDMO. The development of a website or database for the management of information on disaster risk and disaster damage and loss is crucial.
- **Support and encourage post-disaster reflection and document lessons learnt, to inform policy and strengthen DRR practices.** Organized post-disaster reflection should be encouraged as a means of documenting lessons learnt and informing policy and plans to strengthen future disaster-risk response measures. Tracking and monitoring of the progress of training should be done.

5.3 Risk governance and management

To strengthen disaster-risk governance and management, the following actions must be considered.

- **Support continuous integration and mainstreaming of DRR into policy and plans across government departments and island communities and the private sector.** Convince and reinforce the understanding that DRR is everyone's responsibility. While Tuvalu has the relevant policies and plans in place, both at government and community level, the engagement of the private sector (NGOs and businesses) in disaster risk reduction and disaster response is crucial and must be better reflected in policies and plans. There is a need to focus more on the implementation of these plans in a coordinated manner.
- **Support capacity development on risk governance and management.** There is a need to strengthen leadership in DRR or disaster management both at community and national level through capacity-building based on sharing the experiences of various community, health and disaster-management leaders – with particular reference to the COVID-19 pandemic.
- **Strengthen disaster-risk governance structures.** While Tuvalu has established strong disaster-risk governance structures for normal and emergency operations, there is a need to develop comprehensive disaster management and coordinated DRR and response plans for all types of disasters, to clearly outline the lead or control agency and supporting agencies and their respective responsibilities. Regardless of the types of disaster risks, the Tuvalu NDMO should be identified as the responsible agency for coordinating DRR efforts.

- **Adopt a bottom-up and inclusive approach, to prioritize and mainstream local-level needs.** Local-level or island community disaster policy, plans and strategy, which reflects community needs and priorities, should be the basis for informing the development of disaster-related national and regional-level policies, plans and strategies. Local

communities and marginalized groups (women and girls, LGBTQI+, elderly, youth and people with disabilities) should be consulted in the development of any DRR-related policy. Key stakeholders who will be involved in the implementation of policies should be also consulted in the development of DRR-related policy.

5.4 Investment in risk reduction and resilience

To improve investment in disaster risk and resilience, the following points can be considered.

- **Support capacity development on climate finance and risk-informed development and investment.** There is a need to build local capacity to develop fundable projects appropriate for the access criteria of the Green Climate Fund, Adaptation Fund, and Global Environment Facility. There is an urgent need for a comprehensive approach that increases local capacity to develop a pipeline of prioritized CCA and DRR projects, navigates the complex landscape of climate finance to ensure the selection of the most suitable sources of financing, and ensures the continuity of multi-sector and multi-year projects. There is also a need to support capacity-development training with all national stakeholders (government, community and private sector organizations) on the benefits of risk-informed development and investment to reduce disaster losses.
- **Access to funding needs to be simplified and responsive to beneficiary needs, not donor agendas.** All DRR or CCA funding should be based on the needs of the local communities so that projects (DRR and CCA initiatives) are community driven and genuinely respond to the needs and priorities of the local communities (beneficiaries). Donors should be more responsive to the country's actual needs, rather than follow their own agendas, and make funding available – specifically ladled as DRR.
- **Include the private sector (NGOs and CSOs) in climate finance support.** Funding should be able available to support and engage the private sector in the implementation of DRR and CCA initiatives. Donors should make more small-scale funds available for direct engagement with civil-society stakeholders. This can be done by deliberately allocating small-scale funds or low-value grants to support the private sector when preparing DRR or CCA project proposals. Hence, the involvement of private-sector stakeholders in the designing phase of all DRR and CCA projects should be encouraged.
- **Integrate DRR into the government budget or introduce climate tagging national budget.** There is a need to integrate disaster risk into the government's recurrent budget to strengthen the capacity of national stakeholders. Integrating climate tagging into the budget of line ministries enables the government to implement DRR activities and respond to disaster risks effectively. This also helps our development partners to support DRR and CCA activities of line government ministries. The government should also provide yearly financial contributions to the Tuvalu Survival Fund to strengthen the financial capacity of the government to provide the resources and assistance needed during and after the disaster phase in a timely manner. Tuvalu's development partners can also help Tuvalu by providing voluntary financial contributions to the Tuvalu Survival Fund.
- **Establish Climate Finance Unit under the Ministry of Finance.** The establishment of a Climate Finance Unit under the Ministry of Finance can help to mobilize international climate finance, build local capacity for accessing climate finance and coordinate the preparation of project proposals. The Climate Finance Unit needs to coordinate and work collaboratively with multilateral funding agencies' focal points⁴⁸ in managing the funding being injected into Tuvalu. Alternatively, the Budget and Planning and Aid Coordination Department can be better supported and resourced adequately to deal with climate finance and risk-informed investment services. For instance, new positions (Climate Finance Officers) can be created under the Budget and Planning and Aid Coordination Department to support and facilitate access to climate finance across the board.

48 The focal point of the Green Climate Fund is the Climate change Department under the Ministry of Finance. The focal point of the Adaptation Fund is the Department of Planning Budget and Aid Coordination Department under the Ministry of Finance. The focal point for the Global Environment Facility" is the Environment Department under the Ministry of Public Work, Infrastructure, Environment, Labour, Meteorology and Disaster. These departments need to work closely with the Climate Finance Unit or the staff recruited to deal with climate finance in tapping funding for DRR and CCA projects and build local capacity on climate finance across all stakeholders- government, community and private sector.

5.5 Disaster preparedness, response and build back better

- **Support capacity building at national level and community-based awareness programmes that are genuinely based on the needs of national stakeholders.** There is a need to conduct capacity-building assessment needs across all disaster-management stakeholders (government, community, private sector) to identify areas that require capacity development to ensure capacity-building initiatives are tailored and responsive to the needs of all national stakeholders. Vulnerable groups in communities such as people with disabilities, women, youths and all faith-based organizations should be encouraged to participate in capacity-building workshops.
- **Integrate risk management into policy and plans both at national and community levels and focus more on implementation.** While DRR has been integrated into policy and island disaster and development plans, it is recommended that more efforts and resources should be directed toward building local capacity for the implementation of these policies and plans in a coordinated manner.
- **Support emergency drills to ensure that people are well prepared for a real emergency.** Emergency drills should be carried out regularly at community level, in schools, businesses and workplaces. It is imperative to adopt an inclusive approach to emergency preparedness so that emergency preparedness and response plans are inclusive of people with disabilities. There should be emergency drills (evacuation plans) specifically designed for vulnerable groups such as people with disabilities. Basic training on best DRR practices and emergency-response plans for common hazards should be carried out to ensure that people are well-prepared during a real emergency.
- **Document and use post-disaster lessons learnt to inform and improve existing policies and plans to strengthen future emergency response.** Lessons learnt from previous disasters should be well documented to improve DRR practices, community preparedness level and disaster-risk response.
- **Support the implementation of the national building codes and compliance.** Ensure that compliance is funded by the government and island kaupule and development partners. Support the implementation of climate-resilient housing projects on all the islands. The government should also consider waiving import custom duty costs for building materials and closely monitor the local retailing prices of building materials and home construction costs by local builders or contractors.
- **Infrastructural and building design must take into consideration the needs of people with disability to ensure accessibility for all.** This is to better support the emergency evacuation needs of individuals with disabilities.
- **Support the implementation of hard coastal-protection measures such as land-reclamation projects highlighted in the Tuvalu Long-Term Adaptation Plan (LTAP) and enforce land use planning to avoid developments in risky areas.** Housing and other infrastructural developments must not be built in risky areas or disaster-prone areas such as coastal areas (especially coastal accretion areas) that are prone to inundation, erosion and storm surges. Support the implementation of hard coastal-protection measures, especially in densely populated areas and coastal areas where critical infrastructures such as gas and oil stations are located and secure the support of island kaupule to enforce land-use planning.
- **Support planned internal relocation:** Planned relocation should be considered as an adaptation option, especially for coastal landowners whose private properties are extremely exposed and prone to coastal hazards (inundation and coastal erosion) due to the absence of structural engineering coastal-protection structures. It is suggested that affected people should be fairly compensated by the government while those who continue to build new houses in risky areas and who have ignored government advice should not be entitled to receive any form of compensation from the government. This should be supported by government DRR policies and projects.
- **Support climate-resilient electricity and telecommunications systems.** Electricity and telecommunication are fundamental community lifelines services that must remain functional and operational during disasters. There must be back-up electricity and telecommunication systems in place to ensure people can respond effectively to catastrophic risks. There is a need to support the improvement of renewable energy and telecommunication infrastructure and technologies to ensure that Tuvaluan communities have access to clean energy sources and affordable telecommunication services. This is crucial as it contributes to strengthening early-warning system in Tuvalu.
- **Revive Tuvalu's traditional environmental knowledge and traditional food-acquiring skills.** Climate change threatens local food security and the livelihoods of local people. There is a need to revive traditional environmental knowledge and traditional food-acquiring skills to build community resilience.

5.6 Collaboration, partnership and cooperation

At community and national level, the following points can be considered.

- **Support post-disaster reflection and lessons-learnt workshops to foster partnership between the community and national stakeholders.** Encourage sharing information and lessons learnt during disasters to improve understanding of disaster risks and identify areas for collaboration and partnership between national and community stakeholders.
- **Strengthen multi-stakeholders collaboration, partnerships and cooperation through the development of a Memorandum of Understanding (MOU) between DRR actors or key national stakeholders.** A coordinated approach to DRR is needed and this can be achieved by ensuring that all key national stakeholders have a clear understanding of their roles and responsibilities in DRR and during emergency response. An MOU between the NDMO and key national stakeholders (from the government, community and private sector) can be a useful tool in ensuring a common understanding between key stakeholders and coordinated efforts. This approach can be adopted at community, national, regional and international levels.
- **Support inclusive development.** Concerted actions must be taken to ensure that any assistance provided by Tuvalu's development partners benefits everyone, especially people with disabilities, LGBTQI+, women, the elderly, youth and children. Any DRR interventions, including humanitarian assistance, should be provided on the basis of need, without discrimination.

At regional level, the following points can be considered.

- **Support the participation of national stakeholders in relevant regional meetings, training and workshops, to build and strengthen partnerships with regional partners.** Regional events offer good opportunities for Tuvalu to share its experiences with other Pacific island countries and regional organizations, and at the same time learn from other countries' experiences. It also ensures that Tuvalu's DRR and CCA needs and priorities are considered and advocated for by the Pacific Island Forum Secretariat (PIFS) as regional priorities, especially in any regional donor meeting engagements. These regional events offer an ideal opportunity for networking and developing and strengthening partnerships with regional partners.

- **Tuvalu needs to continuously and consistently support relevant regional agreements and frameworks.** Tuvalu needs to continuously demonstrate its capability to honour and fulfil its obligations and commitments to regional agreements and frameworks such as the Framework for Resilient Development in the Pacific (FRDP), Boe Declaration and Action Plan, to secure the trust and support of regional partners.

At international level, the following points can be considered.

- **UNDRR to initiate arrangements to bring together development partners to consolidate partnership.** It is of paramount importance for UNDRR to provide mechanisms or innovative ways (international meetings and information-sharing platforms) to bring together international development partners to forge and create partnerships in the areas of DRR and CCA with the Government of Tuvalu.
- **Collaboration and partnership in project development and implementation.** It will be beneficial for the Government of Tuvalu and its development partners to work closely in the development of practical project proposals to ensure that DRR and CCA efforts are well supported financially. Collaboration and partnership in the development of project proposals and the implementation of national projects that support and respond to the needs and priorities of Tuvalu in the context of DRR and CCA are crucial. This is relevant for Tuvalu because most CCA and DRR funding from development partners is being injected into Tuvalu through project implementation modalities.
- **Development partners need to be more open with their financial support.** There should be no conditions that are not realistic to the Tuvalu context attached to the donor's financial support, and the money should be used to support Tuvalu's DRR and CCA priorities. Development partners need to invest more in DRR to reduce the cost of supporting disaster response.
- **Tuvalu needs to ensure that its national obligations and commitments to international agreements are fulfilled.** The national government needs to continuously and consistently demonstrate its ability to support and comply with international agreements such as the Sendai Framework, Paris Agreement and SDGs to secure the trust and support of development partners.

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Annexes

Annex A: List of all the actors and institutions consulted in the preparation of the Tuvalu National Voluntary MTR SF Report.

Government departments	Designation	Name of informants	Gender	Contact detail (Email)
Meteorological Department	Acting Director	Limoni Mativa	M	mativano94@gmail.com
Climate Change Department	Acting Director	Jamie Ovia	M	jammin.ovia537@gmail.com
Environment Department	Senior Environment Officer	Reuben Kausea	M	pelekausea@gmail.com
Public Works and Water Department	Acting Assistant Secretary	Pisi Seleganiu	M	afaaso80@gmail.com
Local Government and Agri	Acting Director	Galivaka Tekafa	F	takeisi@gmail.com
Finance (Budget and Planning and Stats)	Senior Economist	Kelena Tapa	F	ktapa@gov.tv
Energy Department	Director	Simona Kilei	M	sakilei@gov.tv
Police Department	Senior Police Administrative Officer	Matatia Makaili	M	mmakaili@gov.tv
Lands and Survey Department	Mineral Officer	Sapolu Tetoa	M	stetoa@gov.tv
Public Health Department	Acting Chief Public Health	Vine Sosene	M	vine.sosene@gmail.com
Gender Department	Director	Sokotia Kulene	M	sokotia.kulene@gmail.com
National Disaster Management Office	Director	Luka Selu	M	lukaselu1@gmail.com
Waste Management Department	Acting Director	Emily Lafai	F	emily.lafai@gmail.com
NGOs				
Red Cross	Acting Director General	Milikini Failautsui	F	milikini90@gmail.com
Fusialofa	Active member	Ioane Hawaii	M	galigaofenuakotelotogatahi@gmail.com
Tuvalu Association of Non-Government Organization (TANGO)	Director	Faiatea Latasi	M	fabulous.latasi@gmail.com

Annex B: List of legislations, policies and plans that have supported and advanced the implementation of the Sendai Framework.

Sectoral aim	Policies with links to Sendai Framework for Disaster Risk Reduction
National development	<p>National Adaptation Program of Action (2007)</p> <p>National Strategic Action Plan for Climate Change and Disaster Risk Management (2012-2016)</p> <p>Tuvalu National Gender Policy</p> <p>The Tuvalu National Energy Policy (TNEP)</p> <p>Te Kakeega III: National Strategy for Sustainable Development (2016- 2020)</p> <p>Te Kete: Tuvalu National Strategy for Sustainable Development 2021-2030.</p>
Environmental protection	<p>Environment Protection Act (2008)</p>
Disaster and climate risk reduction	<p>National Adaptation Program of Action (2007)</p> <p>National Disaster Management Arrangements 2012 (Parts 1 – 3)</p> <p>National Strategic Action Plan for Climate Change and Disaster Risk Management (2012-2016)</p> <p>Tuvalu strategic roadmap for emergency management 2021-2023.</p> <p>Te Vaka Fenua o Tuvalu: National Climate Change Policy 2021-2030</p> <p>Tuvalu Climate Change Resilience Act 2019</p> <p>Tuvalu Disaster Management Act 2008</p> <p>Tuvalu Climate Change Fund and Disaster Survival Fund Act 2015</p>
Vulnerability reduction	<p>National Strategic Action Plan for Climate Change and Disaster Risk Management (2012-2016)</p>
Land-use planning	<p>Te Kakeega III: National Strategy for Sustainable Development (2016-2020)</p>

