



NIUE

Intended Nationally Determined Contributions

Key messages

Niue's future is imperilled by the effects of climate change for which it bears absolutely no responsibility. Niue faces severe events and slow onset events from changes to the climate system caused by others.

Niue believes that loss and damage must be addressed in a sustainable and consistent manner to highlight its significance and relevance in climate change, especially in developing countries. It is beyond Niue's national measures to address loss and damage alone from climate change. Building on the Alliance of Small Island States (AOSIS) position, Niue is calling for loss and damage to be included as a separate element of the 2015 Paris Agreement, an element that should be distinct from adaptation.

Against a high climate risk backdrop, the objective of Niue's National Strategic Plan is to build a sustainable future that meets our economic and social needs while preserving environmental integrity, social stability, and the Niue culture. Much of the time and capacity of our small public service is put to devise and implement plans to build climate resilience and enhance our disaster preparedness. Donor support is critical to these efforts.

While Niue's contribution to global greenhouse gas emissions is negligible (less than 0.0001%), and Niue is a net sink given the growth of our forests, nevertheless we are taking steps to reduce our emissions, in particular in the energy sector. The Niue Strategic Energy Road Map (NiSERM) 2015-2025 outlines Niue's aspiration to meet 80% of its electricity needs from renewable energy sources by 2025, which would in turn reduce the country's high reliance on imported fossil fuel. Part of this goal can be achieved through national resources and identified assistance, but achieving such high levels of electricity from renewables (from around 2% today) is very ambitious and will need considerable contributions of financial and capacity support from our partners.

Section 1: Introduction

Niue has the distinction of being among the world's least populated nation states and with a future that is imperilled by the effects of climate change for which it bears absolutely no responsibility. In January 2004 the capital of Niue was destroyed by the category 5 Cyclone Heta. Niue knows the effects of severe events. It is also seeing the impacts of slow onset events as its underground freshwater lens faces contamination from rising sea levels.

Niue is a small Pacific Island Country (PIC) located partway between Tonga, Samoa and the Cook Islands. The island is approximately 259 km² with an Exclusive Economic Zone (EEZ) of 300,000km² and is reputedly one of the world's largest elevated coral atolls. The average height above sea-level is 23 metres and highest point less than 70m.

Niue is vulnerable to climate risks such as tropical cyclones (TCs) and droughts; geological risks such as earthquakes and tsunami; and human-caused risks such as disease outbreaks and contamination of its only fresh water supply. Niue's risk profile is also inherently linked to its isolation and limited capacity to manage and respond to disasters and climate change impacts. Traditional coping strategies have tended to make

way for an increased reliance on external support, as New Zealand fulfils its obligations to provide support to Niue in times of disaster.

Niue has no surface water and relies upon groundwater resources and rain catchments. Groundwater is recharged via rainfall infiltration and rainfall currently exceeds the rate of extraction. However, Niue's porous soil renders its underground fresh water vulnerable to contamination, from both human causes (e.g. agricultural chemicals) and natural sources (e.g. sea water). Agriculture is predominantly focused on subsistence production, principally of root crops. The combination of relatively poor soils and dependence on rainfall makes agricultural production highly sensitive to changes in rainfall frequency and amount.

Niue has a population of approximately 1500 (2013 census) spread across 14 villages. Large scale outward migration, usually from younger age groups, has occurred since 1971, predominantly to New Zealand for education, employment opportunities and family ties, as well as perceived higher standards of living abroad. As a result, there are over 20,000 people identifying themselves as Niuean that live in New Zealand.

Niue's economy is heavily dependent on support from New Zealand, which has a statutory obligation to provide economic and administrative assistance to Niue. Aid accounts for 70% of Niue's GDP, which is NZ\$10,000 per capita. Other sources of financial resources include taxation, government trading activities, sovereign assets and additional support from development partners. Low population, scarcity of natural resources, isolation and high costs of transportation lead to Niue's economy being far from self-sufficient.

Climate change will exacerbate the already vulnerable situation in Niue outlined above. The most recent report from the Pacific-Australia Climate Change Science and Adaptation Planning Program (PACCSAP) provides the following future projections to 2100 for Niue:

- El Niño and La Niña events will continue to occur in the future (*very high confidence*), but there is little consensus on whether these events will change in intensity or frequency;
- Annual mean temperatures and extremely high daily temperatures will continue to rise (*very high confidence*);
- Mean annual rainfall could increase or decrease with the model average indicating little change (*low confidence* in this model average), with more extreme rain events (*high confidence*);
- The proportion of time in drought is projected to increase or decrease in line with average rainfall (*low confidence*);
- Ocean acidification is expected to continue (*very high confidence*);
- The risk of coral bleaching will increase in the future (*very high confidence*);
- Sea level will continue to rise (*very high confidence*); and
- Wave heights may decrease in December–March (*low confidence*), with no significant changes projected in June–September waves (*low confidence*).

In particular, climate change impacts are likely to further exasperate both freshwater lens and coastal water quality issues for Niue. For these reasons, protecting and enhancing natural resources, adequate sanitation and wastewater treatment are among the government's main priorities.

The risks climate change poses to Niue are therefore highly significant, and the ability of Niue to effectively respond to minimise or avoid these risks is minimal. Niue therefore must rely on the international community to avoid the dangers of climate change. This requires significant reductions in global greenhouse gas emissions so that climate is stabilised to allow Niue's natural and social systems to adapt, and partnerships are developed between Niue and more developed nations to implement effective and efficient adaptation responses.

Section 2: National Response

The draft Niue National Strategic Plan (2014-2019) has a vision of Niue ke Monuina – A Prosperous Niue. The objective is to build a sustainable future that meets our economic and social needs while preserving environmental integrity, social stability, and the Niue culture.

The achievement of Niue ke Monuina is supported by seven national development pillars and specific strategies under each of those pillars. Progress of the journey to prosperity is measured by targets and indicators corresponding to each of the pillars.

1. Financial Stability – Ensure that sufficient financial resources are secured, and responsible fiscal management is prudent, sustainable and supports healthy development strategies;
2. Governance – Ensure that good governance reflects the principles of transparency and accountability and is practised at all levels;
3. Economic Development and Maintain Crucial Infrastructure – support families, public services, and the private sector through tourism development with a safe, reliable, affordable healthy infrastructure;
4. Social – Enjoy a harmonious and healthy lifestyle in a thriving, educated and safe community that has access to a wide range of quality social services and healthy development opportunities;
5. Environment – Sustainable use and management of Niue’s natural resources and environment for present and future generations;
6. Tāoga Niue – Promote, preserve and strengthen Niuean cultural heritage, language, values and identity;
7. Private Sector Development – Be a prosperous and skilled island nation underpinned by a thriving and entrepreneurial private sector.

While building resilience to climate change is not explicitly mentioned it is an integral part of Pillar 5, and is of fundamental importance to all seven national development pillars.

Section 3: Approach to Building Resilience to Climate Change

Within the context of the draft NNSP 2014-2019 the key guiding documents for building resilience to climate change in Niue are the National Climate Change Policy (2009) and Niue’s Joint National Action Plan (JNAP) for Disaster Risk Management and Climate Change Adaptation (2012).

The Vision of the National Climate Change Policy is for a “Safer, More Resilient Niue to Impacts of Climate Change and Towards Achieving Sustainable Livelihood”. The Policy Goal is “To promote understanding of and formulate appropriate responses to the causes and effects of climate change in support of national sustainable development objectives.”

To attain this Policy Goal the following objectives have been identified along with associated Strategies:

1. Awareness Raising – To promote public awareness and improve stakeholder understanding of the causes and effects of climate change and climate variability and as well as on vulnerability, adaptation and mitigation responses;
2. Data Collection, Storage, Sharing, and Application – To improve and strengthen the collection, storage, management and application of climate data, including greenhouse gases and emissions, to monitor climate change patterns and its effects;
3. Adaptation – To develop effective adaptation responses and enhance adaptive capacity in order to protect livelihoods, natural resources and assets, and vulnerable areas to the impacts of climate change to all sectors;
4. Mitigation – To mitigate the causes of climate change and implement effective mitigation measures to reduce greenhouse gas emissions;

5. Governance and Mainstreaming – To mainstream climate change issues into national development; and ii) establish an effective regulatory and institutional framework to facilitate the development and implementation of national responses to climate change;
6. Regional and International Cooperation – To ensure Niue obtains maximum benefits from relevant international and regional instruments relating to climate change and that it meets its commitments under them.

In its commitment to building resilience, Niue has developed the Niue Joint National Action Plan (JNAP). The JNAP strongly recognises the links between disaster risk management and climate change action, and thus aims to operationalise the Climate Change Policy and vulnerabilities identified in the draft Second National Communication (SNC). The JNAP also fulfils meeting the task of operationalising the Coastal Development Policy.

The JNAP has the following goals:

- Goal 1 – Strong and effective institutional basis for disaster risk reduction / climate change adaptation;
- Goal 2 – Strong public awareness and improved understanding of the causes and effects of climate change, climate variability and disasters;
- Goal 3 – Strengthened livelihoods, community resilience, natural resources and assets;
- Goal 4 – Strengthened capacity to adapt renewable energy technologies, improve energy efficiency and energy security;
- Goal 5 – Strengthened disaster preparedness for effective response.

Achievement of these Goals is through specific objectives and actions associated with these, which are fully costed for donor support.

Revision of the Climate Change Policy and JNAP will likely be required both before and post 2020 with costing of further identified activities for donor funding towards building a resilient Niue.

Section 4: Sector Policies and Plans

In addition to the NNSP and the Climate Change Policy there have been a number of recent policies which have integrated climate change considerations into the decision making process. These include the Forest Policy, the Niue National Energy Policy, and the Ecosystems Approach to Fisheries Management. Furthermore, a number of Government departments have incorporated climate change policies into their corporate plans, for example the Agriculture Sector Plan.

Other priority sectors for integration of climate change considerations into policies and plans include:

- Water Resource management
- Food security
- Climate Change Adaptation & Health Plan developed in 2013 by the Niue Health Department with donor partners
- Waste & sanitation management strategy for general, liquid and organic wastes
- Building Code Review, update, including development of national standards

Donor funding will be required to support development of relevant sector policies and plans, all of which will need to be developed, implemented & monitored to ensure full alignment with the goal of achieving climate resilience. All sector plans will also need to incorporate measureable indicators to align with the NNSP, and will need to be fully costed for donor funding.

By 2020, new sector plans will be required that are all fully costed for donor funding.

Section 5: Mitigation context

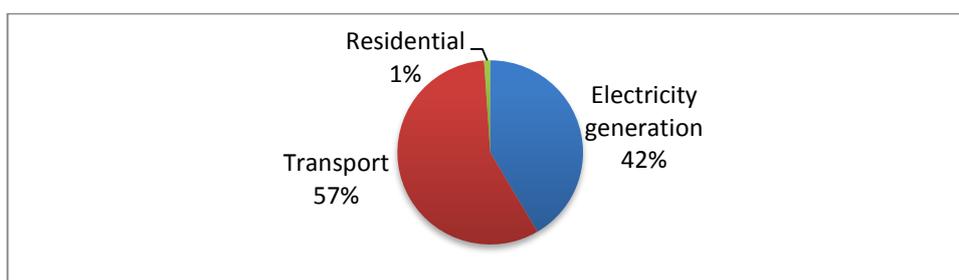
Niue is one of the world's least populated countries with low per capita emission of greenhouse gases. This means that Niue's contribution to this global problem is small, accounting for less than 0.0001% of global greenhouse gas emissions. Removals from Niue's forests outweigh its emissions many times over. As such, Niue is a net carbon sink, removing in the order of 139Gg CO₂-e from the atmosphere each year.

However, Niue recognises there may be considerable scope through technological and behavioural means to lower its emissions this further, congruent with Niue's ambition to be a globally responsible citizen. It is anticipated that mitigating greenhouse gas emissions can have substantial collateral benefits including: decreased national expenditure associated with the escalating costs of importing fossil fuels; improved energy security; improved local air quality; support for Niue as an eco-tourism destination and encouraging sustainable development in the Pacific region.

Efforts to reduce GHG emissions are complementary to Niue's focus on its vision to 'build a sustainable future that meets our economic and social needs while preserving environmental integrity, social stability, and the Niue culture'.

The sectoral breakdown of Niue's GHG emissions from the forthcoming Second National Communication (2009 data, excluding waste) shows that the vast majority of Niue's emissions come from the energy sector. As shown in Figure 1 below, transport contributes the bulk of energy sector emissions at 57%, and electricity generation the remainder, at 42%. The focus of GHG mitigation efforts for Niue is thus firmly on transport and electricity generation.

Figure 1: Breakdown of Niue energy sector GHG emissions (2009, Second National Communication)



In 2015, Niue has a 100% electricity penetration rate and total electricity demand is fairly stable, having recorded only 3% growth from 2008 to 2012. However Niue is 96% dependent on imported fuel for power generation and 100% dependent on imported fuel for land, sea and air transportation.

Electricity generation

Reliable, affordable, secure and sustainable energy supply is key to achieving prosperity for all Niueans. In light of Niue's vulnerability on imported oil, the Niue Strategic Energy Road Map (NiSERM) 2015 – 2025 was developed, with the goal of "a sustainable energy sector for a Prosperous Niue". The NiSERM builds on the 2005 Niue Energy Policy (NEP) and the Niue National Strategic Plan (NNSP) 2014 – 2019, to pursue five key motivations identified by stakeholders:

1. Reduced dependence on fossil fuels
2. Improved energy efficiency
3. More sustainable, cleaner energy
4. Improved cost-effectiveness of energy services
5. Attract funding for energy sector development

Niue is committed to transitioning the electricity sector from fossil fuel to renewable energy. The NiSERM outlines Niue's aspiration to meet 80% of its electricity needs from renewable energy sources by 2025, which would in turn reduce the country's high reliance on imported fossil fuel. This aspiration underpins Niue's contribution in this INDC, outlined in Section 6.

The period 2000-2009 saw progress on greenhouse gas emission mitigation in the form of the installation of solar hot water heating, public education campaigns, increased grid penetration and distributed use of renewable technologies, and the promotion of using low emission fuel sources and financial support for the uptake of more efficient appliances.

However, Niue faces difficulties in mitigating climate change for two primary reasons. First, Niue lacks environmental base data which would be able to support climate related decision-making. Second, Niue lacks the capacity to monitor and evaluate energy supply initiatives. Without this support there is no way to evaluate the cost or emission reduction effectiveness of programmes and take an adaptive management approach.

Recent installations of solar PV, identified as the most feasible renewable energy source for Niue, have seen grid stability issues arising that is inhibiting additional solar grid connections. The power sector in Niue urgently requires technical assistance to address this issue.

There are further issues in establishing a renewable industry in Niue. These are the high degree of subsidisation of electricity prices, a small market, high capital costs and lack of technological knowledge within the utility.

Transport

The majority of fuel use is for land transport and the other major fuel user is the airline industry. As international regulations limit scope for national interventions, Niue is focusing mitigation efforts on land transport.

There is no public transport system in Niue and therefore private vehicles are the primary mode of transport. There is currently no regulation that restricts the type of vehicles allowed into the country, however in 2011 Customs regulations were amended to encourage the import of fuel-efficient vehicles into Niue, and targets have been set under the NiSERM to deploy more fuel efficient vehicles.

Efforts are hampered by the limited availability of technological solutions for the transport sector. However, this may be changing with the emergence of electrical vehicles, that could serve to be a resource for electricity grid stability and a means of reducing oil dependence, providing solar charging as part of the path to a 100% renewable electricity grid. The Government welcomes international assistance in the development of opportunities for deep emissions cuts in the transport sector.

Land Use Change and Forestry

As mentioned, Niue is a net sink of greenhouse gases. It is important that the capacity of removals of greenhouse gases by AFOLU be maintained, if not enhanced. Currently, forestry activity is low and population decline has resulted in significant conversion of cropland to secondary rainforest. Removals can be assumed to be highly sensitive to future population increases, residential infrastructure replacement after cyclones or commercial forestry resumption. The Government of Niue is concluding a National Forest Policy to provide strategic direction for the island's forest areas.

Section 6: Mitigation contribution

COUNTRY: Niue		DATE: November 2015
Parameter	Information	
Period for defining contribution (outcomes)	2020, 2025	
Type and level of contribution	<p>In line with Niue's resilience approach to reduce dependence on imported fossil fuels, Niue will achieve a 38% share of renewable energy of total electricity generation by 2020. (In 2014 the renewable energy share was 2% and this contribution assumes assistance to address critical grid stability issues). This will in part be delivered by a 10% reduction in residential, commercial and government electricity demand by 2020. This contribution will be maintained out to 2025 and will be delivered using national resources and international assistance being identified to achieve the goals of the NiSERM.</p> <p>Conditional upon additional international assistance, Niue could increase its contribution to an 80% share of renewable energy of total electricity generation, or to even higher levels, by 2025. This would require additional support for energy storage and renewable energy generation, and strengthened frameworks for project delivery.</p> <p>Specific actions to deliver the above contributions are outlined in Annex 1. While required investment to achieve the contributions has not been fully quantified, investments required are far smaller than those needed to deliver a resilient future for Niue in the face of climate change.</p>	
Estimated quantified emissions impact	<p>In 2009 electricity generation contributed 2.1 Gg CO₂e as an emissions source.</p> <p>The NiSERM Business as Usual forecast predicts a 33% increase in diesel consumption for electricity generation from 2009-2020 and 75% increase by 2025, assuming economic and population growth and no GHG abatement measures.</p> <p>A 38% renewable energy contribution in 2020 would equate to a reduction of 364,000 litres of diesel per annum, or approximately 1.2 Gg CO₂e per annum.</p> <p>An 80% renewable energy contribution in 2020 would equate to a reduction of 977,000 litres of diesel per annum, or approximately 3.1 Gg CO₂e per annum.</p>	
Coverage	Sectors	Electricity (42% of reported 2009 energy sector emissions)*
	Gases	Carbon dioxide (CO ₂); Methane (CH ₄); Nitrous oxide (N ₂ O)
	Geography	Whole country
Planning Processes	<p>This INDC was prepared primarily using pre-existing national policy documents, and sector policies and plans to ensure accurate reflection of national development priorities, with pre-existing stakeholder support. The INDC was reviewed by key ministry representatives and formally approved by Cabinet.</p>	

* note that waste and agriculture sectors were not reported in 2009 GHG inventory.

Section 7: Statement on “Fair and Ambitious”

While Niue’s contribution to global greenhouse gas emissions is negligible (less than 0.0001%), and Niue is a net sink given the growth of our forests, nevertheless we are taking steps to reduce our emissions, in particular in the energy sector. The Niue Strategic Energy Road Map (NiSERM) 2015-2025 outlines Niue’s aspiration to meet 80% of its electricity needs from renewable energy sources by 2025, which would in turn reduce the country’s high reliance on imported fossil fuel. Part of this goal can be achieved through national resources and identified assistance, but achieving such high levels of electricity from renewables (from around 2% today) is very ambitious and will need considerable contributions of financial and capacity support from our partners.

Section 8: General caveats statement

The preparing of this INDC came during Niue’s development of its Second National Communication. As such, data on GHG emissions are provisional and therefore subject to revision. The Second National Communication, once completed, will provide a more comprehensive presentation of Niue’s circumstance, plans and needs.

While there is a relatively high confidence regarding data on fuel importation and consumption, data collection on other emissions sources is not yet developed sufficiently to make higher tier inventories possible.

To obtain a better picture of the AFOLU sector will require an accurate, quality controlled survey of land use status using up-to-date satellite imagery and GIS mapping. Waste surveys currently lack the sample size and coverage to be statistically meaningful.

Annex 1

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

The table below provides a summary of current priority items that Niue wishes to highlight as needing support or that are significant initiatives that the government will take from its own budget resources. Available information dictates that these relate narrowly to mitigation actions; however, the list will be expanded in future to include a more holistic set of priorities compatible with Niue's resilience building development strategy. The investments required to achieve Niue's mitigation contribution, while not fully quantified, are far smaller than those needed to deliver a resilient future for Niue in the face of climate change.

Item	Planned period of implementation	Conditional on additional support?	Support partner(s) identified?	Notes
Priority enabling activities:				
Resolve grid stability issues	2016	Yes	No	Crucial to integrate existing installed PV generation before increasing solar installations. Est. investment: \$5.4m USD
Develop national capacity to monitor and evaluate energy supply and efficiency initiatives	2016-2020	Yes	No	
Advance land use change accounting through acquisition of recent, multi-spectral satellite imagery and relevant processing and verification	2016-2020	Yes	No	
Priority near-term activities:				
Investigation and implementation of renewable energy resources including additional solar PV, wind and assessing biofuel, biogas potentials	2015-2020	No	Partial	Funding to support resource identification secured. Requires investment for project implementation.
Build in-country capacity to operate and maintain renewable energy	2015-2020	No	Partial	Partial SPC funding identified, additional \$0.07m USD investment required.

Item	Planned period of implementation	Conditional on additional support?	Support partner(s) identified?	Notes
Implement energy efficiency through supply side loss reduction, develop energy auditing, equipment standards and labelling, regulatory reform and fuel substitution for transport and cooking.	2015-2020	No	Partial	Funding to support resource identification secured. Requires additional \$0.6m USD investment.
Efficient supply and storage for fuels and LPG and economics assessments on fuel supply and storage	2015-2020	Yes	Partial	SPC technical support identified. Additional \$4.4m USD investment required.
Priority longer-term activities:				
Implement additional renewable energy generation capacity to increase RE share from 35% to 80%	2020-2025	Yes	No	If achieved through solar PV 1.8MW of additional capacity would be required by 2025.
Matching energy storage capacity	2020-2025	Yes	No	
Transport sector transition away from fossil fuels	2020-2030	Yes	No	Requires pre-feasibility work on electric vehicles, before broader implementation strategy as options become more commercially viable