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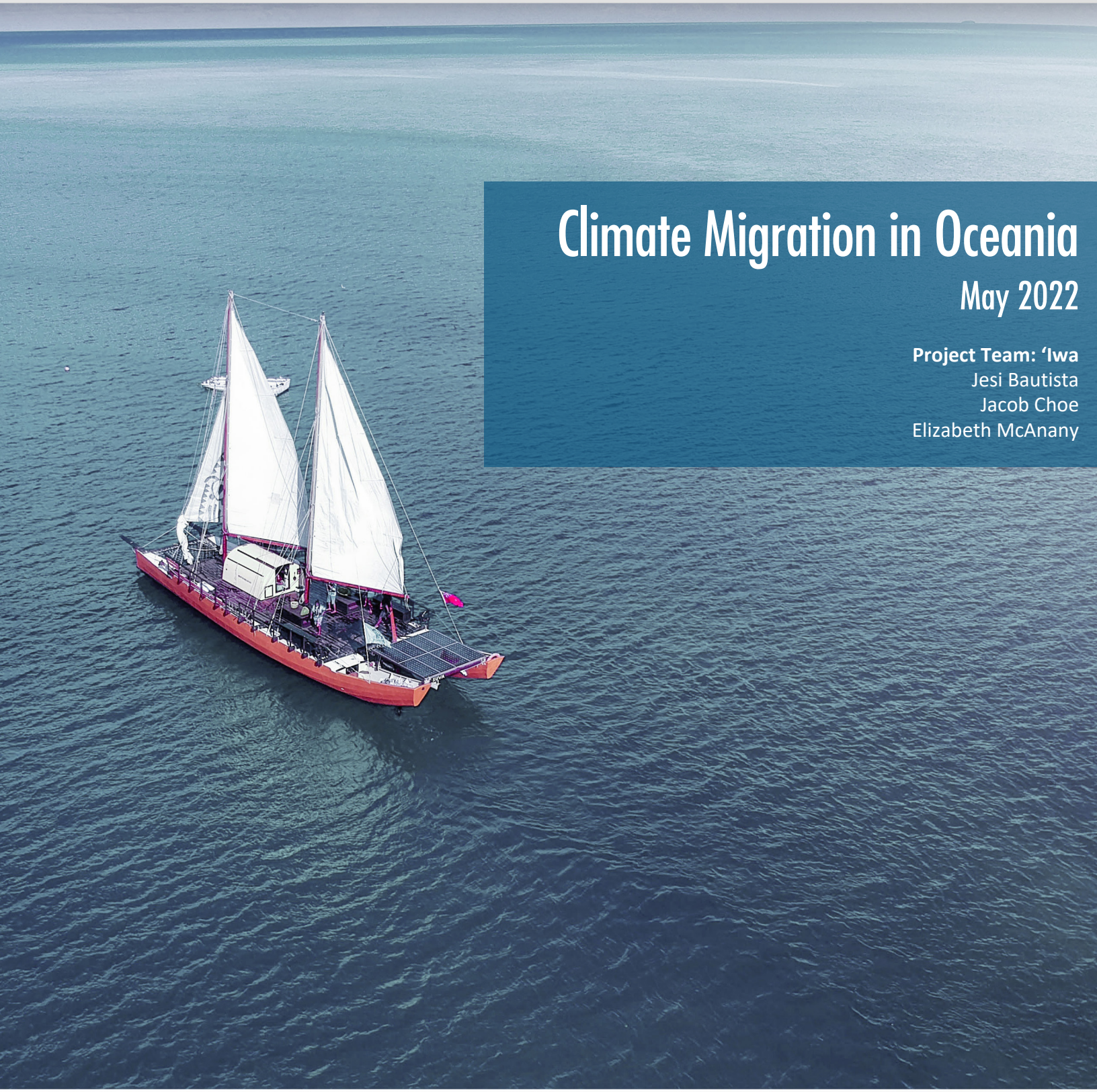

# Climate Migration in Oceania

## May 2022

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# Executive Summary

This report on climate-induced migration analyzes the national climate adaptation strategies for ten designated countries in Oceania. These ten countries are especially vulnerable to climate change impacts. There is a lack of information on their national relocation response plans for sudden and slow-onset climate change events. A synopsis of each country's climate adaptation plan includes terminology used to describe the plan, the geography of the country, the type of migration (internal or international), locations where migration has occurred and/or will occur in the future, the drivers of the migration, the vulnerabilities and challenges accompanying the implementation of the plan, and the key stakeholders involved. An analysis of similarities in plans, intergovernmental agreements between countries, and gaps in plans reveals opportunities for capacity building in Oceania for the Center for Excellence in Disaster Management and Humanitarian Assistance (CFE-DM). The following are key takeaways and recommendations to guide future research and CFE-DM engagement in supporting these countries.

Work opportunities are the primary driver of internal and international migration across all ten countries. Education opportunities are the next major driver of internal and international migration across all ten countries, except for the selected countries in Melanesia.

Environmental and climate-related effects were a secondary driver of internal migration and have already driven small-scale internal migration; however, it was not a driver at all for international migration.

The report identifies three main adaptation strategies surrounding migration for the ten countries. Expanding on labor migration schemes is a common adaptation strategy to support future climate migration. New Zealand and Australia are the top destination countries for labor opportunities. The Recognized Seasonal Employer scheme, Seasonal Worker Program, and Pacific Labour Scheme are three of the main labor migration schemes in the Oceania region. Internal migration is another critical strategy countries use to adapt to climate change. Migration is most commonly away from the coast towards inland areas and from rural atolls to more urban atolls. Several countries' third adaptation strategy is to implement coastal protection projects and sustainable infrastructure to remain in the place of origin. These projects are meant to increase resiliency from climate change impacts, such as coastal erosion, storms, and flooding.

Some socio-cultural factors were found to impact migration decisions at the local level. Common challenges, obstacles, and barriers to migration were found, including lack of money to relocate, lack of visas or paperwork necessary to travel, lack of government aid and assistance, and lack of education and qualifications needed for overseas employment. Another critical factor affecting decision-making at the local level is family responsibilities and obligations to the community and church. Lastly, the land is at the center of many Pacific Island cultures and affects decisions to leave away from one's homeland.

We recommend further investigating the role of sociocultural factors in migration decisions to include stakeholder input in future climate migration plans. Second, legislators and policy makers need to prioritize developing international frameworks to protect migrants and increase the accessibility of migration pathways, especially for climate refugees. The third is to address economic and infrastructure needs to create inhabitable relocation areas. Finally, research institutions and international aid organizations must partner with island nations in Oceania to continue filling information gaps on migration in the region.

# Introduction

Climate change-related events, such as sea-level rise, floods, droughts, and wildfires, are drivers of human migration and displacement (United States Agency for International Development, 2021). Such events directly affect the land and natural resources, infrastructure, and social customs and structures (Battles, 2021). Climate change impacts have wide-ranging risks to people's livelihoods, well-being, and security which may influence their behaviors or decisions to move away from their homes (United States Agency for International Development, 2021). By 2050, climate migration is projected to accelerate across six regions, affecting the most climate-vulnerable regions and causing people to be displaced or migrate away from their homelands (World Bank Group, 2012).

The movement of a person or group due to climate change is referred to as climate migration (International Organization for Migration, 2019). Human migration as a response to climate factors or changes in the environment is not a new phenomenon. Historically, people have migrated away from their homelands due to floods, wildfires, droughts, earthquakes, tsunamis, and erupting volcanoes (McLeman & Brown, 2011). Migration may be temporary, seasonal, or permanent, depending on the frequency and magnitude of the climate conditions (White House, 2021). In addition, migration may occur internally (movement within an island or country) or internationally (movement outside of one's country) (Henson et al., 2020). In countries where forced climate migration has occurred, internal migration is the most common type (Battles, 2021). However, the trend of global migration in cross-border movement has been increasing (White House, 2021).

Oceania, a region in the Pacific Ocean that includes island nations in Melanesia, Micronesia, Polynesia, and Australasia, is especially vulnerable to climate change effects due to the geography of island nations. Sea level rise, floods, droughts, tropical cyclones, and disease spread is increasing across Oceania, most severely affecting atolls, coasts, deltas, and floodplains (Campbell & Bedford, 2014). Numerous atolls and islands in Oceania are extremely vulnerable to the effects of climate change, specifically sea-level rise, droughts, and intense rainfall and tropical cyclone events (Campbell, 2014). Such events have serious risks and implications, including coastal erosion, coral reef degradation, reduced water quality and quantity, reduced agricultural productivity, and health impacts such as heat-related diseases and water-borne diseases (Campbell, 2014). The effects of climate change on both land and livelihood vary depending on the physical environment of the Pacific Islands (Campbell, 2014). The cumulation of climate change impacts and human security impacts can drive migration when conditions become unfit for sustaining populations. Additionally, migration responses to climate change vary depending on a combination of social, political, economic, demographic, and environmental factors (Black et al., 2011).

Many initiatives have sought to project the number of people expected to migrate due to climate change. However, little is known about how certain Pacific Islands are responding to and planning for climate change and migration, particularly for the following ten islands: Fiji, Papua New Guinea, Solomon Islands, and Vanuatu in Melanesia; Kiribati and Nauru in Micronesia; and Niue, Samoa, Tonga, and Tuvalu in Polynesia. A greater focus on these countries is needed to adequately understand migration patterns and challenges. Crucial to this is identifying what resources exist in these countries that address climate migration and forced relocation. This report presents an in-depth literary research review of the existing climate adaptation plans, frameworks, and/or policies for the ten islands in Oceania.

# Literature Review

## Climate Change

Islands in the Pacific Ocean such as Papua New Guinea ("PNG"), Palau, and the island of Tinian in the Commonwealth of the Northern Mariana Islands ("CNMI-Tinian" or "Tinian" hereafter) experience the impacts of climate change more immediately than many non-island locations. Sea level rise and salt water intrusion, warming ocean temperatures, ocean acidification, and coastal erosion can have detrimental impacts on fisheries, coastal agriculture, and tourism in island nations and territories. The locations analyzed in this report are further vulnerable to weather phenomena such as tropical storms, droughts, and heatwaves, all of which have the potential to become more frequent and intense as a result of changing weather patterns caused by climate change.

These climate threats can produce cascading human security impacts that lead to instability: loss of land and damage to homes and critical infrastructure, loss of livelihoods, food and water insecurity, and migration all have the potential to occur via multiple pathways as a result of impacts from climate change.

Climate change is a problem that affects everyone; its impacts will vary based on geographic location. According to Syed and Khan (2008), global warming is the increase of the overall temperature due to increases of carbon dioxide and other pollutants. This changing climate is one result of human behavior that has impacted the atmosphere. The U.S. Climate Change Science Program (2008) concludes that "most of the recent global warming is very likely due to human-generated increases in greenhouse gas concentrations."

There are four major types of changes to the global ecosystem that result from climate change. First is sea level rise or the increase due to reduction in the size of glaciers and ice sheets. Second is changes to the hydrologic cycle which results in droughts and flooding. Third is the flow of warm salt water in the Atlantic Ocean, known as the Atlantic Meridional Overturning Circulation. Fourth is the release of massive amounts of methane (a greenhouse gas) into the atmosphere. Once our environment starts to change drastically, our society will be forced to change drastically.

Climate change is a "gateway" issue that leads to other problems causing a chain reaction. The first link in the chain reaction starts with climate impacts. Climate impacts depend on what climate elements change and the location. For example, certain nations will encounter either more flooding or more droughts. In areas like the United States (U.S.) Great Plains, researchers predict that there will be an increase in droughts whereas the western region of the U.S. will encounter more hydrologic impacts (National Academy Press, 2001).

Climate impacts lead to human and state security impacts that vary from place to place. Human security impacts include freshwater access, food insecurity, and disease outbreaks, to name a few. State security impacts include, but are not limited to threats to, coastal cities, conflict over resources, and stress on fragile governments. Ultimately, climate change will lead to warfighting impacts as nations resort to war. Warfighting impacts include, but are not limited to, damage to operating locations and facility and equipment loss.

The Kyoto Protocol, formally known as the United Nations Framework on Climate Change, involves 192 countries and was put into force on February 16, 2005. The framework targets industrialized

countries and economies to reduce their greenhouse gas emissions. However, mitigation to control emissions may not be enough for certain countries that face drastic climate change impacts. As such, some countries are now taking action with climate adaptation plans to deal with the growing problem.

# Climate Migration

Over the last century, the global change in climate patterns has triggered and will continue to drive more extreme weather events which are projected to result in the large-scale movement and displacement of people (Barnett & Webber, 2010; McLeman & Brown, 2011). Migration is one way that people affected by climate change may respond to and cope with changing environmental conditions (Hugo, 2010). Migration may be temporary or permanent, occur over short or long distances, and involve small groups or entire communities (Barnett & Webber, 2010). Migration may be voluntary where people move to another region to avoid the negative consequences of climate change and search for better living conditions (Barnett & Webber, 2010). Decisions to relocate are often influenced by the severity, duration, and spatial scale of the climate-related events (McLeman & Brown, 2011).

On the other hand, migration may be forced entirely, where people are displaced by uninhabitable living conditions caused by climate change (Barnett & Webber, 2010). Forced migration occurs when governments designate specific areas as high-risk or too dangerous due to weather-related disasters (Kalin, 2010). Forced migration often leads to permanent displacement. For many populations living on small island states, forced migration is highly likely as natural resources become destroyed or low-lying lands become uninhabitable or disappear entirely under rising sea levels (Kalin, 2010).

Climate change events influence migration patterns and behaviors, and both follow existing migration patterns and generate new migration patterns (McLeman & Brown, 2011). Migration can occur internally where people move away from their homelands but remain inside their island, state, or country (Kalin, 2010). Most migrants follow this pattern and move within their own countries, mainly from rural to urban areas (Barnett & Webber, 2010). Additionally, people from small island states are likely to be encouraged to migrate to other islands in the same country when the driver is sea-level rise (Kalin, 2010). Although there has been an increase of international migration over time, the majority of people do not migrate across borders for several reasons, such as lack of financial resources to move far distances or legal barriers associated with permission to enter and reside in another state (Barnett & Webber, 2010; International Organization for Migration, 2019).

The viability of migration as an adaptive option to climate change depends on the social, economic, and political contexts (McLeman & Brown, 2011; Barnett & Webber, 2010). The groups most vulnerable to climate change impacts, such as the poor, elderly, and ill, are less likely to be able to move away from their circumstances (McLeman & Brown, 2011). The availability of shelter, food, water, and work opportunities, as well as aid, resources, and assistance from local, national, and international governments and institutions influences people's decisions to migrate or not to migrate (Barnett & Webber, 2010; Castles, 2010). Households and communities have different levels of adaptive capacity due to income, access to money, education, health, and family configuration (McLeman & Brown, 2011). Additionally, social networks influence migration decisions, as family or friends can provide assurance of support upon arrival and assist with housing, food, and protection (Hugo, 2010; Barnett & Webber, 2010). Understanding the range of factors that influence people's migration decisions is essential for developing adaptation strategies responding to climate migration.

# Climate Migration in Oceania

Climate change is an increasing threat to Oceania and adaptation strategies are complicated by the variations in geography, awareness of climate change, and cultural beliefs throughout Oceania. The islands in Oceania are uniquely vulnerable to climate change, first as islands, and because of their different geographic compositions. Micronesia and Polynesia consist of mostly low-lying atolls, Melanesia is made up of high volcanic islands, and Papua New Guinea, Australia, and New Zealand are continental islands with highlands (National Geographic, 2012). Sea level rise, floods, droughts, tropical cyclones, and disease spread are increasing across Oceania, most severely affecting atolls, coasts, deltas, and floodplains (Campbell & Bedford, 2014). Atolls have the shortest timeline, which is predicted to shorten, before becoming uninhabitable as more frequent and powerful storm waves on atoll shorelines are expected to flood larger amounts of land (Storlazi et al., 2015). On volcanic islands, the majority of residents and businesses are established along the coast or near rivers, putting these populations' economies and housing stocks at-risk (Nunn et al., 2014). On continental islands, droughts and river flooding could lead to forced migration from these islands in the future (Campbell, 2014). The different environments and ecosystems in Oceania thus mean that people will experience different drivers of migration due to climate change.

The Oceania region has approximately 41 million people, with international migrants making up almost 22 percent of the population and over a million migrants originating in Oceania staying within the region (Migration Data Portal, 2021). Migration is expected to increase, with at least 50,000 Pacific Islanders at risk of being temporarily or permanently displaced from their homes every year due to climate change induced natural disasters (Internal Displacement Monitoring Center, n.d.). The majority of migrants originating in Oceania stay within the region, with Oceania natives making up sixty percent of the entire migrant population in the region (United Nations, 2017). Migration is common in Oceania, and migration routes within and between countries were established centuries ago. Internal migration commonly occurs from rural to urban areas; however, increased urbanization is likely to overwhelm atolls and small islands and increase the need to migrate intra-regionally and internationally (Campbell & Warrick, 2014).

A study conducted in Vanuatu found that residents preferred internal migration because of their cultural connection to ancestral lands (Perumal, 2018). The Republic of the Marshall Islands (RMI) developed a climate adaptation plan to sustain internal migration because RMI opposes international migration to countries that have colonized the islands (Bordner et al., 2020). Also influencing migration patterns is high poverty rates that prevent populations from being able to travel internationally (Battles, 2021). In Tuvalu, migration patterns are more evenly split between migrating internally and internationally, with outer island residents predominantly migrating internally to Funafuti and Vaitupu while Funafuti residents travel to Fiji, New Zealand, and Australia (Campbell et al., 2016). Other countries in Oceania also have established international migration routes. Since Nauru does not have enough habitable land and financial resources to facilitate internal migration, residents migrate internationally to Fiji, Kiribati, and the Marshall Islands (Campbell et al., 2016). Migrants originating in Tonga, Samoa, and Fiji most often emigrate outside of the Oceania region to New Zealand and Australia (International Organization for Migration, 2020). France, the United States, and the United Kingdom have hosted migrants from Oceania predominantly for economic opportunities.

Migration to countries within the Oceania region have the potential to overwhelm the host country's infrastructure, land, and resources, impacting both the migrant population and populations within the host country (Henson et al., 2020). Immigrants provide financial and social capital to labor markets, increasing competition with individuals that are native to the country (Birk & Rasmussen, 2014). Migrants who move to more developed countries benefit from increased access to health and human services, but the increased pressure on frontline services can be overwhelming (Oppenheimer et al., 2019). Migrant populations are negatively impacted by unregulated and undocumented migration, strong border control in external countries, and gaps in governance in developing island nations that leave displaced populations vulnerable to being trafficked and exploited (Lindley & Beacroft, 2011). Years after relocation, disagreements over land, high unemployment rates, and cultural and language barriers continue to affect populations native to the host country and migrant populations in the host country (Campbell, 2019).

There are a number of labor schemes in Oceania that provide access to temporary and permanent work opportunities for Pacific island country citizens. Some of the well-known labor schemes include the Seasonal Worker Programme, Pacific Seasonal Worker Pilot Scheme and Pacific Labour Scheme in Australia and the Recognised Seasonal Employer and Pacific Access Category in New Zealand. These labor schemes provide employment opportunities for ten participating countries: Kiribati, Nauru, Fiji, Papua New Guinea, Vanuatu, Solomon Islands, Samoa, Tuvalu, Tonga, and Timor-Leste. (Henson et al., 2020)

Facilitating access to overseas work opportunities through well-managed labor schemes is an adaptation strategy for two main reasons. First, it allows people to reduce their exposure to damaging climate events by relocating to less vulnerable areas. And second, it helps to diversify household incomes through remittances, which are financial or in-kind transfers from migrants to their families and communities who remain at their homelands (McAuliffe & Triandafyllidou, 2021). Remittances provide additional sources of income and can help families and communities affected by severe and damaging climatic events (Campbell & Warrick, 2014). They also contribute to the local economy which can generate community-wide benefits, such as improved infrastructure that can be used to build resilience against climate change impacts (Ash & Campbell, 2016).

While relocation stresses the communities, systems, and infrastructure of host communities, this stress and conflict can be mitigated by including authority figures and organizations outside of traditional state agencies, such as chiefs, elders, and religious leaders, who have cultural significance and established trusting relationships with Pacific communities (Boege, 2016). There is a need to develop hybrid migration plans that include support from both governments and local communities that are either migrating or receiving migrants, because they combine the strengths of government- e.g., capacity, resources and frameworks - with the strengths of local communities- e.g., knowledge of land tenure systems, genealogy and kinship histories, and respect for local leadership (Albert et al., 2017). The trauma from relocation felt by migrant populations and host communities can be alleviated by proactive planning with culturally competent leadership.

# Data Collection

## Countries Examined

Many Pacific Island populations are extremely vulnerable to the impacts of climate change, especially populations that rely on the land and natural resources for their livelihoods, well-being, and security. Climate change is likely to increase the demand for migration, both internally and internationally, in certain geographic "hot-spots," including atolls, coastal areas, urban areas, and drought prone locations. Moreover, the impacts of climate change on migration are not consistent across the Pacific, as each community, island, and country experiences differing levels of severity and has different coping mechanisms. (Campbell & Warrick, 2014)

This research focuses on climate migration in the following ten countries in Oceania: Fiji, Papua New Guinea, Solomon Islands, and Vanuatu in Melanesia; Kiribati and Nauru in Micronesia; and Niue, Samoa, Tonga, and Tuvalu in Polynesia. The target countries fall under the United Nations' category of "Small Island Developing States" which are a diverse group of countries that face similar environmental, economic, and sociocultural challenges and vulnerabilities, such as high exposure to climate change (United Nations, n.d.). Many of the target countries face severe risks and are among the most vulnerable to the impacts of climate change due to their isolated location, geophysical characteristics, demographic patterns, and socioeconomic conditions (Kelman, 2010). The people living in the target countries have a close attachment and connection to the land and a special relationship to the ocean. Thus, rising sea levels and other climate change impacts threaten not only their physical assets and coastal zones, but also their way of life, self-identities, and sense of belonging (Ferris et al., 2011).

Existing climate change plans, frameworks, and policies have been collected from the ten target countries to improve regional knowledge and understanding of the key issues and challenges surrounding climate migration in each target country. The countries were selected by the U.S. Department of Defense (DoD) Center for Excellence in Disaster Management and Humanitarian Assistance (CFE-DM) due to an extant lack of awareness and information of these countries' existing plans for responding to climate change and potential natural disasters. This information is essential to the DoD objective to better prepare for and respond to potential requests for humanitarian assistance and disaster relief.

This report provides a synthesis of the current data available for the ten islands in Oceania and identifies gaps in the existing knowledge base. This report provides an analysis of the main climate change plan from each country's local government and an extensive list of climate change plans, frameworks, and policies from other agencies, organizations, and research institutions. The report can be used as a reference tool to support future research and collaborative projects aimed at contributing to raising international awareness about climate migration in Oceania.

# Information Gathering

The following methods were used to conduct a scan of existing climate adaptation plans, frameworks, and policies that are already in place in Oceania. First, the official government pages of each target country were searched. If the country did not have an official government web page, other official platforms that the specific target country might use were searched. Official government social media pages were also searched for publications of policies and frameworks.

In addition to the official government web pages, our group will be utilizing various databases provided through the Center for Excellence in Disaster Management and Humanitarian Assistance (CFE-DM). These databases include Reliefweb, a United Nations (UN) Office for the Coordination of Humanitarian Affairs web portal, which contains a page for each of our target countries with documents relating to climate change adaptation. Additional resources include the UN Office for Disaster Risk Reduction's Prevention Web, the Pacific Community – Pacific Data Hub, the World Bank Data Bank and the European Union's Disaster Risk Management Knowledge Centre.

# Consultation with Key Experts

Key experts in the field of climate change were also consulted. Our primary point of contact with the CFE-DM's Climate Change Impact (CCI) Program is with the Program Manager, Mr. Stephen Frano, who leads this group which is responsible for responding to security impacts relating to climate change. Additionally, Mr. Frano has experience working with other government agencies (within the United States and internationally) to build resilience and increase awareness for climate security in the Indo-Pacific region. Once our group finished the content analysis portion of the project, we then consulted with CCI for clarification on terms, and when it was difficult to locate existing plans or agreements for the target countries.

# Content Analysis

For each country, climate change migration plans are identified, as well as where the migration is currently or projected to take place. For countries with internal and international migration plans, the host countries and any agreements are identified in Appendix A. In addition, commonalities in climate change vulnerabilities and migration pathways are presented, and gaps in plans that need to be addressed are identified. A list of terminology used to title the migration plans is provided in Appendix D.

In addition to climate migration plans, policies and agreements, other factors identified are: the topography of the country, geographic and socioeconomic vulnerabilities, key drivers and unique challenges of migration within that location, which type of migration will take place (internal or international), and the overarching intent and plan for migration. The topography of each country is a key component to understanding climate migration, because the impact of climate change on an island is contingent upon their terrain. The land on which many homes, educational facilities, and businesses have been established, and the natural resources upon which professional and education opportunities

are dependent are susceptible to harm and loss from climate change effects. The geographic and socioeconomic vulnerabilities to climate change can drive migration and determine which regional migration patterns are possible. The financial capacities of governments also influence what type of migration can take place and the areas to which migrants have access. Additionally, there are geographic barriers that can complicate or inhibit climate migration patterns. Awareness of the geographic and socioeconomic vulnerabilities, drivers, and barriers of each country are important for analyzing climate migration plans across Oceania.

# Findings

The findings of this report highlight migration patterns and trends for the selected countries by scanning each country's climate change plans, strategies, and/or frameworks. Each of the ten countries has its own table highlighting major drivers of migration, internal and international countries of destination, key climate adaptation strategies, and important factors to consider surrounding migration at the local level (see Tables 1-10 below). Moreover, the findings can help inform policy, research, and partnerships, as well as target areas for the CFE-DM to use for future arrangements with countries in Oceania.

| TABLE 1. FIJI | | |
|---|---|---|
| **Population Statistics** | | |
| Total Population | 898,402 | |
| Growth Rate | +0.38% | |
| **Physical Characteristics** | | |
| Region | Melanesia | |
| Number of Islands or Atolls | More than 330 islands | |
| Total Land Area | 18,333 km² | |
| Highest Elevation | 2,447m | |
| **Migration Statistics** | | |
| Top Countries of Destination | Internal:<br>1. Vunigodola<br>2. Island of Venua Levu | International:<br>1. Australia<br>2. New Zealand<br>3. The United States<br>4. Canada<br>5. United Kingdom |
| Top Drivers for Migration | Internal:<br>1. Work | International:<br>1. Work |

| TABLE 1. FIJI (cont.) |
|---|
| **Migration Trends & Patterns** |
| • Vunidogola was a small coastal town that relocated inland. Villagers are aware of climate change, this village experienced flooding effects due to storms.<br>• Korolevu is a village located on Fiji's second-largest island, villagers have also relocated 1.2 miles away from the coast and are now situated uphill.<br><br>**Important Factors to Consider:**<br>• Fiji has noted that corruption and political instability are prevalent. It is noted that recent coups in Fiji are the cause for this political instability.<br>• The priority of the government is to improve Fiji as a destination for investments. |
| **Climate Migration Resources (Plans, Strategies, and Policies)** |
| **1. Planned Relocation Guidelines (2018)**<br>These guidelines will help all stakeholders at a local level to prepare for the planned relocation within Fiji as a final solution for communities affected by climate change and disasters. While providing clear guidelines, this document also focuses on incorporating the values and principles of the Fijian culture.<br>**2. Republic of Fiji National Adaptation Plan (2018)**<br>This plan produced by the Ministry of Economy focuses on the high-level National Adaptation Plan that was prepared by the Fijian government. This plan will serve as one of the leading efforts to address climate change. This plan goes over the stages of the NAP (National Adaptation Plan) development that discusses 160 adaptation measures that span over 5 years. This plan also produced the following to support the "Adaptation Process"; Fiji National Adaptation Plan Framework, National Adaptation Plan Proposed Structure, National Adaptation Plan Steering Committee, and National Adaptation Plan Stocktake Report.<br>**3. Republic of Fiji National Climate Change Policy 2018-2030 (2018)**<br>This policy focuses on the Fijian government's response to climate change. The policy talks about "weaving" and uses that as a model to address climate change. "Weaving is a basic, inter-cultural, and international technology derived from the understanding that individual strands of a material become exponentially stronger when interconnected in a systematic way." |
| **Major Climate Adaptation Strategies** |
| **1. Planned Relocation within Fiji (Planned Relocation Guidelines)**<br>The Government of Fiji used the Pre, In, and Post method when dealing with planned relocation that involves all major stakeholders. This is only a last resort when all other adaptation plans are not successful. |

| TABLE 2. KIRIBATI | | |
|---|---|---|
| **Population Statistics** | | |
| Total Population | 120,740 | |
| Growth Rate | +1.68% | |
| **Physical Characteristics** | | |
| Region | Micronesia | |
| Number of Islands or Atolls | 1 coral island and 32 atolls | |
| Total Land Area | 811 km² | |
| Highest Elevation | 81 m | |
| **Migration Statistics** | | |
| Top Countries of Destination | Internal:<br>1. South Tarawa (Capital)<br>2. Abaiang<br>3. Kiritimati | International:<br>1. New Zealand<br>2. Fiji<br>3. Marshall Islands<br>4. Australia |
| Top Drivers for Migration | Internal:<br>1. Work<br>2. Education<br>3. Medical<br>4. Climate Change | International:<br>1. Work<br>2. Education<br>3. Medical |
| **Migration Trends & Patterns** | | |
| • Migration is not common and international migration is rare; however, internal migration is much more common than international migration (Oakes et al., 2016)<br>• Internal migration takes place primarily to South Tarawa for work, education, and medical opportunities and due to the impacts of climate change (Oakes et al., 2016)<br>• International migration takes place primarily to New Zealand and Fiji where work is the dominant reason followed by education and medical opportunities (Oakes et al., 2016)<br>• Modeling of future migration shows movement is likely to increase by the impacts of climate change, especially sea level rise, saltwater intrusion, floods, and droughts (Oakes et al., 2016)<br><br>**Important Factors to Consider:**<br>• Migration is most often constrained by lack of money (Oakes et al., 2016)<br>• The Kiribati government actively supports labor migration of its citizens under various labor schemes (Oakes et al., 2016)<br>• Internal migration to South Tarawa is not promoted by the government, as the capital has a very high population density, inadequate water supply, poor sanitation and waste disposal, and conflict over land ownership (Oakes et al., 2016) | | |
| **Potential Climate Drivers of Migration** | | |
| Sea-level rise → | Saltwater intrusion; turning well water brackish; increased coastal inundation and coastal erosion resulting in loss of land; damage to and loss of homes and critical infrastructure | |
| Floods → | Erosion; increased threat to food production and food security | |
| Droughts → | Reduced freshwater availability; increased difficulty growing crops; declines in copra production; brackish groundwater; increased threat to food production and food security | |

## TABLE 2. KIRIBATI (cont.)

### Climate Migration Resources (Plans, Strategies, and Policies)

1. **Kiribati: Climate Change and Migration Relationships Between Household Vulnerability, Human Mobility and Climate Change (2016)**
   This report is the first empirical study of community attitudes to climate migration in Kiribati. Findings are based on fieldwork carried out in 2015 and includes a total of 377 household surveys in North Tarawa, South Tarawa, Marakei, Kiritimati, and Butaritari.
2. **Kiribati National Labour Migration Policy (2015)**
   This report outlines a coherent action plan and strategies among key government departments for labor migration for Kiribati. As part of the government's long-term climate change adaptation strategy, the report identifies strategies for the permanent, temporary, and seasonal migration of workers.
3. **National Framework for Climate Change and Climate Change Adaptation (2013)**
   This framework outlines key areas to strengthen capacity in development and climate change adaptation in Kiribati. The framework provides information on population and resettlement and identifies key needs for short, medium, and long-term planning.
4. **National Disaster Risk Management Plan (2012)**
   This plan provides a road map for day-to-day government planning for disaster management, disaster risk reduction, and climate change adaptation. The plan includes activation plans and sectoral roles and responsibilities for specific events.
5. **Integrated Land and Population Development Program on Kiritimati Island (2009)**
   This report outlines strategies for improving living standards and promoting sustainable settlement in Kiritimati and throughout the outer islands of Kiribati. The strategies are aimed to facilitate adaptation to global climate change and in the face of economic instability.

### Major Climate Adaptation Strategies

**1. Promote Migration to Kiritimati**

The Government of Kiribati has been promoting migration to Kiritimati since 2005 (Oakes et al., 2016). Kiritimati, the largest coral atoll in the world, offers more space than any of the atolls in Kiribati. The island has a healthy marine ecosystem and is viewed as having potential for economic growth for tourism and fisheries with potentially better access to markets in Fiji and Hawai'i (Oakes et al., 2016). Kiritimati also is considered less at risk to sea level rise (Oakes et al., 2016). This initiative is part of Kiribati's 2009 Population Policy Implementation Strategy to manage and alleviate population pressures, particularly in South Tarawa, and facilitate permanent emigration and overseas employment opportunities (Government of Kiribati, 2009). One of the main challenges is the risk associated with the integration with the existing community, as there are already underlying tensions between migrants relocating to Kiritimati (Oakes et al., 2016). Additionally, there are development concerns for migrants relocating to Kiritimati, including inadequate basic infrastructure, inadequate health services, and insufficient employment opportunities (Government of Kiribati, 2009).

**2. Facilitate Permanent Migration through Well-Managed Labor Migration Schemes**

The Government of Kiribati developed the Kiribati National Labour Migration Policy in 2015 as part of the government's long-term climate change adaptation strategy. The policy focuses on facilitating temporary and permanent migration through a range of strategies, including: Providing support services, such as legal assistance, pre-departure training for temporary and seasonal workers, and on-site services in destination countries; Promoting foreign employment opportunities in the seafaring, fisheries, and hospitality industry; Increasing recruitment of seasonal workers from outer islands; Enhancing engagement with the Kiribati diaspora in Australia, New Zealand and Fiji; and Enhancing collaboration with migrant receiving countries. (Government of Kiribati, 2015)

| TABLE 2. KIRIBATI (cont.) |
|---|
| **3. Provide Relief Centers for Migrants**<br>Through Kiribati's National Disaster Risk Management Plan, emergency shelters are provided to migrants from islands as a result of chronic events arising from environmental factors. Relief centers will be used for temporary housing, as well as providing first aid assistance, distributing relief supplies, and registering displaced persons. The relief centers will be managed by community leaders under the direction of the National Disaster Risk Management Council with the assistance of the Kiribati Red Cross Society and police. (Government of Kiribati, 2012) |
| **4. Promote Migration with Dignity Conceptual Framework**<br>"Migration with Dignity," a vision advanced by then-President of Kiribati Anote Tong, is part of Kiribati's long-term nation-wide relocation strategy (McNamara, 2015). The conceptual framework emphasizes six fundamental elements: movement, security, equality, standard of living, access to services, and civil and political rights (McClain & Bruch, 2021). It aims to increase opportunities for people who wish to migrate abroad, while maintaining cultural integrity and knowledge and skills from the parent country (McClain & Bruch, 2021). It also aims to improve access to education, employment, and healthcare opportunities in Kiribati so that people have the necessary skills to migrate abroad 'with dignity'. Lastly, it enhances the opportunity for remittances to be sent back to families in Kiribati, which can help to increase household resilience to the impacts of climate change (McNamara, 2015). |

| TABLE 3. NAURU | |
|---|---|
| **Population Statistics** | |
| Total Population | 11,832 |
| Growth Rate | +1.21% |
| **Physical Characteristics** | |
| Region | Micronesia |
| Number of Islands or Atolls | 1 island |
| Total Land Area | 21 $km^2$ |
| Highest Elevation | 61 m |
| **Migration Statistics** | |
| Top Countries of Destination | International:<br>1. Fiji<br>2. Kiribati<br>3. Australia |
| Top Drivers for Migration | International:<br>1. Education<br>2. Work<br>3. Medical |

## TABLE 3. NAURU (cont.)

### Migration Trends & Patterns

- Outward migration is low; historically, very few Nauruans leave Nauru permanently (Arrowsmith & Parker, 2015)
- The most common reason for outward migration is education opportunities; the most common destination is Fiji, where the University of the South Pacific is located, and the second most common destination is Australia, possibly reflecting current scholarship schemes (Campbell et al., 2016)
- Climate change does not appear to be driving migration at present; however, potential impacts of climate change may affect people's decisions to migrate (Campbell et al., 2016)
- Changes to existing migration patterns and trends are projected; it is projected that people will migrate more to Australia, compared to current migration trends of Fiji being the most common destination (Campbell et al., 2016)
- Projected drivers for future migrations are mainly for education and family reunification (Campbell et al., 2016)

**Important Factors to Consider:**

- The main obstacles to migrate include lack of money and visas, family responsibilities, and insufficient level of education needed to qualify for labor programs (Campbell et al., 2016)
- Nauruans have access to Australia and New Zealand's labor programs; however, there are no specific arrangements managing and regulating migration for Nauruans (Capal, 2020; Arrowsmith & Parker, 2015)

### Potential Climate Drivers of Migration

| | |
|---|---|
| Sea-level rise → | Saltwater intrusion; increased coastal inundation and coastal erosion resulting in loss of land; damage to and loss of homes and critical infrastructure; permanent displacement |
| Floods → | Erosion |
| Droughts → | Reduced water availability for drinking and sanitation; reduced potable surface water |

### Climate Migration Resources (Plans, Strategies, and Policies)

1. **Updated Nationally Determined Contribution (2021)**
   This report outlines the Government of Nauru's national sustainable development priorities from 2021 to 2010. The report aims to align priorities with national efforts to address climate change impacts and achieve the Sustainable Development Goals.
2. **Nauru: Climate Change and Migration Relationships Between Household Vulnerability, Human Mobility and Climate Change (2016)**
   This report is the first empirical study of community attitudes to climate migration and aims to provide insight for planning and managing the impacts of climate change on migration. Findings are based on fieldwork carried out in 2015 and includes a total of 155 household surveys.
3. **Situational Analysis of Employment in Nauru (2015)**
   This report provides information on Nauru's economy, employment opportunities and challenges, and labor migration. The report includes recommendations for the government to support its citizens due to economic risks and the impacts of climate change.

| TABLE 3. NAURU (cont.) |
|---|
| **Major Climate Adaptation Strategies** |
| **1. Relocate Homes and Critical Infrastructure to Higher Ground**<br>The Higher Ground Initiative aims to relocate homes and critical infrastructure away from low-lying coastal areas to higher elevation known as the "Topside" located in the interior of the island. The Initiative aims to develop a "Smart Village" with 120 new residential units that incorporate sustainable urban planning strategies to address the impacts of climate change. Urban planning strategies include high efficiency appliances to reduce energy use; rainwater harvesting to support agriculture and recharge groundwater aquifers; and connectivity routes to employment centers across the island to reduce the use of personal cars. The Smart Village is planned to become a hub for economic activity, such as shipping, fishing vessels, and eco-tourism. Overall, the Initiative aims to increase the resilience of the country to sea level rise, extreme rainfall events, and drought; increase land availability for local food production, solar energy, and high efficiency residential houses; reduce dependency on automobile transportation; and pioneer a new Pacific Island urbanism. A Master Plan for Topside will be developed through a national consultative process with communities, landowners, development partners, and leading sustainability experts. One of the main challenges is addressing the issue of Nauru's high population density and acute housing shortage. Additionally, many households lack financial resources to improve their housing situation so the Initiative will also have to provide affordable housing for people to relocate. (Government of Nauru, 2021) |

| TABLE 4. NIUE | | |
|---|---|---|
| **Population Statistics** | | |
| Total Population | 1,549 | |
| Growth Rate | -0.83% | |
| **Physical Characteristics** | | |
| Region | Polynesia | |
| Number of Islands or Atolls | 1 island | |
| Total Land Area | 259 km² | |
| Highest Elevation | 68 m | |
| **Migration Statistics** | | |
| Top Countries of Destination | Internal:<br>1. New Zealand | International:<br>1. Australia |
| Top Drivers for Migration | Internal:<br>1. Work<br>2. Education | International:<br>1. Work<br>2. Education |

## TABLE 4. NIUE (cont.)

### Migration Trends & Patterns

- Since the 1970s, the population of Niue has been declining due to outward migration for work and education opportunities (Government of Niue, 2021).
- More than three-quarters of all Niueans live overseas, mainly in New Zealand (Capal, 2021)
- The number of jobs in Niue often determines the number of people who remain on the island (Government of Niue 2014).
- Climate change is predicted to cause an increase in outward migration (Government of Niue, 2014)

**Important Factors to Consider:**

- Niue is self-governing in free association with New Zealand and all Niueans are New Zealand citizens, allowing Niueans access to New Zealand or Australia (Capal, 2021)
- Transport costs (relative to income) are affordable since the opening of the airport on Niue in 1971 (Government of Niue, 2014)
- Niueans living on Niue have access to receive help from Niueans living away to overcome information and cost barriers to settlement (Government of Niue, 2014)
- Because Niue is faced with depopulation, the government has a couple of initiatives seeking to rebuild Niue's population, including:
- The Niue National Strategic Plan 2016-2026 aims to encourage Niueans abroad to return to Niue by making employment in Niue competitive by reaching 80% of the remuneration in New Zealand (Government of Niue, 2016).
- The National Youth Policy 2009-2013 encourages young New Zealand-born Niueans to explore the Niuean culture and lifestyle in Niue through a three-month program called Experience Vaka Atu Toa (Secretariat of the Pacific Community, 2009)

### Potential Climate Drivers of Migration

| | |
|---|---|
| Sea-level rise → | Increased coastal inundation; loss of beaches which are important for recreation and tourism |
| Cyclones → | Damage to and loss of infrastructure and public goods |
| Droughts → | Increased threat to agriculture and food security; shift to consumption of expensive imported foods |
| Extreme rainfall → | Flooding; impacts to food security; spread of mosquito borne diseases such as dengue fever and malaria |

### Climate Migration Resources (Plans, Strategies, and Policies)

1. **Niue: State of the Environment Report 2019 (2021)**
   This report provides the state of the environment for Niue to support decision-making and management and to identify areas that need to be addressed. The following themes of the report were selected by local stakeholders and experts: atmosphere and climate, freshwater, land, marine, biodiversity, culture and heritage, and built environment.
2. **Niue Second National Communication Under The United Nations Framework Convention on Climate Change (2014) and Niue Island Initial National Communication (2000)**
   The reports provide information on the impacts of climate change in Niue, measures to adequately adapt to climate impacts, and constraints and gaps that need to be addressed. The reports are used as a tool to build capacity in various areas relating to climate change at both a technical and policy level.
3. **Review of Socio-Economic and Environmental Impacts of Population, Resettlement, and Migration in Niue (1999)**
   This report provides information on emigration and immigration trends and patterns in Niue and socioeconomic and environmental factors that contribute to people's decision to migrate.

| TABLE 4. NIUE (cont.) |
|---|
| **Major Climate Adaptation Strategies** |
| **1. Relocate Villages and Infrastructure from High Risk Zones to Less Vulnerable Areas**<br>Villages and critical infrastructure will be relocated from the western coastline (the most populous area and the most vulnerable to sea level rise and cyclones) to the top terrace. Critical infrastructure includes the government flats, primary schools, hotels, private homes, and guest houses. To date, the hospital and bulk fuel depot have been relocated away from the coastline as part of the post cyclone-Heta recovery program. One of the main challenges is the cost of relocating villages and infrastructure; for example, the cost of relocating a house is about NZ$150,000. This initiative also includes financing opportunities for new homeowners and home relocation. (Government of Niue, 2014) |

| TABLE 5. PAPUA NEW GUINEA | | |
|---|---|---|
| **Population Statistics** | | |
| Total Population | 9,122,994 | |
| Growth Rate | +2.11% | |
| **Physical Characteristics** | | |
| Region | Melanesia | |
| Number of Islands or Atolls | 600 islands | |
| Total Land Area | 462,480km² | |
| Highest Elevation | 4,509m | |
| **Migration Statistics** | | |
| Top Countries of Destination | Internal:<br>1. Bougainville | International:<br>1. Australia<br>2. United Kingdom<br>3. New Zealand<br>4. Solomon Islands<br>5. Canada |
| Top Drivers for Migration | Internal:<br>1. Coastal Flooding/Hazards | International:<br>1. Coastal Flooding/Hazards |
| **Potential Climate Drivers of Migration** | | |
| Sea-level rise → | Saltwater intrusion; turning well water brackish; increased coastal inundation and coastal erosion resulting in loss of land; damage to and loss of homes and critical infrastructure | |
| Droughts → | Reduced freshwater availability; increased difficulty growing crops; declines in copra production; brackish groundwater; increased threat to food production and food security | |
| Cyclones → | Storm surge; coastal flooding. | |

| TABLE 5. PAPUA NEW GUINEA (cont.) |
|---|
| **Migration Trends & Patterns** |
| • Papua New Guinea government has encouraged its citizens to work abroad. This leads to PNG being involved in three labor migration schemes. The Seasonal Worker Programme and Pacific Labour Scheme are both in Australia. The Recognized Seasonal Employer Scheme through the government of New Zealand.<br><br>**Important Factors to Consider:**<br>• Multiple attempts have been made targeting re-settlements from Caterette to Bougainville, but it was unsuccessful.<br>• There are high poverty and unemployment rates in Papua New Guinea.<br>• Papua New Guinea is promoting the country as an investment location for companies in Australia. |
| **Climate Migration Resources (Plans, Strategies, and Policies)** |
| **1. PNG: Building Resilience to Climate Change in Papua New Guinea (2015)**<br>This plan was administered to Papua New Guinea by the Asian Development Bank. This provides a framework on how to support PNG's (Papua New Guinea) Strategic Plan for Climate Resilience. The goal of this is to see an increased resilience to both climate change and climate variability. The framework discusses four outputs that will be implemented. The first is climate-responsive investment approaches that are identified and implemented by vulnerable communities. The second is sustainable fishery ecosystems and food security investments piloted in nine vulnerable island and atoll communities. The third output is enabling a framework for climate-resilient infrastructure established and the communication network extended. The last output is efficient project implementation and management.<br>**2. Interim Action Plan for Climate Compatible Development (2010)**<br>This interim plan was produced by the PNG Office of Climate Change and Development to provide a framework to help build the country and combat the effects of climate change by listing their different adaptation activities to address the different types of hazards. These include the discussion of their own greenhouse gas emissions and abatement. In addition, the plan outlines several adaptation initiatives and a timeline with an action plan for local stakeholders (municipal government, NGOs, etc.)<br>**3. Papua New Guinea - Australia Climate Change Action Plan (2018)**<br>This plan involves both the governments of Papua New Guinea and Australia and is their commitment to each other to combat climate change. Through the Paris Agreement, these countries will share in efforts to reduce greenhouse gas emissions, increasing their resilience to the effects of climate change and ensuring that there is information sharing through the delivery of their Nationally Determined Contributions. There are five points that the updated, signed mutual agreement identifies; 1) Establish an annual climate change dialogue, 2) Develop the capacity of Papua New Guinea's national, provincial, and local governments to address the impact of climate change, 3) Support Papua New Guinea to access international and private climate finance opportunities, 4) Cooperate on direct programs for climate change action, and 5) Support the development of clean energy markets and continue to focus on climate-smart infrastructure. |

| TABLE 5. PAPUA NEW GUINEA (cont.) |
|---|
| **Major Adaptation Strategies** |
| **1. Pacific Adaptation for Climate Change (PACC) Project**<br>This is a project that spans 14 Pacific island countries. The goal of this project in Papua New Guinea is to strengthen their food security. It focuses on addressing one of the listed drivers of climate migration, drought. This project helps to build underground irrigation systems and ensures the growth of drought-resistant crops and teaches new farming methods to local farmers at the village level. |
| **2. Papua New Guinea-Australia Comprehensive Strategic and Economic Partnership**<br>This partnership focuses on the relationship between Papua New Guinea and Australia. The goal is to ensure the growth between the two countries by focusing on their shared principles/values. This framework discusses how each country will communicate with each other, respect each other's laws, share a commitment to support each other in times of need, and be flexible in priorities such as capacity building. |
| **3. PNG Labour Mobility Unit**<br>This unit focuses on the partnership with Australia and New Zealand. The objective of this unit is to employ at least 8,000 workers. This unit allows workers to find seasonal types of employment and helps them also understand the recruitment process. This unit also allows employers to advertise openings and also assists them in the search for workers. |
| **4. Coastal Engineering Protection**<br>This involves building retaining walls to high-priority cities (Wewak, Lae, Madang, Buka, Vanimo) that are susceptible to coastal flooding from either tsunamis or storms. |

| TABLE 6. SAMOA | | |
|---|---|---|
| **Population Statistics** | | |
| Total Population | 199,853 | |
| Growth Rate | +0.61% | |
| **Physical Characteristics** | | |
| Region | Polynesia | |
| Number of Islands or Atolls | 2 volcanic islands, 4 small islands made of eroded remains of tuff cone | |
| Total Land Area | 2,934 km² | |
| Highest Elevation | 1,858 m | |
| **Migration Statistics** | | |
| Top Countries of Destination | Internal:<br>1. New Zealand | International:<br>1. Australia |
| Top Drivers for Migration | Internal:<br>1. Work<br>2. Education | International:<br>1. Work<br>2. Education |

**TABLE 6. SAMOA (cont.)**

**Migration Trends & Patterns**

- Internal migration flows are mainly from rural to urban areas in Samoa. Most internal migration is from the more rural island of Savai'i to the Apia Urban Area and North West Upolu areas on the island of Upolu.
- Drivers of migration to the Apia Urban Area and North West Upolu area are more land for sale in these areas and increasing development in the following sectors: education, communication, transportation, commercial activities, and employment (Samoa Bureau of Statistics, 2016).
- Samoa has high international emigration rates due to high participation rates in labor migration schemes, particularly in New Zealand and to a lesser extent Australia. The government of Samoa created a Seasonal Employment Unit which supports individuals interested in labor migration, which may contribute to high rates of participation in labor migration schemes.
- The Samoa Quota Visa facilitates permanent emigration of Samoans to New Zealand. The visa program allows 1100 Samoans to enter the country every year for an indefinite amount of time. The visa applicant can bring their partner and dependent children with the requirement of securing a job offer that can sustain the family in New Zealand (New Zealand Government Ministry of Business, Innovation and Employment, 2022).
- New Zealand, Australia, and the United States offer scholarships to Samoans for the pursuit of higher education to attain bachelors and masters degrees. This is a key driver of international migration.
- Samoa has Community Integrated Management plans for multiple communities across the nation. It has been recommended that relocation be included in these plans for communities to determine the most salient relocation zones and implementation plans.

**Important Factors to Consider:**

- Vulnerability
  Between 70 and 80 percent of the population and infrastructure are established within one kilometer of the coast (Samoa Bureau of Statistics, 2016). This makes people, housing, roads, and other assets extremely vulnerable to climate change effects including sea-level rise, flooding, cyclones and storms. There have been some internal migration flows from rural to urban areas; however, 80 percent of the population in Samoa still reside in rural areas (Samoa Bureau of Statistics, 2016).
- Cost of Relocation
  The majority of infrastructure and villages are in hazard zones in Samoa. Relocation has been described as the most costly adaptation option to climate change in multiple plans published by the Government of Samoa. Also, tourism to Samoa has been increasing and relocating inland can negatively impact tourism which will hurt the private sector and national economy. Cost benefit analyses on relocation note that relocation is the best long term option for Samoa; however, costs do outweigh benefits depending on which climate change projections are assumed. Multiple government plans on climate change adaptation have chosen to focus on options other than relocation due to high costs. The social-emotional impact of relocation has also been a challenge. In a beneficiary survey by the World Bank, some Samoans noted that they would not leave their ancestral lands and others stated they would only relocate if their houses were completely destroyed (The World Bank, 2021).
- Covid 19 Impacts
  Multiple international migration opportunities, including labor migration schemes, were suspended due to COVID-19. Some programs have begun to accept visitors again. Currently, the New Zealand government website states the Samoan Quota and Pacific Access Category programs are suspended.

| TABLE 6. SAMOA (cont.) | |
|---|---|
| **Potential Climate Drivers of Migration** | |
| Sea-level rise → | Flooding; coastal erosion; saltwater intrusion contaminating water; damage to and loss of homes and critical infrastructure; saltwater intrusion into soil negatively affecting agricultural production and threatening food security; |
| Floods → | Erosion; damage to water supply; compromised generation of electricity; damage to forestry; loss of agricultural production; increased threat to food security; sediment runoff into reefs which can cause coral reef damage, death and bleaching; |
| Droughts → | Reduced freshwater availability; depletion of water reservoirs; increased difficulty growing crops; increased threat to food security; loss of agricultural production |
| Storm Surge → | Coastal erosion; risk of loss of life; endangered wellbeing; damage to infrastructure, reefs, fishing, tourism; losses in economic production; increased threat to food security; loss of agriculture production; damage to mangroves that protect against erosion; |
| Ocean Acidification → | Coral bleaching, decrease survival of large clams, shellfish, and reef fish; algae bloom which can kill birds, fish, and marine mammals; degradation of sanctuary reefs; |
| **Climate Migration Resources (Plans, Strategies, and Policies)** | |
| 1. **Samoa Strategic Programme for Climate Resilience (2011)**<br>This report outlines how climate change is affecting Samoa across the public, private and civil society sectors and presents the current climate change policies and activities in place in Samoa. There are also two proposed investment projects related to financing discussed in this report. A cost benefit analysis to estimate costs of different climate change adaptation options was included. Relocation of coastal infrastructure was one climate change adaptation policy that was analyzed and found to be very costly, but it was determined to be the best option for long-term sustainability.<br>2. **Samoa National Infrastructure Strategic Plan (2011)**<br>This plan focuses on improvements and developments to national infrastructure across seven major sectors: energy, telecommunications, water, solid waste, roads, sea ports, and airports. The plan also covers multi-sector issues, including disaster risk management and climate change adaptation, and funding strategies. Renewable and sustainable developments are prioritized in all sectors. The plan discussed projects to expand water supply and road access to resettlement areas in response to the 2009 tsunami. | |

**TABLE 6. SAMOA (cont.)**

3. **Coastal Management Adaptation to Climate Change Using Ecosystem-based Adaptation Strategies (2014)**
   This project plan focuses on two coastal sites where erosion is present and offers a favorable strategy to mitigate climate change effects on the coastlines. Each site has a description of geography, land use, natural and cultural resources, threats, and a desired future condition of the sites. They also have different options of strategies described, and a preferred strategy is chosen to be implemented at the coastal site. The favored strategy is described in detail, including information on short-term and long-term implementation activities, potential benefits and impacts. Monitoring and evaluation structures are also included for each preferred strategy. Relocation is mentioned for each coastal site and viewed as a realistic possibility if continued erosion occurs. Landowners were prepared to relocate fales inward, but it was not chosen as the preferred strategy due to costs of materials and labor and a fear that it would reduce tourism due to changing lodging locations and reducing desirability of beaches.
4. **Strategy for the Development of Samoa (SDS) 2016/17-2019/20 (2016)**
   This framework is related to the National Infrastructure Strategic plan and determines priority outcomes and an implementation plan for strategies across four main areas: economic, social, infrastructure, and environment. The main focus of the report is, “an improved quality of life for all.” Sustainability, resiliency, and community are important outcomes in the plan. Combating climate change is one goal in the plan, and developing climate change and disaster response are discussed as ways to improve community resilience. This framework plans to facilitate community development through coastal infrastructure plans are integrated with sustainable development plans for 42 villages.
5. **Samoa Climate Change Policy 2020-2030 (2020)**
   This plan encompasses the climate change obligations Samoa has made nationally, regionally, and internationally. The main vision of the plan for a safe, sustainable and resilient Samoa is driven through eight objectives. Each objective contains a detailed description of strategies, expected outcomes and responsible agencies. Policy benefits, implementation, review, monitoring, and evaluation are also discussed. Community integrated management plans are part of expected outcomes from objective strategies being implemented.
6. **Samoa’s Second Nationally Determined Contribution (2021)**
   Samoa expressed their commitment to being a leader in global climate change mitigation efforts in this report. The report breaks down mitigation and adaptation plans. Mitigation plans are focused on reducing emissions from the energy, waste, and agriculture sectors. Adaptation plan targets were made with consideration for community integrated management plans and the National Climate Change Policy of 2020-2030. Adaptation plans are mainly focused on increasing forest areas and sustainability. Relocation is not mentioned directly in this plan, but relocation is part of the community integrated management plans mentioned in the report.

**TABLE 6. SAMOA (cont.)**

7. **Samoa 2040 (2021)**
   This is the economic development plan to increase employment and revenue in Samoa. Four sectors are focused on for development: tourism, agriculture and fishing, digital economy, and labor mobility. There is a lot of information on labor migration trends and opportunities to expand these plans for more permanent migration. Samoa plans to increase participation in labor migration and other overseas visa programs and to advocate for increased capacity for Samoans to participate in programs and stay indefinitely in countries they emigrate to.
8. **PATHWAY FOR THE DEVELOPMENT OF SAMOA (PDS) 2021/22 – 2025/26 (2022)**
   This framework addresses priorities for development across the social, economic, government, environment and climate, and public works and infrastructure sectors. Sustainability, conservation, and resilience are key ideas in strategies across all sectors. Expanding labor migration opportunities and participation is one of 21 key priority areas. Samoa plans to improve education and training to match overseas labor markets.
9. **Coastal Infrastructure Management Plan (multiples for each district, 2002)**
   The coastal infrastructure management plans are individualized to each district within Samoa to account for community attitudes and needs. The plans are not only meant to guide infrastructure development and disaster response, but also aim to educate coastal communities on climate change risks. These plans are designed to be implemented by government and local villages and should be reviewed every five years. Plans include telephone lines, bridges, water supply, rainforest conservation, sand mining, and sea wall building. Each plan mentions relocating infrastructure out of coastal flood and coastal erosion hazard zones. There are maps that show hazard zones and roads and other infrastructure to be relocated; however, there is no identification of areas to relocate to. The implementation of relocation is designated as a village responsibility.
10. **Community Integrated Management Plan (multiples for each district, 2018)**
    These plans have the same format as the Coastal Infrastructure Management plans, which include a plan, implementation guide, and designated party of responsibility (government or village) for each district. The goal of this plan is to educate communities on "risks from ridge to reef, improve climate resilience, and better respond to natural disasters." The plan will be monitored bi-annually, updated every five years, and reviewed every 10 years. Each district describes major problems, "best solutions," who is responsible for solutions, other benefits outside of addressing key problem, a guideline for implementation, and relevant sector plans. Drainage systems, marine environment, forests and plantation, and critical infrastructure (houses, schools, and churches) are addressed. Voluntary relocation is highly recommended in the plan and there is a map outlining relocation that has already occurred in Samoa as a response to the 2009 tsunami.

| TABLE 6. SAMOA (cont.) |
| --- |
| **Major Climate Adaptation Strategies** |
| **1. Facilitate overseas employment and permanent emigration by expanding labor migration schemes**<br>Samoa participates in multiple labor migration, educational scholarships, and other visa programs. Most emigration is to New Zealand, Australia and the United states, which offer labor and education migration opportunities. New Zealand offers permanent residency to 1100 Samoans a year through the Samoa Quota visa. The seasonal worker program and pacific labor scheme do not have a limit on the amount of workers from Samoa that can participate. Samoa wants to continue using these migration schemes to their fullest capacity by aiding Samoans through every stage of the process for labor migration participation. The government of Samoa plans on reviewing past labor migration applicants and labor markets to determine how to best match their citizens to the needs of external countries. They also plan to offer emotional support to individuals that may feel isolated and overwhelmed when entering new countries overseas. The government of Samoa plans on advocating for increasing seasonal worker caps and increasing access to permanent migration opportunities. |
| **2. Relocate coastal infrastructure and villages inland**<br>The Government of Samoa conducted a cost benefit analysis on climate adaptation options. The Second Nationally Determined Contribution determined the benefits of relocating coastal infrastructure was determined to be effective before 2035 only when the global dry scenario predicted by the Commonwealth Scientific and Industrial Research Organisation occurs. Relocation of assets and entire villages was noted as the most sustainable option for the long term and voluntary retreat inland was included in Community Integrated Management plans and Coastal Infrastructure Management plans for each district in Samoa. Small scale relocation of housing, hospitals, roads, and other infrastructure has been successful across multiple districts in Samoa. The United Nations has co-sponsored multiple projects with the Government of Samoa that have relocated infrastructure within the nation. Samoa has current plans to relocate more infrastructure away from coastal hazard zones, and these plans are at various stages of implementation. |
| **3. Develop coastal rehabilitation and protection projects to allow populations to continue living on the coast**<br>There are coastal infrastructure management plans for each district in Samoa. These plans cover a range of adaptation options to be reviewed at five-year intervals. Some of the adaptation plans are to preserve coastal zones by planting mangroves and other vegetation, upgrading culverts, regulate sand mining to sustainable levels, and designating marine protected areas. Relocation and coastal rehabilitation projects have often been compared as adaptation options to increasing climate change effects, specifically in relation to coastal erosion. Coastal rehabilitation has often been chosen over relocation, because it costs less and does not result in displacement of people. There have been multiple projects to preserve and protect the coast in Samoa that have been carried out to various degrees. Coastal protection remains a top priority for Samoa in response to climate change. |

| TABLE 7. THE SOLOMAN ISLANDS | | |
|---|---|---|
| **Population Statistics** | | |
| Total Population | 728,041 | |
| Growth Rate | +2.24% | |
| **Physical Characteristics** | | |
| Region | Melanesia | |
| Number of Islands or Atolls | 6 Major Islands & over 900 smaller islands | |
| Total Land Area | 28,230km² | |
| Highest Elevation | 2,447m | |
| **Migration Statistics** | | |
| Top Countries of Destination | Internal:<br>1. Choiseul | International:<br>1. Australia<br>2. New Zealand<br>3. Papua New Guinea<br>4. Vanuatu<br>5. United States |
| Top Drivers for Migration | Internal:<br>1. Food<br>2. Work | International:<br>1. Work |
| **Potential Climate Drivers of Migration** | | |
| Sea-level rise → | Saltwater intrusion; turning well water brackish; increased coastal inundation and coastal erosion resulting in loss of land; damage to and loss of homes and critical infrastructure | |
| Droughts → | Reduced freshwater availability; increased difficulty growing crops; declines in copra production; brackish groundwater; increased threat to food production and food security | |
| Cyclones → | Storm surge; coastal flooding. | |
| **Migration Trends & Patterns** | | |

- Working on a legislative framework that will plan for internal migration.

**Important Factors to Consider:**

- It is noted that there is a high turnover rate in senior executive positions throughout all sectors. This presents a challenge because it leads to a lack of training and lack of knowledge. This also means that progress is difficult to make if these gaps exist.
- "Kastom" barriers within the community present a challenge. Climate change and its impacts must be translated in a way that will make it meaningful for residents.
- It is one of the poorest countries in the pacific region. A possible reason behind their economic troubles is civil unrest. This period known as "The Tensions" which occurred from 1998-2003.
- Children make up half of the entire population, gender inequalities exist and are supported through their customary law which is the country's official law.

| TABLE 7. SOLOMON ISLANDS (cont.) |
|---|
| **Climate Migration Resources (Plans, Strategies, and Policies)** |
| **1. Choiseul Integrated Climate Change Programme (2012)**<br>This programme focuses on the island of Choiseul and the Lauru people and is not a nationwide plan. It is the first formal plan to address climate change through a holistic and integrated approach. The programme's objectives are split into medium-term and long-term objectives. Some benefits of this plan are to share resources with development partners and the various natural ministries. The next part is involving stakeholders at the local/provincial levels to build stronger communities. |
| **2. Solomon Islands Nationally Determined Contribution (2021)**<br>This report comes from the Minister of Environment, Climate Change, Disaster Management, and Meteorology. The report addresses multiple factors relating to climate change. The first is its recommitment to reduce its greenhouse gas emissions. Additionally, this plan discusses various mitigation efforts to combat climate change. These actions would be focusing on renewable energy such as solar hybrid stations and hydro-diesel power stations. The plan mentions adaptation efforts that are focused on their biggest threat (tropical cyclones).<br>The second portion of the plan then discusses gaps, barriers, and needs that the Solomon Islands would need to help address climate change. Relocation is touched on briefly in this plan making relocation of coastal communities more inland a priority. |
| **3. Relocation Guidelines for Low-Lying Coastal Communities (2021)**<br>In a government press release on July 1, 2021, it is reported that the government has partnered with an international group to study four different communities that have undergone relocation to new locations. There are four goals of this plan: 1) respond to the priorities identified by the Advisory Committee, 2) be informed by experiences with planned relocations in the Solomon Islands, elsewhere in the Pacific, and globally, 3) be shaped by the widest possible consultations that available resources will allow, including with communities, and provincial and national-level stakeholders (as such, the results of the work will be widely communicated and consulted on throughout the project), and 4) the Solomon Islands government for the benefit of all Solomon Islanders, especially those who may need to be relocated now and in the future, will own the final project-the relocation guidelines. |
| **Major Adaptation Strategies** |
| **1. Holistic and Integrated Approach to Climate Change (2012)**<br>The Choiseul Province was selected by the Solomon Islands Government to be the first province to test out the government's new approach to climate change. |
| **2. Food Production Security (Pacific Adaptation to Climate Change Project) & Capacity Development**<br>There are three different projects that are currently taking place. The first project is done under the overall Pacific Adaptation to Climate Change project that is supposed by the UNDP (United Nations Development Programme). This involves preparing communities to respond to incidents that affect their food production systems. Additionally, this project involves community adaptation activities that help them with their food security. These involve providing a framework for local community leaders and educators. Both the EU and The World Bank are going through different activities that deal with climate and disaster resilience that are helping to build capacity at the local level. |

| TABLE 8. TONGA | | |
|---|---|---|
| **Population Statistics** | | |
| Total Population | 99,532 | |
| Growth Rate | -0.25% | |
| **Physical Characteristics** | | |
| Region | Polynesia | |
| Number of Islands or Atolls | 176 islands, 36 islands inhabited, volcanic islands in the west, low lying coral islands in the east | |
| Total Land Area | 749 km² | |
| Highest Elevation | 1,033 m | |
| **Migration Statistics** | | |
| Top Countries of Destination | Internal:<br>1. Tongatapu | International:<br>1. New Zealand<br>2. United States<br>3. Australia |
| Top Drivers for Migration | Internal:<br>1. Education<br>2. Employment<br>3. Climate Change | International:<br>1. Education<br>2. Employment<br>3. Climate Change |
| **Migration Trends & Patterns** | | |
| • Most internal migration within Tonga is from urban to rural areas for employment, education, and more recently climate change<br>• There is a variation in elevation on the islands in Tonga. Islands with higher elevation have the option to relocate internally, while low lying islands do not have that option<br>• An evidence-based study on coastal erosion and sea level rise in Lifuka Ha'apai calculated a coastal setback zone for relocation away from the coast. Relocation was noted as the best option; however the community opposed it due to no immediate land available for relocation.<br>• Homes in Niuatoputapu and a hospital in Ha'apai have been successfully relocated to higher ground<br>• 69.7% of Tonga's population are emigrants that live and/or work abroad (Capal, 2021)<br>• 13% of the Tongan population aged 20-45 has migrated to New Zealand or Australia to work (McAuliffe & Triandafyllidou, 2021)<br>• There are more relocation plans that have been developed and identified in the Third National Communication on Climate Change, but their implementation is not currently known<br>• Tongan diaspora in other countries is large and inspires chain migration out of Tonga | | |

**TABLE 8. TONGA (cont.)**

**Important Factors to Consider:**

- **Land Tenure**
  There is no community owned land in Tonga. All land is government or noble owned and a parcel is granted to Tongan males. Land cannot be sold, but can be leased. This makes it difficult to acquire land for relocation.
- **Cost of Relocation**
  There are large costs to relocating homes, buildings, roads, water, and other infrastructure. Over 37% of Tonga's GDP comes from remittances from overseas family members (McAuliffe & Triandafyllidou, 2021). There is a lack of government funds to purchase lands, materials, and personnel to relocate infrastructure and the population.
- **Overcrowding from internal migration**
  There are high rates of rural to urban internal migration in Tonga. The lack of land in urban areas is leading to people live near areas vulnerable to flooding. The increased building of houses and infrastructure is damaging mangroves and marine ecosystems that protect against climate change. Increased urbanization also puts a strain on natural resources, like potable water.
- **Lack of data on migration trends and labor markets**
  Tonga does not have consistent data on their internal labor market. This has led to high rates of underemployment and a gap in education and training to match the labor market. Tongans will have increased difficulty participating in labor or educational opportunities overseas without proper education.

| Potential Climate Drivers of Migration | |
|---|---|
| Sea-level rise → | Forced relocation of populations living on the coastal areas of low lying coral atolls to the interior parts of the islands causing overcrowding, disputes over land boundaries, and exerting pressure on the already stressed water, sanitation and food resources, loss of beaches for tourism impacting economy |
| Ocean acidification → | Weakened coral reefs, coral bleaching, less coral protection from cyclones and other weather events, reduction of reef fish and shellfish, marine food web at risk, increased food security risk, ciguatera poisoning |
| Air and sea surface temperature increase → | Flood and inundation damage, water pollution, coastal erosion, infrastructure damage, beach degradation, algae bloom, destruction of coral reefs and fish habitats, increased food security risk, increased water demand which can deplete water resources |
| Decrease in dry season rainfall and increase in wet season rainfall → | Drought, agriculture and forestry losses, flooding, increase in mosquito breeding and dengue fever cases, infrastructure damage, saltwater intrusion, brackish groundwater, increased food security risk |
| Flooding → | Loss of life, housing destruction, infrastructure damage, saltwater intrusion, brackish groundwater, hillside erosion, coastal and soil erosion, loss of agricultural land and productivity |

| TABLE 8. TONGA (cont.) |
|---|
| **Climate Migration Resources (Plans, Strategies, and Policies)** |
| **1. Tonga Strategic Development Framework II 2015-2025 (2015)**<br>This national framework guides the development of Tonga across five main pillars: economic, social, political, infrastructure and technology, and natural resources and environments. A SWOT analysis and several outcomes have been created for each pillar. Internal and international migration are briefly addressed in this plan. Internal immigration to Tongatapu is negatively impacting the areas that people are leaving, land is unused and communities are unsupported, and in Tongatapu by increasing demand on resources and overcrowding in unhealthy living conditions. The plan encourages sustainable development to discourage resettlement of people from outer islands to urban centers. Large diaspora populations resulting from high rates of international migration are highlighted as a strength for providing support after natural disasters. |
| **2. Tonga Climate Change Policy: A Resilient Tonga by 2035 (2016)**<br>This policy was made in accordance with the Joint National Action Plan 2 and incorporates all sectors in Tonga to adapt to climate change effects. There are six objectives and twenty targets for the country to accomplish by 2035, but relocation is not mentioned in any targets. The plan instead focuses on protecting coastal areas and redesigning homes, roads and other infrastructure to be sustainable and resilient against natural disasters and other climate change events. Relocation is mentioned once as a strategy that was outlined in the Joint National Action Plan 1 in 2006 and was indicated as not being achieved. |
| **3. Joint National Action Plan 2 on Climate Change and Disaster Risk Management 2018-2028 (2018)**<br>This plan was made simultaneously with Tonga's climate change policy to be an implementation guide for the six objectives and twenty-two targets outlined in that plan. Coastal zone management, water resource plans, and renewable energy sources are actions to be taken to implement the climate change policy. Although relocation was not mentioned as a strategy or target of the climate change policy, the Joint National Action Plan 2 designates studying relocation scenarios as an activity to improve awareness on climate change and natural disaster migration. |
| **4. United Nations Voluntary GCM Review Tonga (2020)**<br>This document measures how Tonga has implemented the Global Compact for Safe, Orderly, and Regular Migration. The document analyzed migration for climate change and labor. The document highlights there are currently no migration plans or policies to support citizens displaced from climate change or natural disasters internally or internationally. There are unpublished evacuation plans, but there are no short term or long term natural disaster relocation plans or procedures. The government does not collect data on emigration movements consistently, so it is difficult to find data on those that have migrated due to climate change effects. The government has limited and unpublished national labor market assessments and does not track international labor migration. There is also a lack of documents and policies on migration, remittances, and protection for migrants. This leads to labor shortages and increased unemployment rates in Tonga. The United Nations Review on Tonga's migration policies highlights the lack of overall plans, policies, and data on migration in the country. |

| TABLE 8. TONGA (cont.) |
|---|
| **5. Joint National Action Plan 2 on Climate Change and Disaster Risk Management 2018-2028 Monitoring and Evaluation System Guide (2019)**<br>This guide is intended to be used for future monitoring and evaluation of the Joint National Action Plan 2. The guide has proposed outcome and impact indicators that can be used to measure the progress of implementation of the Joint National Action Plan. The activity of studying relocation scenarios from the Joint National Action Plan is included in the monitoring system, along with all the other activities from the plan. Some proposed outcome indicators tied to this activity are, "the number of properties located in river/coastal floodplains and reduction of flood damage and disaster relief costs due to increased standards for flood protection and improved flood emergency preparedness." |
| **6. Third National Communication on Climate Change Report (2019)**<br>This report provides an update on Tonga's activities to mitigate and adapt to climate change effects within the country. There are analyses on current national demographics and economic circumstances, national greenhouse gas emissions, mitigation sectors, vulnerabilities and current and future adaptation options, and gaps, constraints and needs for future action against climate change. This plan states that relocation now needs to be seriously considered for people in Tonga and provides information on relocation options. The plan identifies inland areas that are available for relocation and addresses the challenges of cost and land ownership for relocating inland. The plan provides information on previous evacuations and resettlements to inland areas in Tonga. This plan provides a compilation of information on past migration and future relocation options for Tonga. |
| **7. Migration and Sustainable Development Policy (2019)**<br>This policy report identifies options for migration policies and strategies for Tongan people at risk for displacement due to climate change and natural disasters. The report also discusses sustainable development as a way to retain land and population in Tonga. The report compiles current data and frameworks on internal, international and inward migration, policies and frameworks. There are also future strategies and implementation plans. Some migration strategies mentioned are conducting research on at-risk communities and relocation options, participating in regional and international forums on migration, consulting with and educating at-risk communities about relocation, and developing frameworks and capacity for relocation. Internationally, current trends, challenges, and possible expansion of labor migration schemes to New Zealand and Australia are discussed. |
| **Major Climate Adaptation Strategies** |
| **1. Relocate infrastructure, housing, and vulnerable communities inland and away from coast**<br>In the past three years, Tonga has begun to take relocation and migration more seriously. Tonga has successfully relocated small numbers of houses and other infrastructure away from the coast. There are currently plans being developed to relocate more housing and infrastructure away from the coast as climate change effects are being realized within the country. |
| **2. Conduct research and participate in community, regional and international forums to develop relocation plans**<br>Tonga is considering more relocation options within the country and internationally. Tonga wants to continue actively participating in international forums and conferences to increase knowledge of and access to migration opportunities to other countries. Tonga also values input from communities within their country and wants to promote democracy by soliciting ideas and feedback from citizens about relocation. Tonga plans to collect data on relocation in their country, diaspora numbers around the world, and relocation examples from other countries to learn more about relocation options and best practices of implementation. |

| TABLE 8. TONGA (cont.) |
|---|
| **3. Facilitate overseas employment and permanent emigration by expanding labor migration schemes**<br>Tonga currently has high rates of participation in labor migration schemes, specifically the Seasonal Worker Program in Australia and the Recognised Seasonal Employer scheme in New Zealand. The Pacific Access Category allows indefinite stay to 250 Tongans each year and could be an option for small numbers of migrants that are relocating due to climate change. For large-scale migration, Tonga is looking to expand seasonal programs to allow more Tongans to permanently migrate. |
| **4. Protect coastlines and develop sustainable infrastructure to retain population in country**<br>In multiple national frameworks, sustainable development has been the favored response for adapting to climate change. The Third National Communication on Climate Change Report discusses multiple projects to protect coastlines, build resilient schools, hospitals and other infrastructure, protect from overfishing, and prevent water shortages. Although relocation due to climate change is becoming a reality for Tonga, they are still determined to protect and conserve their land. |

| TABLE 9. TUVALU | | |
|---|---|---|
| **Population Statistics** | | |
| Total Population | 10,679 | |
| Growth Rate | +0.94% | |
| **Physical Characteristics** | | |
| Region | Polynesia | |
| Number of Islands or Atolls | 3 reef islands, 6 true atolls | |
| Total Land Area | 26 km² | |
| Highest Elevation | 4.6 m | |
| **Migration Statistics** | | |
| Top Countries of Destination | Internal:<br>1. Funafuti (capital)<br>2. Vaitupu | International:<br>1. Fiji<br>2. New Zealand<br>3. Australia |
| Top Drivers for Migration | Internal:<br>1. Education<br>2. Work<br>3. Medical<br>4. Environment | International:<br>1. Education<br>2. Work<br>3. Medical<br>4. Environment |

**TABLE 9. TUVALU (cont.)**

**Migration Trends & Patterns**

- Tuvalu currently participates in labor migration schemes in New Zealand and Australia
- Tuvaluans have migrated to different island nations in the Pacific for various reasons and with varying degrees of success. Countries that Tuvaluans have had planned migration to include the island of Kioa in Fiji, the village of Vaiea in Niue, Barnabas, and Nauru
- Tuvaluans have a history of emigrating to participate in seafaring; however, numbers of Tuvaluans participating in seafaring have been declining by the hundreds in recent years
- Climate change is currently an identified driver of internal and international migration in Tuvalu; however, the number of people migrating due to climate change is very small compared to the number of people migrating for other reasons
- Climate change is predicted to increase rates of migration out of Tuvalu

**Important Factors to Consider:**

- **Lack of money**
  The government of Tuvalu does not have enough funds to support large scale migration of their population. Individuals wanting to migrate outside of the country have to pay for travel on their own. Tuvalu is a small and isolated country with few marketable exports. The majority of revenue comes from grants and aid from foreign countries, the Tuvalu trust fund, and remittances from Tuvaluans living and working in other countries. The government of Tuvalu does not have enough funds or incoming revenue to support the purchase of land from other countries for relocation sites or the development and expansion of migration pathways.
- **Lack of internal migration options**
  Tuvalu has a small land mass and all nine islands are low lying. There are no optimal relocation sites within Tuvalu that would be protected from climate change effects.
- **Past complications with international relocation opportunities**
  International migration also poses challenges. Tuvaluans have migrated to several countries in the Pacific region with varying success rates. In 1947, Tuvaluans purchased land in Fiji on the island of Kioa and successfully founded a community there. Tuvaluans still live in Kioa and are recognized by Fiji and Tuvalu with their own migration remembrance day celebrated in Fiji (McAdam, 2014). Beginning in the early 1900s, Tuvaluans participated in labor migration to Barnabas and Nauru to work in phosphate mines. In the early 2000s, phosphate reserves were dwindling and many Tuvaluans left those countries (Republic of Nauru 2014). In the early 1990s, Tuvaluans migrated to Niue in the village of Vaiea. Niue feared depopulation and invited a number of Tuvaluans to permanently immigrate to the country. Niue has failed to be realized as an opportune relocation destination, because Tuvaluans in Niue receive much less pay than Niuean citizens and live in abandoned houses without any title to them (Moss 2015). Also, some Tuvaluans left Niue for New Zealand which made Niue hesitant about accepting more Tuvaluans into their country if they are using Niue as an entryway to New Zealand (Taafaki, 2007).
- **Travel and other migration related costs**
  For labor, educational, and vocational opportunities, there are large upfront costs to attain documents and travel to other countries. Travel, language training, and remittance transfer costs decrease the amount of money Tuvaluan workers can send back as remittances. A recent survey identified realistic measures of migration in Tuvalu and found only 26% of households in Tuvalu believe they have the means to migrate and 8% stated they wanted to migrate but could not (Oakes, et al., 2017).

| TABLE 9. TUVALU (cont.) | |
|---|---|
| • **Attitude towards migration**<br>The government of Tuvalu mentioned researching relocation sites and costs of migration for future plans in the mid 2000s-2010s. These plans were accompanied with statements that relocation was a "last resort." By 2020, the Government of Tuvalu stated that they "stand against relocation," and "will not pursue climate-change relocation (TE KAKEEGA III National Strategy for Sustainable Development 2016 to 2020). Although a survey found that 97% of households in Tuvalu experienced climate change impacts, only 8% cited climate change as a reason for migration (Oakes, et al., 2017). | |
| **Potential Climate Drivers of Migration** | |
| Sea-level rise → | Saltwater intrusion; turning well water brackish; increased coastal inundation and coastal erosion resulting in loss of land; damage to and loss of homes and critical infrastructure; seawater contamination of septic systems |
| Floods → | Erosion; increased threat to food production and food security |
| Droughts → | Reduced freshwater availability; increased difficulty growing crops; declines in copra production; brackish groundwater; increased threat to food production and food security |
| Increased temperature → | Increased algae bloom and coral bleaching; ruined habitat for marine life; loss of fish stocks which are main source of protein for Tuvaluans |
| Ocean acidification → | Weakened coral reefs; coral bleaching; less coral protection from cyclones and other weather events; weakened shells on shellfish which increases food security risk |
| Storm surges → | Saltwater intrusion; increased coastal inundation and coastal erosion resulting in loss of land; damage to and loss of homes and critical infrastructure; seawater contamination of septic systems; saltwater contamination of vegetation killing crops and livestock feed; seawater contamination of septic systems; severely limited growing capability of the nation's principle crop swamp taro (United Nations Secretary General, 2009) |
| **Climate Migration Resources (Plans, Strategies, and Policies)** | |
| **1. Tuvalu's National Adaptation Programme of Action. (2007)**<br>This plan produced by the Government of Tuvalu acknowledges the country's vulnerability to climate change and identifies seven adaptation projects. Each project has a description, activities, barriers, short term and long term impacts and a budget. Ranked six out of seven in order of priority is the natural disaster resettlement plan. Activities include developing a disaster response strategy and integrating disaster response into national planning, but it does not specify when or where relocation is to take place. The plan describes migration/relocation as a "last resort, worst case scenario."<br>on | |

**TABLE 9. TUVALU (cont.)**

2. **TE KANIVA: Tuvalu Climate Change Policy (2012)**
   This policy outlines seven goals to combat climate change and preserve Tuvalu's identity and culture. The policy was made in accordance with Tuvalu's National Strategic Action Plan. Each goal has a description, key issues, strategies, and projected outcomes. The first five goals focus on prioritizing climate change adaptation, improving data collection and application, funding, developing sustainable infrastructure, and energy efficiency. The sixth goal is related to Tuvalu's National Adaptation Programme of Action on natural disaster resettlement. This goal's strategies are to strengthen and enhance disaster risk responses, but do not state what the disaster response plans are. The seventh goal is related directly to climate change-induced migration. A few outcomes are focused on maintaining established, inhabitable land in Tuvalu. Other strategies are to expand the Pacific Access Category to account for climate change migrants and to create a climate change resettlement plan for each island to achieve the outcome of international frameworks that legally recognize the sovereignty of Tuvaluan people in other countries if climate change-induced migration occurs.
3. **TUVALU NATIONAL STRATEGIC ACTION PLAN FOR CLIMATE CHANGE AND DISASTER RISK MANAGEMENT 2012–2016 (2012)**
   This plan was made simultaneously with Te Kaniva and is meant to be an implementation guide for the seven goals outlined in Te Kaniva. The strategies for each goal are further broken down into actions and have government departments assigned to be responsible for each action. Each goal also has a proposed budget. The actions related directly to relocation and migration strategies include conducting assessments on the social and economic impacts of relocation, creating resettlement plans in conjunction with host nations, presenting revisions to the Pacific Access Category program, and seeking other migration schemes.
4. **Tuvalu National Labor Migration Policy (2015)**
   This is the first labor migration plan and policy in Tuvalu. It describes current economic and labor migration trends in Tuvalu (including the Pacific Access Category and Recognised Seasonal Employer Scheme in New Zealand, Seasonal Worker Program in Australia, and the seafaring industry in Fiji and other countries) and explores how policy can increase labor migration opportunities. It discusses several barriers to labor migration opportunities, language, education, training, financial costs of travel and remittance transfers, and recommends how the Government of Tuvalu can address these challenges. There are three major policy areas with implementation and policy plans to increase Tuvalu citizens' participation in and benefits from labor migration programmes. The plan states that the Government of Tuvalu is not "promoting large-scale migration," and it is not a document on climate change migration; however, it does acknowledge that climate change is increasing the demand for labor migration opportunities and that these policies can be used to increase opportunities for work and integration of future migrants.
5. **TE KAKEEGA III National Strategy for Sustainable Development 2016 to 2020 (2020)**
   This is a national framework that incorporates sustainability into all sectors of the nation to fight against the impacts of climate change. There is an entire section dedicated to migration that looks at internal migration and urbanization impacts as well as external migration and labor migration opportunities. Climate change migration is discussed as a last resort, but acknowledged as being more favorable for younger generations that see no other options for a successful future. This plan also states that climate change migration is restricted by limits on how many people can participate in current international labor schemes, and by the lack of regional or international climate change migration plans.

| TABLE 9. TUVALU (cont.) |
|---|
| **6. Te Sikulagi Tuvalu Foreign Policy 2020 (2020)**<br>This policy strengthens Tuvalu's presence in the Pacific Region and internationally. Tuvalu seeks to continue building multilateral and bilateral agreements with countries to enhance the well-being of their nation. Seven priority areas are described in the plan, with objectives tied to each one. Climate change is a priority area and relocation is fully opposed by the Government of Tuvalu which states they will not be developing a relocation plan. However, the foreign policy does acknowledge a loss of land or population displacement may take place. If this occurs, the government seeks to maintain sovereignty and currently does support international agreements to support individuals who have already chosen or will in the future choose to migrate due to climate change. Labor migration schemes are mentioned with New Zealand and Australia, as well as a desire to explore options with the European Union. This plan also discusses how the government can reduce costs for labor migrants. |
| **7. Tuvalu Country Preparedness Package 2020 (2020)**<br>This plan establishes preparation and response plans for natural disasters in Tuvalu by incorporating all sectors in Tuvalu and regional and international actors. The preparedness package includes information from national agreements and support arrangements with regional and international partners. This plan highlights impacts of natural disasters that are expected to increase in frequency and severity from climate change. Displacement is not discussed; however, shelters and evacuation sites within each island are. There are no building codes or operating standards or procedures for evacuation sites and shelters, so common areas like schools and churches are used most often. There is a Red Cross branch office on each island that supplies evacuation kits and disaster supplies to evacuation centers on each island. |
| **Climate Migration Adaptation Strategies** |
| **1. Facilitate overseas employment and permanent emigration by expanding labor migration schemes**<br>Tuvalu participates in New Zealand's Recognised Seasonal Employer (RSE) scheme and the Australian Seasonal Work Program (SWP) which offers temporary residence while employed, and the Pacific Access Category (PAC) which offers permanent residence to individuals with a job offer. The amount of Tuvaluans participating in these programs is low due to upfront costs of travel and low allowances for entries from receiving countries. Tuvalu plans to collect data on current migrant workers and conduct research on market conditions in labor migration destination countries to increase the effectiveness of training and education of citizens to increase their competitiveness in the international job market. Tuvaluans have a history of employment as seafarers, and the government seeks to increase demand in the seafaring industry (Tuvalu National labor Migration, 2015). Tuvalu plans to use current labor migration schemes as a guide for future climate migration. |
| **2. Research costs of relocation, possible relocation sites, and implementation**<br>Multiple plans produced by the Government of Tuvalu, the United Nations, and other international organizations have started researching sites for relocation as objectives for the country. Some plans focus on relocation due to natural disasters and other plans are looking at long-term relocation due to atolls becoming uninhabitable in the future from climate change effects. The NAPA of Tuvalu and reports by the UN and international universities have researched costs, barriers, and possible future migration patterns for Tuvalu. Although investigating relocation has been an objective for the country for over a decade, there are currently no agreements in place between Tuvalu and other countries for climate change relocation. |

| TABLE 9. TUVALU (cont.) |
|---|
| **3. Focus on sustainable development to retain population in country**<br>The government of Tuvalu has consistently taken a stance of opposition towards relocation and migration due to climate change. Instead, the government has focused on sustainable development and community resilience. This is implemented through coastal defenses, afforestation, planting salt-tolerant taro, water treatment, storage and conservation, energy efficiency strategies, community conservation programmes on marine ecosystems, protecting shellfish breeding. |

| TABLE 10. VANUATU | | |
|---|---|---|
| **Population Statistics** | | |
| Total Population | 301,295 | |
| Growth Rate | +2.24% | |
| **Physical Characteristics** | | |
| Region | Melanesia | |
| Number of Islands or Atolls | 83 Islands | |
| Total Land Area | 12,281km² | |
| Highest Elevation | 1,879m | |
| **Migration Statistics** | | |
| Top Countries of Destination | Internal:<br>1. Island of Tegua (Coastline to inland) | International:<br>1. New Caledonia (France)<br>2. Australia<br>3. France<br>4. Columbia<br>5. French Polynesia (France) |
| Top Drivers for Migration | Internal:<br>1. Work | International:<br>1. Work |
| **Migration Trends & Patterns** | | |
| • Focused on moving at-risk coastal communities inland. The Island of Tegua, a village was moved more inland.<br><br>**Important Factors to Consider:**<br>• Internal relocation of all provinces is mentioned in the NAPA but does not mention an internal location. Migration is not significantly addressed in their National Action Plan. | | |
| **Potential Climate Drivers of Migration** | | |
| Sea-level rise → | Saltwater intrusion; turning well water brackish; increased coastal inundation and coastal erosion resulting in loss of land; damage to and loss of homes and critical infrastructure | |
| Droughts → | Reduced freshwater availability; increased difficulty growing crops; declines in copra production; brackish groundwater; increased threat to food production and food security | |
| Cyclones → | Storm surge; coastal flooding. | |

| TABLE 10. VANUATU (cont.) |
|---|
| **Climate Migration Resources (Plans, Strategies, and Policies)** |
| 1. **Vanuatu Climate Change and Disaster Risk Reduction Policy 2016 - 2030 (2016)**<br>This policy will direct Vanuatu on how to identify, assess, reduce, and manage risks associated with climate change and disaster risks. The policy focuses on six principles 1) accountability, 2) sustainability, 3) equity, 4) community focus, 5) collaboration and 6) innovation. Ultimately, the policy will help to make Vanuatu a resilient community, environment, and economy. |
| 2. **National Policy on Climate Change and Disaster Induced Displacement (2018)**<br>This policy primarily focuses on the displacement of communities. This is done by providing a framework that will identify the vulnerabilities, rights, capacities, and needs of those who are affected by displacement. Additionally, this policy also addresses the risks of relocation without proper care. |
| **Major Climate Adaptation Strategies** |
| 1. **Building the capacity of migrant workers and the government to harness the potential of remittances.**<br>This will develop training for migrant workers and help them to build financial literacy. |
| 2. **National Labour Mobility Summit12 2018**<br>This focuses on building a National Labour Mobility policy for Vanuatu. Primarily focusing on the transferring labor services and horticulture industries to New Zealand and Australia. |

# Areas for Future Research and Action

Climate induced migration is increasingly being recognized in national policies in Oceania; however, there are still large gaps in current migration frameworks and systems. This report pinpoints several common challenges to migration within the ten countries that would benefit from future research and action.

## 1. Further investigate the role of sociocultural factors in migration decisions

While this report focuses on potential environmental drivers of migration, further steps should be taken to better understand sociocultural factors that may impact decision-making to migrate or not to migrate. For example, in some countries, important decisions are made after consultation with four or more people outside of the household. This suggests that decisions to migrate away from the homelands can be a collective phenomenon that warrants deeper study (Campbell et al., 2016). Additionally, religion and spiritual viewpoints of Pacific Islanders should be taken into consideration, as they play a significant role in perception of climate risks (Campbell & Warrick, 2014). Family responsibilities and financial obligations to the church influence people's decisions to stay in their homelands and should be explored more in-depth (Campbell et al., 2016). Lastly, enhancing understanding of the meaning and

relationship of land to Pacific Island communities is essential, as land is considered vital for maintaining connections to place, identity, culture, language, community cohesion, and overall livelihood and well-being (Campbell & Warrick, 2014). Such steps are needed to develop a holistic understanding of the environmental, economic, and sociocultural factors that impact decisions to migrate.

## 2. Need for national and international policy frameworks for managing migration

There is a dearth of international arrangements governing migration. Migration out of Oceania is mainly driven by employment through labor migration schemes. Currently, Niue, Kiribati, Vanuatu and Papua New Guinea have policies and programs in place for residents to undergo job/skills training for employment opportunities in other countries. Other countries have labor schemes and units in place to help migrants secure employment overseas. Additional research into successful labor schemes and pathways for workers to gain overseas employment would benefit workers and the host countries.

On the other hand, there are few policies to protect migrants and a lack of capacity within countries in Oceania to facilitate migration, and the result is that migration is generally unregulated and unmonitored. Individuals migrating throughout the region are increasingly vulnerable to trafficking and fraud because there are no protections for them. More work needs to be done to identify and draft legislation to address the vulnerabilities associated with labor migration schemes throughout the Oceania region.

## 3. Infrastructure and economic needs for migration

This report highlights that there is not enough money or adequate infrastructure to support relocation. Many island nations' revenue streams are derived from remittances from family members overseas and foreign aid. There are high costs to relocation, including travel, accommodation, and securing documents required to travel. While labor migration schemes are widely used as migration opportunities, the upfront costs to meet eligibility requirements and participate in migration schemes are unattainable for many families in Oceania. Traveling to an internal location or another country and creating a home and livelihood there is financially out of reach for many communities in Oceania. Research that examines various funding sources to support individuals, families, and their home country can identify where the needs are highest.

One response to climate change impacts by countries is to move entire villages inland, away from coasts or other areas that are prone to flooding after weather events. As a result of the relocation, previous income streams due to geographical location, such as ocean-related activities, are no longer available. The people living in the relocated village must rely on other villages to support them economically. The Solomon Islands have taken a holistic approach to this issue that can inform the development of relocation guidelines for other countries. More research is needed on how to build capacity for relocated people, and how countries can adapt their infrastructure so that the host area can physically accommodate relocated people.

## 4. Collaborate to increase knowledge on climate migration in Oceania

Currently, there are significant gaps in information about the impacts of climate change on migration for local communities across Oceania (Campell & Warrick, 2014). To gather more information, faster, it is essential to collaborate with research institutions and organizations such as the United Nations University Institute for Environment and Human Security, the United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP), and University of the South Pacific. These three institutions collaborated on a three-year project called the Pacific Climate Change and Migration Project. The project collected quantitative and qualitative data through household surveys for Kiribati, Nauru, and Tuvalu. The results of the project were three comprehensive reports for each country and the first national empirical study of community perspectives on migration in relation to climate change. The reports provide important baseline data that can be used to build institutional awareness, knowledge, and capacity to better plan for and manage the impacts of climate change on migration. Collaboration and data sharing with research institutions and organizations for similar projects is recommended for the remaining Pacific Island countries, including Niue, Fiji, Solomon Islands, Vanuatu, Papua New Guinea, Tonga, and Samoa.

# Conclusion

Climate change is impacting the geography and populations of Oceania and contributing to voluntary and forced migration in the region. Island nations in Oceania are especially vulnerable to the effects of climate change. Many houses and businesses across the region that are built in coastal zones and areas near rivers and floodplains are threatened by sea level rise, storm surges, and flooding. Additionally, many island nations are increasingly becoming uninhabitable from loss of crops, agriculture, freshwater sources, and land. As climate change impacts increase in severity and frequency, the likelihood of migration becomes more realistic for countries in Oceania.

Ten countries in Oceania have been analyzed to provide more insight into how vulnerable, developing island states are planning for climate induced migration. The geographic composition, climate change effects, current migration trends and drivers, most popular migration destinations, and the overarching government plans and frameworks for migration were collected for each nation. Nine of the ten countries studied for this report had a government plan for migration. Migration was found to be occurring internally and internationally. For the purposes of this report, New Zealand and Australia are considered international countries of destination. Most internal migration occurred from rural to urban areas and from coastal zones to inland areas. However, increased urbanization is overwhelming the infrastructure and capacity of these less developed countries. Migration to other countries in Oceania and internationally is also taking place, but there are many requirements for Oceania residents to obtain visas to outside countries. Education and employment opportunities are the two main drivers of migration. There have been instances of climate induced migration caused by environmental and climate-related factors, but it is not a primary driver of migration in the Oceania region.

It is expected that migration will continue and increase throughout the Oceania region for a variety of reasons, and governments should put in place policies that protect and guide their citizens through voluntary migration. The challenges to migration in Oceania include countries' financial and resource constraints, limited awareness about climate change impacts, lack of land for internal migration, straining infrastructure, attitudes against international migration, and a lack of data on how to manage migration in Oceania. The governments of island nations in Oceania can address these issues by investing in research and data analysis of migration patterns, partnering with international institutions to attain funding and resources to support migration in their countries, developing offices to manage and facilitate migration, and participating in international forums to develop international laws to protect migrants and establish pathways to migration outside of education and labor purposes.

Climate change is affecting countries in Oceania and has more recently become a driver of migration in the region. Communities have had to migrate away from coastal areas as sea-level rise, storm surges, and coastal inundation have increased. Many government plans have focused on mitigation and adaptation; however, voluntary migration is becoming a reality. Local stakeholders, governments, international organizations, and policy makers should begin planning for widespread voluntary relocation. Developing a comprehensive framework with secure funding and resources to guide and protect Oceania residents through the reality of migrating away from their homelands is becoming an increasingly critical priority for decision makers.

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## Vanuatu

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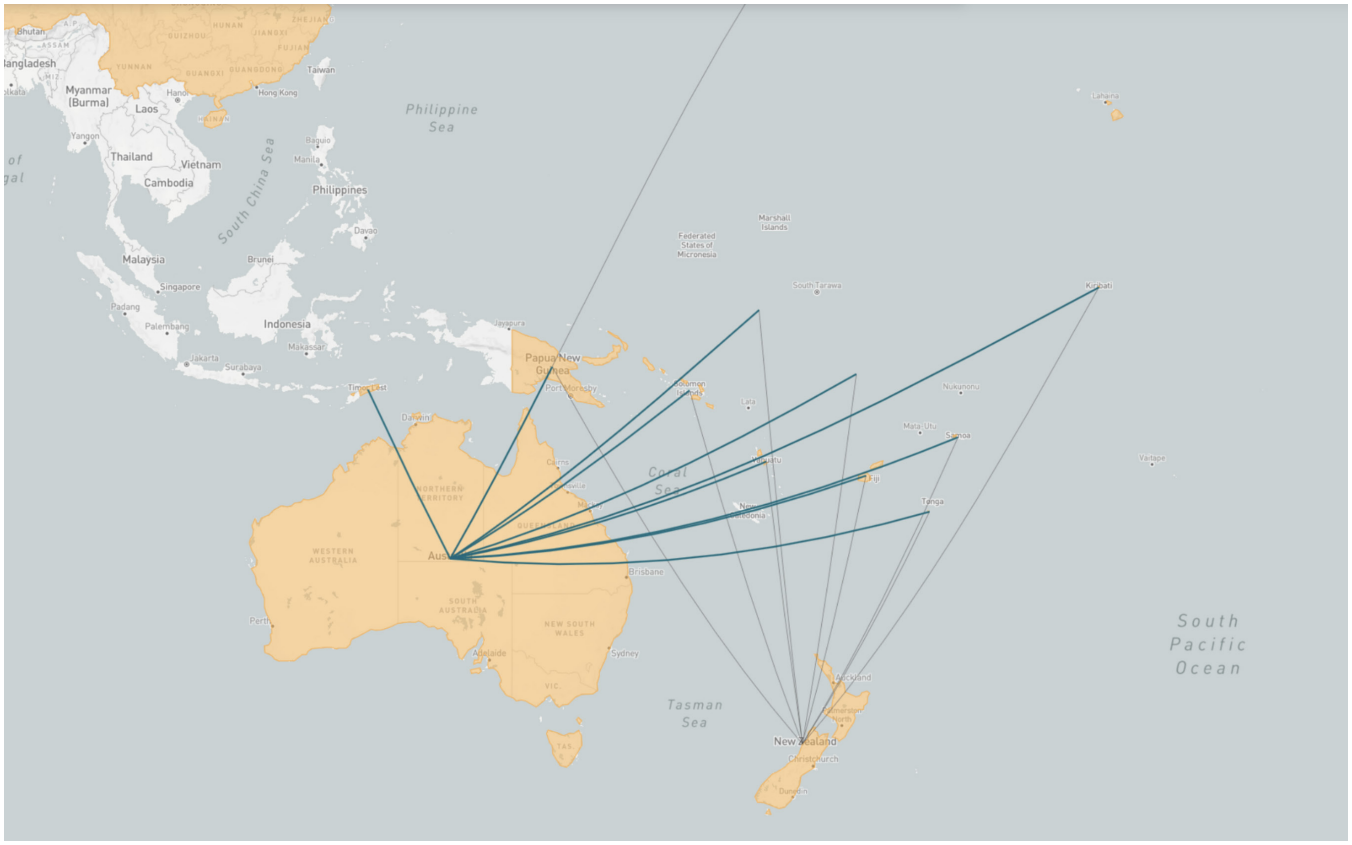
# Appendices

## Appendix A: Climate Migration Data Chart

| Country | Topography[1] | Drivers of Climate Migration | Does Country Mention Climate Migration in Climate Adaptation Plans (Y/N) | Type of Migration (Intra-, Inter-, Extra-Regional) | For International Plans, which countries are involved | Number of Plans |
|---|---|---|---|---|---|---|
| **Melanesia** | | | | | | |
| Fiji | Volcanic High Island | Storm surges; floods; droughts | Y | Inter & International | New Zeland, Australia | 3 |
| Papua New Guinea | Reef Island | Sea level rise; droughts; cyclones | N | Inter & International | New Zeland, Australia | 3 |
| Solomon Islands | Volcanic High Island | Sea level rise; droughts; cyclones | N | Inter & International | New Zeland, Australia | 3 |
| Vanuatu | Volcanic High Island | Sea-level rise; storm surges; flooding; tsunami | Y | Inter & International | New Zeland, Australia | 2 |
| **Micronesia** | | | | | | |
| Kiribati | Reef Island | Sea-level rise; saltwater intrusion; droughts & irregular rain; floods; cyclones; storm surge | Y | Inter & International | New Zealand, Fiji, Marshall Islands, & Australia | 5 |
| Nauru | Limestone High Island | Droughts and irregular rains; sea-level rise; saltwater intrusions | Y | Inter & International | Australia, Fiji, and New Zealand | 3 |
| **Polynesia** | | | | | | |
| Samoa | Volcanic High Island | Sea-level rise; storm surges; river flooding; tsunami; extreme rainfall; cyclone winds; drought; coastal erosion | Y | Inter & International | New Zealand, Australia, United States & American Samoa | 10 |
| Tonga | Limestone Low Island | Sea-level rise; storm surges; river flooding; cyclones; earthquake; volcanic activity; tsunami; drought; inundation; salt ater intrusion; drought; coastal erosion; permanent inundation | Y | Inter & International | New Zealand, United States & Australia | 7 |
| Tuvalu | Reef Island | Sea-level rise; storm surges; drought; cyclones; coastal erosion; saltwater intrusions; heatwave; saline intrusion; wave-driven flooding; permanent inundation | Y | Inter & International | Fjij, New Zealand, and Australia | 7 |
| **Other** | | | | | | |
| Niue (part of New Zealand) | Limestone High Island | Saltwater inundation of low-lying areas; frequency and the length of time of droughts; high intensity cyclones | Y | Inter & International | New Zealand & Australia | 3 |

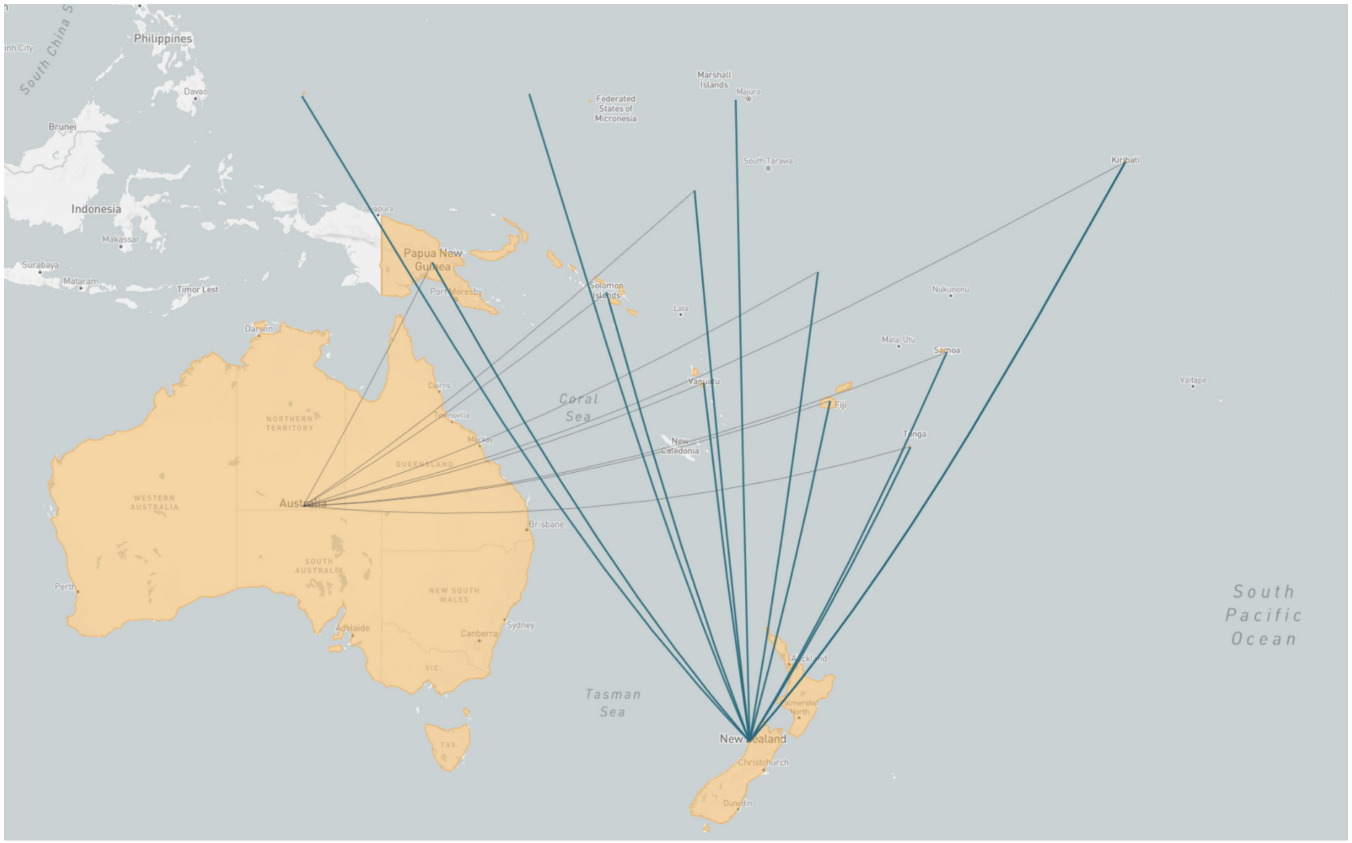
[1] https://www.pacificclimatechange.net/sites/default/files/Coastal-Susceptibility-Technical-report.pdf

# Appendix B: Seasonal Worker Programme in Australia




(Center for Global Development n.d.)

# Appendix C: Recognised Seasonal Employer Labor Scheme in New Zealand

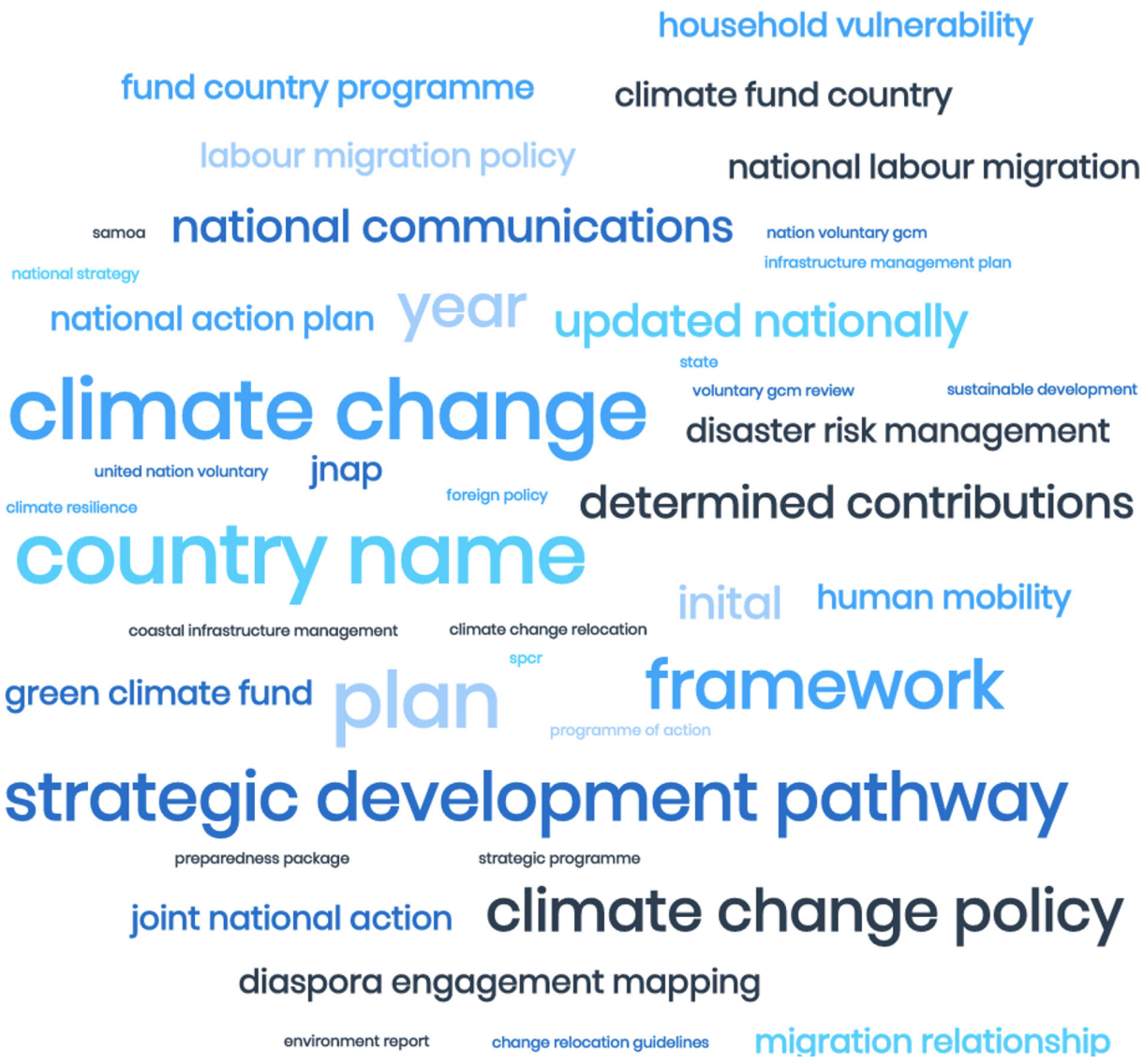



(Center for Global Development n.d.)

# Appendix D: Terminology of Climate Migration Plan Titles

| | |
|---|---|
| 2 | Climate Change and Migration Relationships Between Household Vulnerability, Human Mobility and Climate Change |
| 4 | Climate Change Policy |
| 2 | Coastal Management Adaptation Plan |
| 0 | Community Integrated Management Plan |
| 0 | Country Preparedness Package |
| 0 | Foreign Policy |
| 0 | Integrated Climate Change Programme |
| 0 | Integrated Land and Population Development Program |
| 0 | Interim Action Plan for Climate Compatible Development |
| 0 | Migration and Sustainable Development Policy |
| 0 | National Action Plan on Climate Change and Disaster Risk Management Monitoring and Evaluation System Guide |
| 2 | National Adaptation Programme of Action |
| 2 | National Communication Under The United Nations Framework Convention on Climate Change |
| 0 | National Disaster Risk Management Plan |
| 0 | National Framework for Climate Change and Climate Change Adaptation |
| 0 | National Infrastructure Strategic Plan |
| 2 | National Labour Migration Policy |
| 3 | National Plan on Climate Change and Disaster Risk Management |
| 0 | National Policy on Climate Change and Disaster Induced Displacement |
| 0 | National Strategy for Sustainable Development |
| 3 | Nationally Determined Contribution |
| 0 | Papua New Guinea - Australia Climate Change Action Plan |
| 0 | Pathway for the Development of Samoa |
| 2 | Planned Relocation Guidelines |
| 0 | Review of Socio-Economic and Environmental Impacts of Population, Resettlement, and Migration |
| 0 | Samoa 2040 |
| 0 | Situational Analysis of Employment |
| 0 | State of the Environment Report |
| 0 | Strategic Development Framework |
| 2 | Strategic Programme for Climate Resilience |
| 0 | Strategy for the Development |
| 0 | United Nations Voluntary GCM Review |

# Appendix E: Word Cloud – Key Terms from Climate Migration Plan Titles



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