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Climate Change, Population Mobility and Relocation in Oceania

Part II: Origins, Destinations and Community Relocation

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Introduction

This is the second Policy Brief (PB) on the issues of climate change and population mobility (and immobility) in Pacific Island Countries and Territories (PICTs). The first PB is largely conceptual and outlines key considerations relating to types of mobility likely to be associated with climate change and addresses general issues relating to climate change and population mobility. This PB begins with an examination of existing and possible future origins and destinations of climate change associated mobility. Attention then turns more specifically to existing experiences and possible expectations of mobility, especially community relocation, in Oceania. The PB then considers the issue of immobility and draws attention to gender issues that will need to be addressed in community relocation planning and implementation. A third PB will address the issues relating to possible international climate related migration (mostly in the form of individual and family migration) from countries with limited domestic options for relocation.

Climate Related Migrants: Where From and To?

If climate change plays a role in driving mobility in PICTs, is it possible to identify areas where outmigration and relocation are most likely to be generated? This may enable *in situ* adaptation to be implemented that might offset the loss and damage that is occurring, or if mobility is likely to be ultimately inevitable, then assistance given in planning mobility including covering the costs, providing job-oriented training relevant for destinations and the like. Currently, the idea that losses from climate should be compensated has not gained support from the Conferences of the Parties to the UNFCCC and there is serious resistance from major emitters to consider such developments. Moreover, most adaptation funding has been for specific, time limited projects with clearly identifiable outcomes. This is highly problematic as *in situ* adaptation is most likely to require continued funding over the foreseeable future as climate change effects either continue or, perhaps more likely, increase in magnitude and/or become more frequent. If the limitations on supporting *in situ* adaptation continue, it is likely that the need for migration will steadily increase. In this section, the places or types of places most likely to be exposed to the negative effects of climate change are identified and evaluated. It is not being suggested that mobility is inevitable, but these are sites where there may be the greatest difficulties in tackling climate change *in situ*. In the second part of the section, the issue of where climate change migrants might go is considered. It includes both individual and family migration and community relocation.

Origins: Hotspots

If we examine the possible effects of climate change on PICTs, it is possible to identify locations where environmental degradation is likely to be most severe and levels of exposure to climate change most serious, the levels of community resilience or vulnerability notwithstanding. In this report three elements of material security are identified as being important for continued occupation of a place, that if compromised may push some community members to migrate or require whole communities to relocate. These three aspects are 1) loss or reduction in locational security (the physical reduction or loss of a place on which to live such as through erosion or inundation), 2) loss or reduction of livelihood security (mostly through reductions in water and food security) and 3) loss or reduction in habitat security where a place becomes dangerous to live in because of changing disease vectors and increasing dangers from environmental extremes (see Figure 5 in Part I).

Graeme Hugo (2011) used the notion of 'hotspots' to identify areas of both rapid population growth and significant exposure to the effects of climate change. In terms of the latter, he identifies four environment types where the effects of climate change are likely to be negative: coastal areas, river valleys and deltas, low lying island states, and semi-arid low humidity areas, in addition to some other areas possibly at risk to unidentified threats, at the global level. These places, he found, often coincide with areas of high population growth. He concludes that 'the Pacific' is a hot spot but does not delve into a larger scale (smaller area) of analysis. It should be noted that Hugo's analysis focused on exposure and does not incorporate vulnerability or resilience of the populations involved. Hugo's model can be down scaled to identify 'hotspots' within the Pacific region (Campbell & Warrick, 2014). These, following Hugo, include atolls, coastal areas, river flood plains and deltas, and drought prone locations (especially the Papua New Guinea Highlands). Campbell and Warrick add urban areas to this list and specifically draw attention to urban areas located on atolls as particularly exposed. As will be seen in following sections, urban areas are of particular concern as they are also likely to be the destinations of many climate change migrants.

Atolls. One category of hotspot which was initially understood as relatively clear cut is that of atoll populations who have been considered for some time as likely to be the 'first climate refugees' because of assumptions about the fragility of low coral atoll islands under the threat of rising sea levels. However, as observed above, research has emerged in the past decade or more that most atoll islands, particularly the larger ones on the windward sides of atolls, are not, in fact shrinking from erosion or disappearing under rising seas. In fact, some are gaining in land area and elevation (McLean & Kench, 2015; Kench et al., 2018). These authors go so far as to say that those people who live on the minority of islands that are negatively affected could relocate to larger atoll islets, mostly within the same atoll but nearly all within the same country. However, the discussion of migration from atolls has moved beyond the amount of dry land (above sea level) available to more specific analyses of atoll habitability under climate change which includes the effects on potable water supplies and agriculture and the effects of ocean warming and acidification on coral and fisheries.

The issue of habitability is becoming a key element of research in this regard. For example, Duvat et al. (2021) identify five habitability pillars (HPs: sufficient and safe land, freshwater, food, settlements and infrastructure and sustainable economic activities) that underpin atoll sustainability. They conclude that each of these may be at risk from climate change and, if taken in combination, the habitability of atolls faces an uncertain future. However, examine the immobility of many atoll populations and the importance of their relational ontologies which among other things tie them to their **banua*.¹ Nevertheless, care does need to be taken regarding the sustainability of atoll habitats if, as is projected, climate change continues unabated, temperatures continue to increase, tropical cyclones grow in intensity and sea levels continue to rise with worst case scenarios including the effects of melting land ice. Most atolls continue to be habitable at present with exceptions being those which are affected by tectonic processes of subsidence such as the Carteret Islands and Takuu off the coast of Bougainville. If the international community is unable to significantly control GHG emissions, and the rate of sea level rise increases, atolls may yet prove to be hot spots.

Coastal locations. As would be expected in a region comprising mostly small islands, the majority (57 per cent) of PIC people, except for those living in Papua New Guinea, live in close proximity, less than 1 km, to the ocean (see Table 2 in Part I). Indeed, as the Table shows, in Polynesia and Micronesia very few people live beyond one kilometre of the ocean and none beyond 10km, reflecting the smallness of most of the islands in these two parts of the Pacific. Even in Melanesia, if Papua New Guinea is removed from the statistics, virtually half (49 per cent) of the people live within a km of the coast and 95 per cent within 10 km. Clearly, with the one exception of those living in Papua New Guinea, most Pacific people have lives and livelihoods that are very strongly influenced by their coastal environments. It should also be noted that while Papua New Guinea is excluded from the data presented here, it has some 2.7 million people within 10 km of the sea, more than double the total population of Polynesia and Micronesia combined.

While this gives some indication of connection to the ocean, it does not mean that all people in these areas are equally exposed to the effects of climate change and sea level rise depending on local topography and nearshore bathymetry. Nevertheless, the indications are that most people in PICTs can be described as living in coastal areas. Many coastal villages are located very close to the ocean, often less than 100 metres from, and only a few metres above, the sea. Indeed, for the atoll states, everyone lives within 1km of the ocean, and, in most instances, they are much closer (the islets are rarely more than 1km wide). If we extend the zone to 10km from the ocean, it becomes very clear how many people are close to the coast. Excluding Papua New Guinea, some 97 per cent of PICT inhabitants live within 10km of the sea and 16 of the 22 PICTs have their entire populations in this zone. In considering the levels of exposure and vulnerability, it is important that each community is

¹ In most of Polynesia, terms such as *whenua*, *fenua*, *fanua* and *honua* stand for both land and the umbilical cord or placenta representing the nurturing role of the land. In Fiji and parts of Vanuatu, the equivalent term is *vanua*. Elsewhere in Micronesia and Melanesia a range of words exist but all with similar meaning. From this perspective land, people and their environments are inseparable. Suliman et al. (2019) apply the Austronesian term **banua* for this concept across the region.

considered individually. There ‘is no one size fits all’ approach to identifying possible climate change mobility hotspots, and all adaptation activities need to be based on local conditions and effects. Nevertheless, if sea level rise (and associated issues of storm surge, king tides and salinisation) is considered to be a major driver of climate change mobility, the potential for large numbers of climate change migrants needing to be accommodated is quite high. Having stated this, it is also important to note that other climate change effects may also be important influences. The likelihood that places will be migration hotspots also depends on the level of investment in *in situ* adaptation.

Table 1. Pacific Urban Population Estimates and Projections

Country/Region	Urban Population Estimate mid-2018	Per cent of population in urban areas mid-2018	Projected urban population 2050	Projected per cent of population in urban areas 2050 (%)
Melanesia	2,038,813	19	4,877,843	29
Fiji	513,116	56	697,673	70
New Caledonia	197,787	71	306,203	81
Papua New Guinea	1,108,588	13	3,325,555	24
Solomon Islands	148,021	24	385,392	37
Vanuatu	71,301	25	163,020	34
Micronesia	365,586	69	495,448	76
Guam	157,067	95	186,513	97
Kiribati	64,011	54	125,666	71
Marshall Islands	40,955	77	56,454	86
Micronesia (Fed. States)	24,117	23	41,230	32
Nauru	11,312	100	11,337	100
Northern Mariana Is.	50,568	92	49,651	95
Palau	17,556	80	24,597	89
Polynesia	307,400	44	400,472	50
American Samoa	48,526	87	51,518	91
Cook Islands	13,067	75	14,863	83
French Polynesia	176,757	62	227,666	70
Niue	727	45	1,096	61
Samoa	36,066	18	52,365	22
Tokelau	0	0	0	0
Tonga	25,215	23	41,654	30
Tuvalu	7,042	62	11,310	78
Wallis and Futuna	0	0	0	0

Source United Nations United Nations, Department of Economic and Social Affairs, Population Division (UNDESA) (2018). Various files. After Campbell, 2022.

Urban areas. The great majority of urban areas in the region are located on the coast. They have been subject to considerable growth in recent decades and account for slightly less than a quarter of all people living in PICTs. As Table 1 shows, there is much variation among the PICTs in terms of their levels of urbanisation. Again, Papua New Guinea, this time together with its Melanesian neighbours, Solomon Islands and Vanuatu, distorts the statistics. Most Micronesian and Polynesian countries have much greater levels of urbanisation. However, some of the most rapid rates of urban growth are found in the Melanesian nations which have combined urban populations significantly greater than the total populations of Micronesia and Polynesia combined. By mid-century it is projected that the region will be around 30 per cent urban, but with the particularly rapid growth rates in Melanesia their urban populations, while being only 29 per cent of their total population, will, in absolute numbers, be almost five times greater than the rest of the region.

Already Pacific urban areas are struggling with population growth and being able to accommodate growing numbers. Unemployment rates are high and available land highly restricted. Critical housing shortages are found in many urban areas where provision of services such as electricity, water and sanitation are limited. Moreover, much of the informal housing which results from these factors is on highly marginal sites such as unstable slopes or land subjected to river or coastal flooding. In these settings high levels of social and economic vulnerability are combined with high levels of exposure to some of the effects of climate change. Thus, while urban areas are likely to host increasing numbers of climate migrants, they are, paradoxically likely to be places where people are likely to be placed at significant risk of harm from climate change (Campbell, 2022). I discuss urban areas later in this section as likely major hosts of climate change migrants.

Urban Atolls. In many ways the most exposed locations are the urban atolls in the Pacific region, Kwajalein, and Majuro in the Marshall Islands, South Tarawa in Kiribati and to a slightly lesser degree, Funafuti in Tuvalu. High density living, restricted potable water supplies, problems with waste management and limited options for employment render these locations at considerable risk. For Tuvalu and Kiribati, urban growth is intensified by the restricted nature of emigration access. Ironically, these areas, already attracting much migration from rural areas, may need to house even greater numbers if climate change were to result in greater rates of urbanisation, increasing exposure to climate change effects. Because urban atoll islands have very high rates of environmental modification to support their growing populations and their infrastructure is increasingly rigid, their ability to flexibly respond to climate change is likely to be much less than the islands on rural atolls, further increasing the risks of exposure to the effects of climate change.

Drought. Almost all PICTs are exposed to drought conditions from time to time, often associated with phases of the El Niño Southern Oscillation (ENSO) (Iese et al., 2021). Indeed, water security is a major concern for most PICTs (Paeniu et al., 2016). During El Niño events, the western Pacific is often particularly affected. One area that becomes very exposed is the Papua New Guinea Highlands where droughts and associated frosts during El Niño events can have devastating effects on local crop production including the staple sweet potato (Cobon et al., 2016). Whereas traditionally Highland people had strategies for coping with drought, including temporary migration downslope to communities with which they maintained connections, this is no longer the case (Jacka, 2020). Following the provision of

food relief in the 1970s just before independence (Waddell, 1975), the traditional response has fallen away and relief supplies have increased, with one rationale being that without relief there would be massive outmigration. Drought events throughout the region, when prolonged, can reduce both water and food security and possibly trigger outmigration although examples of such mobility are difficult to find in the literature.

River Flood Plains and Deltas. In his global overview, Hugo (2011) identified river flood plains and deltas as hotspot locations with increasingly dense populations and growing exposure to climate change extremes including flood events, tropical cyclones and sea level rise. Hugo was concerned with some of the great river flood plains in Asia for example, rather than in the Pacific region where most of the significant river systems are located in the large inter-plate islands of Melanesia, although smaller rivers on some volcanic high islands such as in Samoa can be subject to rapid and significant flash floods. River flood plains and deltas in PICTs have high levels of resource availability including fertile soils, and access to freshwater and marine fisheries. They are therefore often heavily populated. Climate change scenarios project increased incidence and intensity of flood events. Several of the Melanesian countries have histories of devastating floods in riverine areas, often, but not always, associated with tropical cyclones. Delta areas are particularly at risk when tropical cyclones occur as they may result in both increased river flooding and storm surge along delta coasts.

Recent examples include repeated flooding in the Nadi area of Fiji, Cyclone Guba in PNG and events in Guadalcanal, near to the capital Honiara, in Solomon Islands. Floods typically result in displacement and evacuation of affected people but there is little information available on the numbers who do not return.

The number of hotspots in the region is high and they account for large numbers of people. This raises the question of where might some of the inhabitants of these places go if their sense of material security is constrained by climate change? In the next part of this section the likely destinations of climate change migrants are considered. As the section will show, the options are limited and often come with considerable complications.

Destinations: Internal and Abroad

Having discussed the various 'hotspots', the next step is to identify where 'climate change migrants' are likely to go. In doing this, we have to distinguish between individual and family migrants and relocated communities as their destinations are likely to be different although if relocation sites cannot be found relocated communities may be anticipated to break up, with individuals and families embarking on their own climate change migration pathways. In the case of individual and family migrants, as we have seen, the points of origin are likely to be widespread and numerous and, in many cases, it will be difficult to establish the significance of climate change caused environmental degradation as a key driver. In some instances, local environmental degradation in areas not identified as hotspots may encourage some migrants, either directly or indirectly through social and economic indirect effects of climate change. The options for migration and/or relocation are illustrated in Figure 1.

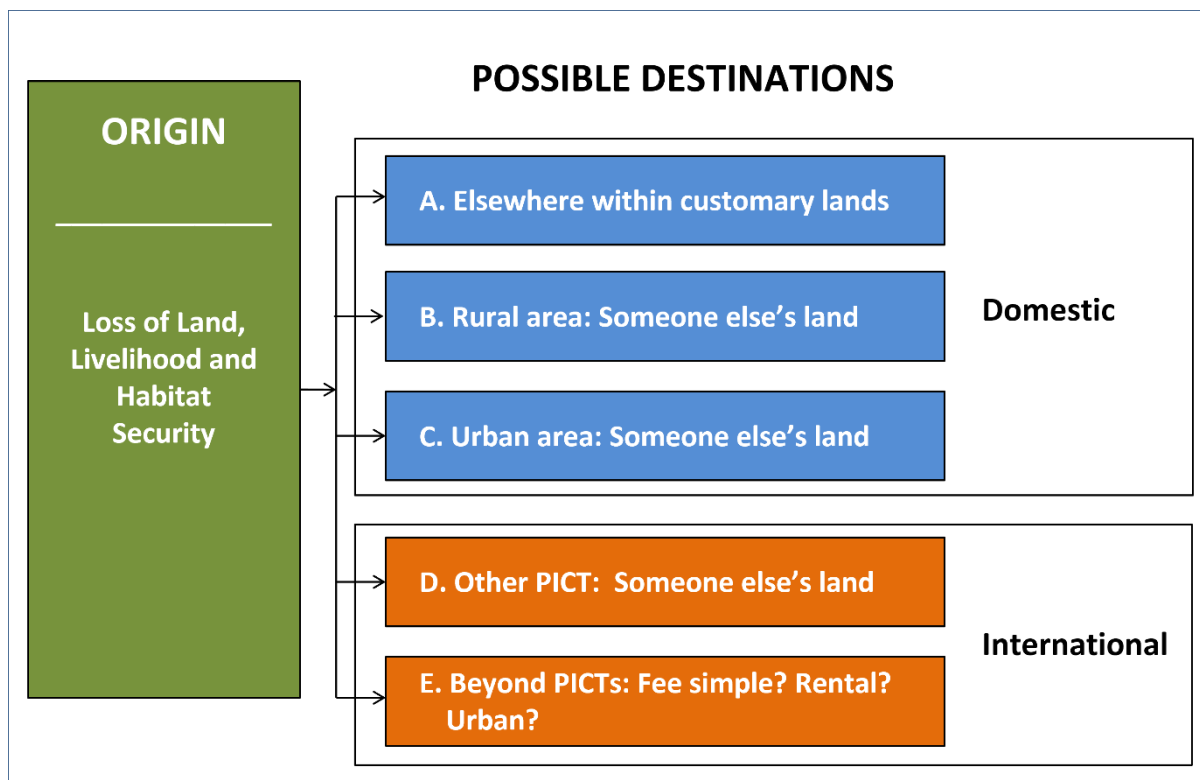


Figure 1. Climate change migration and relocation options (after Campbell, 2010)

Domestic options

People in communities that need to relocate are most likely to seek options close to their original place of settlement. In countries where policies have been developed for community relocation, government support has mostly been restricted to groups moving within their customary lands reflecting the recognition that relocating people on land which they do not traditionally belong to is fraught with tension.

Where options for relocation are not available, or environmental degradation is not sufficient to drive wholesale community resettlement, there still may be sufficient degradation to encourage individuals and families to seek possibilities elsewhere. It is most likely that internal mobility will take the form of urban migration. Higgins and Maesua (2019) note that individual and household migration, not just to Honiara in the Solomon Islands but also to provincial capitals, is growing rapidly. They also observe that the migration tends to be highly gendered with individual migration dominated by males. As noted above, most PICT urban areas are growing rapidly, and many PICTs have only one town or city. Rapid urban population growth has placed pressure on Pacific urban places as demand grows for land resources to accommodate new arrivals. This can lead to numerous social problems and insecurities (Campbell, 2022). Most urban growth to date has probably not been driven by climate change though it is difficult to discount direct effects of climate change as causes of indirect social and economic effects which may induce people to migrate. If climate change does engender greater volumes of urban migrants in coming decades and the towns and cities swell, the urban problems already currently being

manifested are likely to grow significantly. Moreover, as shown in the previous section, many urban areas are also exposed to the effects of climate change.

A simplified model can help illustrate the mobility patterns that may emerge as a result of climate change (Figure 2).

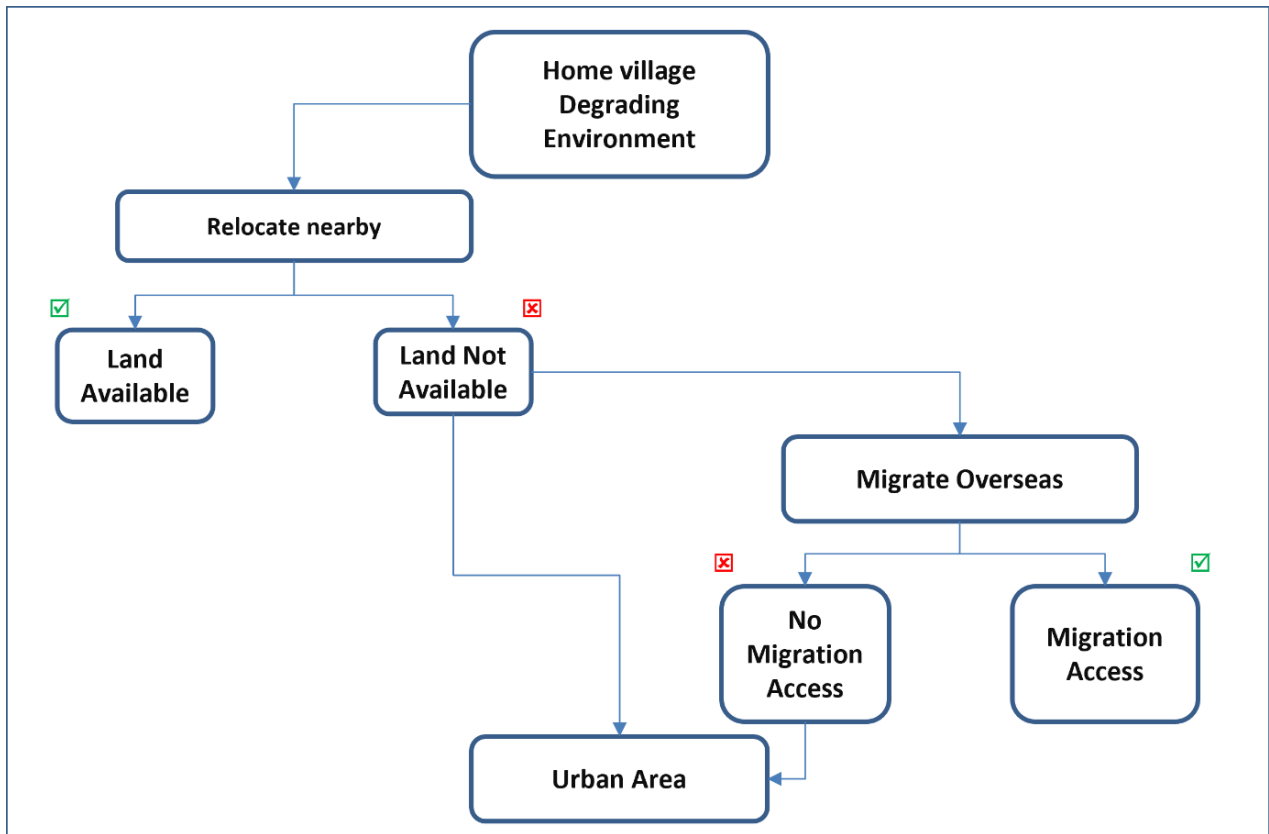


Figure 2. Simplified decision-making flowchart outlining relocation and migration options.

International Possibilities: Climate Change Migrants and the Pacific Diaspora

In terms of destinations, it is likely that migrants will follow existing migration pathways, with migrants from some countries having external or international options while others have little access to non-PICT countries (see Table 2).

Table 2. Pacific Island Countries and Territories with International Migration Access

PICT of Origin	Country with Access
American Samoa	United States of America
Fed. States of Micronesia	
Guam	
Marshall Islands	
Northern Mariana Islands	
Palau	
Cook Islands	
Fiji	
Niue	
Samoa	
Tokelau	
Tonga	
French Polynesia	France
New Caledonia	
Wallis and Futuna	

Source: Campbell, 2014

As the table shows, seven of these PICTs are still colonial territories and seven of the remaining eight are former colonies, five of which are now self-governing in free association with their former coloniser. This leaves three fully independent countries with some form of migration access, all to Aotearoa New Zealand. Table 3 lists the six countries with very restricted or no external migration access other than temporary seasonal work arrangements and small numbers able to migrate to Aotearoa New Zealand under the Pacific Access Category. These include three Melanesian and two Micronesian countries and one Polynesian country. These six countries, as the table shows, have relatively high levels of exposure to climate change. Five of them are former British colonies but emigration pathways for them to the United Kingdom are limited. Both the UK and Germany have colonial histories with Papua New Guinea but more recently Australia was the sole colonial power. Papua New Guinea became independent in 1975. It is very difficult for Papua New Guineans to gain access to Australia. People in these countries have few options for migration other than domestic urbanisation or possibly other PICTs. If the migration is intra-regional it is most likely that destinations would be urban areas in other Pacific countries although possibilities for community relocations to rural areas do exist. For example, the government of Kiribati has purchased land in Vanua Levu in Fiji although it has announced it will not be used for relocating I-Kiribati for the time being. The Prime

Minister of Fiji has, however, stated ‘In 50 years or so [places like Kiribati, Tuvalu and the Marshall Islands] may no longer exist. And we may have to give some of these people homes in Fiji ... [b]ecause we will never turn our backs on our island neighbours’ (Bainimarama, 2015, quoted in Campbell & Bedford, 2016).

Table 3. Countries with restricted emigration options

PICTS	Exposures	Estimated 2020 Popn. ^a	Projected 2050 Popn. ^a	Popn. Increase 2011-2050
Papua New Guinea	Highlands (drought), deltas, coasts, atolls	8,935,000	15,102,100	92.7
Solomon Islands	Deltas, coasts, atolls	712,100	1,333,600	113.5
Vanuatu	Coasts	294,700	508,100	91.9
Tuvalu	Atolls	10,600	13,858	23.7
Kiribati	Atolls	102,697	163,266	59
Nauru	Raised Atoll	11,700	16,283	59.9
Total		7,807,238	15,112,528	93.6

^a SPC (2020)

It is very difficult to determine if people migrate because of, or partly because of, climate or other forms of environmental change. Little research has been conducted on the links between environmental degradation and social and economic change which are usually proffered as the main drivers of migration. As this section has shown, both urbanisation and international migration are characteristics of most PICT populations and are taken up in relatively large numbers when and where access to destinations is possible. Further research is needed to clarify the role of environmental degradation as a direct, and more importantly indirect, migration driver. In addition, there is a need for much further understanding of the views and concerns of members of the Pasifika diaspora about the effects of climate change in their homelands and the roles they can play in response as providers of assistance through remittances and assisting migrants who may come to their contemporary countries of residence.

Atolls have been identified as hot spots notwithstanding the discussion of habitability (see above) and if they do become increasingly difficult to live on, and with limited options for domestic relocation and already densely populated urban areas, it is likely that many atoll dwellers will become international migrants. Where they have migration access to metropolitan countries, many members of atoll populations have already taken the decision to migrate. Table 4 shows the numbers of migrants from the four atoll PICTs in Aotearoa New Zealand and the United States. People from the Marshall Islands have access to the USA and Tokelauans to Aotearoa New Zealand. On the other hand, Tuvalu and Kiribati have limited options for emigration, although, as the table shows, numbers in Aotearoa New Zealand are beginning to grow from small beginnings. There is no reason to expect that if

greater access is available to people from these two countries, irrespective of climate change, the size of their diaspora will increase. Climate change may eventually cause greater numbers to migrate.

Table 4. Populations of atoll PICTs and their diaspora

PICT	Population					
	Total Domestic	Per cent Urban	In Aotearoa/NZ		In USA	
	2020	2020	2018	2006	2018	2010
Kiribati	118414	57	3225	1116		
Marshall Islands	53167	74			30000	22343
Tokelau	1319	0	8676	6822		
Tuvalu	11287	63	4553	2625		

^a Secretariat of the Pacific Community (2021)

^b <https://www.stats.govt.nz/tools/2018-census-ethnic-group-summaries>

^c van der Geest et al., 2019

Source: Farbotko & Campbell (2022)

If indeed climate change results in mobility, it is likely that individual and family migration will be the dominant mode. However, community relocation will be very important where whole communities become increasingly marginal. Several countries, particularly Fiji, while having long histories of community relocation, are now beginning to address the issue in the context of climate change.

Community Relocation in, from and to PICTs

It is, perhaps, community relocation, or the possibility of it, that is most fraught in PICTs. This is for a number of reasons and is closely linked to the **banua* as it involves potentially cutting community connections upon leaving their land, and for 'hosts' giving up **banua* to those who do relocate. There are numerous examples of community relocation in the region and, while some are still characterised by several generations-old tensions, others have been relatively successful. It is also clear that relocation even within customary lands can also be painful for those who feel compelled to move (as was the case in Vunidogoloa, see below). The following paragraphs outline a few examples.

Albert et al. (2018) discuss the relocation of people from two communities in coastal locations in the Solomon Islands. In the first of these, Nuatambu Island in Choiseul Province, the homes of 24 households (of a total of 34) were destroyed by rising seas and 133 people moved to locations on the mainland of Choiseul between 2007 and 2016. They received no government assistance, and it appears that decisions to move were made on a household basis and destinations were based on places where the relocatees had customary land rights. The outcome was that, while 23 people moved to higher ground on Nuatambu (still less than 10m above sea level), the remainder were spread over 12 locations, the most distant being

100km from Nuatambu. Some of the sites were on steep unstable slopes and others potentially exposed to coastal hazards. Albert et al. (2018, p. 2265) observed that:

This fracturing of a single community into 13 separate hamlets has had a significant impact on community life. Previously, Nuatambu had been a hub for the immediate community and those tribal members living elsewhere who would coalesce at Nuatambu each Christmas for celebrations and feast. This annual gathering provided a critical mechanism by which culture, history and genealogy were shared and kinship ties were reinforced. Those community members that have remained on Nuatambu expressed their strong 'love' for the island and the need for them to stay as long as physically possible to act as guardians of the island and preservers of the deep cultural importance that it represents.

Nusa Hope, a small island off the south coast of New Georgia, has also been affected by sea level rise and coastal extremes, prompting 35 (of 57) households, with a total population of 261, to move, again to land where they had customary rights. Albert et al. note that, while the relocations were motivated by environmental change, the original community was also becoming overcrowded. Again, the community was fragmented with 15 hamlets being created up to 30km from the original site. One advantage was that many of the new sites were close to fertile agricultural lands.

In Vanuatu, the population on the island of Tegua (in TORBA Province) was moved from its former site of Lateu, located adjacent to the coast and less than a metre above sea level, to Lirak, 500 metres away and 30 metres above sea level. The original site had been flooded on several occasions by storm surge and tsunami events and the community sought an alternative site. With international funding (from the Canadian International Development Agency (CIDA)) and government support, the move took place in 2005 and post-relocation surveys found that the adaptive capacity of the community had improved because of the move (Warrick, 2011). The project took place under the banner of Capacity Building for the Development of Adaptation Measures in Pacific Island Countries (CBDAMPIC) coordinated by SPREP. This was one of the first relocation projects explicitly linked to climate change and undertaken with government and external assistance. Since then, a number of 'official' relocations have taken place in the region, especially in Fiji.

Community relocation in Fiji

Of all the PICTs, Fiji has adopted the most proactive government supported community relocation policy with several communities already having been relocated, or with relocation under way, with government assistance. Eight-hundred and thirty communities have been identified as at risk from 'climate-related events' of which 48 were considered to be in "urgent need of relocation" and earmarked for government assistance (Ministry of Economy Republic of Fiji, 2017, p. 102). In 2019, a Climate Relocation and Displaced Peoples Trust Fund for Communities and Infrastructure was launched to help offset the costs of community relocation (Fijian Government, 2019). While these have been recent actions, village relocation, particularly after tropical cyclones and other flood events, has a long history in Fiji. Yeo and Blong (2010) report that the devastating flooding of the Ba River (in which at least 225 people perished) in 1931 saw several villages 'abandoned' (Togalevu,

Naibulukau and Naqaqa) and new ones built on higher ground. In 1936 the village at Tagu, on Kabara in eastern Fiji, was relocated to Naikelayaga several kilometres to the north on the same island (McLean, 1977), a site that was later to be devastated by Cyclones Lottie and Val in 1973 and 1975 respectively (Campbell, 1977). A large portion of the village of Solodamu on the island of Kadavu was relocated following storm surge event in 1959, with people moving to a new site up slope (Cagilaba, 2005). Despite villagers believing that a traditional agreement had been reached, Cagilaba reported that tensions with neighbouring *mataqali* (clans) over land remained several decades later. Access to water at the elevated site has become an increasing problem as population has increased. Campbell et al. (2007) describe a history of four relocations of the interior village of Biausevu following flash flooding of the eponymous river caused by cyclones (see Figure 5 below). Interestingly, the community referred to an earlier site located on the ridges further inland from which the community was encouraged to move by missionaries and the colonial government in the late Nineteenth Century. The most recent site is on the top of a hill flattened to make way for the houses and with water reticulated from a dam higher up inland. Vatulele, a village located on the northern coast of Koro island in Lomaiviti, had gradually moved inland to a more elevated site over a period of 50 years. When Koro was badly impacted by Cyclone Winston in 2016, Vatulele was the least damaged village on the island and the only one which was not considered for relocation after the event (Dumaru et al., 2020). Interestingly, both Biausevu and Vatulele had moved to sites within their customary lands and their relocation was encouraged by customary leaders (Campbell et al., 2007; Dumaru et al., 2020). There are undoubtedly many more examples of community relocation in Fiji, some of which appear to have been sustainable and others less so.

In the last decade or so, the issue of community relocation has become increasingly prominent as the issue of climate change has become more widely discussed. Moreover, there has been increased government involvement in the relocation processes, from funding (supported by international 'donors') to overseeing procedures such as those relating to land. Prominent among the resettled communities is Vunidogoloa on the island of Vanua Levu. This project has been the subject of a large number of research papers and other documents (Bertana, 2018, 2020; Charan et al., 2017; Edwards, 2014; McMichael et al., 2019; McNamara & Des Combes, 2015; Piggott-McKellar & McMichael, 2021; Piggott-McKellar et al., 2019; Tronquet, 2015). Initiated as a government supported project in 2014 (some households had moved independently), it appears from Google Earth imagery that the new village was built sometime between February 2016 and September 2017². It involved the relocation of the community of Vunidogoloa two kilometres inland and upslope from the original site, which had been suffering from inundation and erosion for several decades, to a new site named Kenani (after the biblical Canaan, the promised land). Generally, the move which took place within customary lands of the Vunidogoloa villagers has been widely praised as a success story and as an exemplar for other community

² Several published reports have different dates for the completion of the relocation. For example, Piggott-McKellar and McMichael (2021, p. 108) state "In 2014, the entire village of Vunidogoloa relocated in response to tidal flooding, saltwater intrusion and coastal erosion." The imagery for 2016 shows a large area adjacent to the north of the Kenani site, where only a single structure appears to be located.

relocation projects. Figure 3 shows the locations of the original Vunidogoloa site and the new Kenani site.



Figure 3. The original site of Vunidogoloa (A) and the relocated village at Kenani (B).

Several factors are considered to have contributed to the success of the project: there was widespread concern within the community about the impacts of inundation and erosion in the village, there was strong local leadership, and the spiritual needs of the community were largely supported (Edwards, 2014; White, 2019). The transition was, however, not without its problems. For example, many people, especially those who are older, yearn for their

former homes to which they had become accustomed and near which ancestors had been buried (Tronquet, 2015). However, Bertana (2018) reports that there were concerns about the rigid rules around the settlement configuration and house design and subsequent modification and the location of the church at the top of the new site making it difficult for elders to attend services. For example, all houses were of the same size and design irrespective of household size or structure. On the other hand, people enjoyed having running water and flush toilets. Bertana (2018, p. 83) wrote:

Two years after supposed completion, the relocation remained incomplete. The village was still littered with drainage piping, and was facing other environmental problems, including erosion from the mountaintop that was blown up by the military as preparation for the newly relocated site. There were still no footpaths, inhibiting the mobility of the elderly. People still had no access to blueprints allowing them to modify their houses. The community hall was still unfinished after the construction company hired by the government abandoned the project (with the village's money) when they took Christmas break in 2014. After two years, the community was still waiting for the government to fulfill their end of the bargain. The village will likely be waiting for an indefinite amount of time, because external actors at the national level maintain that Vunidogoloa is complete and they will not be returning.

Narikoso, also the subject of several papers, presents a different outcome (Anisi, 2020; Bertana, 2018, 2020; Jolliffe, 2016; McMichael et al., 2019; Piggot-McKellar & McMichael, 2021). Initially following a visit from the Prime Minister in 2011, an area was cleared by the military on land near the village, but considerable environment damage occurred and the relocation itself was discontinued. Eventually, because of funding constraints, it was decided to relocate only the seven households closest to the sea. This contradicted the community's desire that if relocation was to go ahead, it should entail all households so community integrity could be sustained. There seem to have been considerable delays before the relocation of the seven houses was completed. Google earth reveals the land cleared for the relocation in mid-2020 but the seven homes do not appear until an image a year later (see Figure 4). The 2012 image taken in March does not show the land clearance, but it is visible in September 2013, with what appears to be considerable nearshore sedimentation. Several of the papers quoted above refer to environmental problems following the clearance by the military and note that no form of environmental impact assessment had been conducted prior to the action. While the cloud cover in 2021 does not show what happened to the houses closest to the coast, the seven houses on land inland from the original village site are clearly visible. The image for 2021 clearly shows a village divided into two parts.



Figure 4. Google Earth Images of Narikoso, 2012, 2020 and 2021

The time when relocation is often given greatest priority is after devastating cyclones. This has been the case in the past (see Biausevu case study above) and continues through to the present. For example, following Cyclone Winston, 63 communities in Fiji have been earmarked for relocation and on Koro, one of the most severely affected islands, 13 of 14 villages have been considered suitable for relocation (Dumaru et al., 2020).

The importance of community relocation and the potential for problems to arise led the Fiji government to establish guidelines for community relocation projects. The guidelines

outline the responsibilities and expectations of all actors in the process and highlights the importance of ensuring local participation and that the voices of those who are being relocated are taken into account (Ministry of Economy Republic of Fiji, 2018; see Lund, 2021 for a review of the guidelines). Other countries to set guidelines or which are in the process of doing so include Vanuatu (Vanuatu National Disaster Management Office (NDMO), 2018) and Solomon Islands (Government of the Solomon Islands, 2021).

Case Study: From Tilivaira to Koroinalagi

The village of Biausevu is located several kilometres inland from the coral coast on the south of Viti Levu. It has an interesting history (Figure 5). Until the late 19th Century, the village was located further inland and on an elevated ridge. Encouraged by the colonial government of the time, around 1875 the community moved downslope to a site named Teagane near the Biausevu river, a relatively shallow and small stream that is subject to flash floods during intense rainfall events such as those experienced during tropical cyclones. Following a flood event in 1881, the community moved further upstream to a site they named after the river and where they remained for almost 60 years until another devastating flood caused them to move again in 1940 to a site named Busadule, also next to the river. In 1972, Busadule was badly affected by Cyclone Bebe, one of Fiji's most devastating events in the past century. A local chief suggested that the village be relocated to a new site on the top of a nearby hill. He organised to have the area flattened using a bulldozer and established his own home on the new site but most community members stayed at Busadule, only to be devastated again by Cyclone Oscar in 1983. This time the entire village moved to the new site at Koroinalagi. A water reticulation system was connected to a reservoir further upslope and the need to stay near the river was eliminated. The village has proved very successful, but its growth has been such that new dwellings and other buildings have now been established on flat land below the village with the risk of further exposure to floods. The story of Biausevu and its relocation to Koroinalagi reflects the mobility of Pacific communities, although all of the sites were on customary lands of the community. The case also illustrates the importance of leadership in successful relocation and the importance of having a reliable water supply (Campbell et al., 2007).

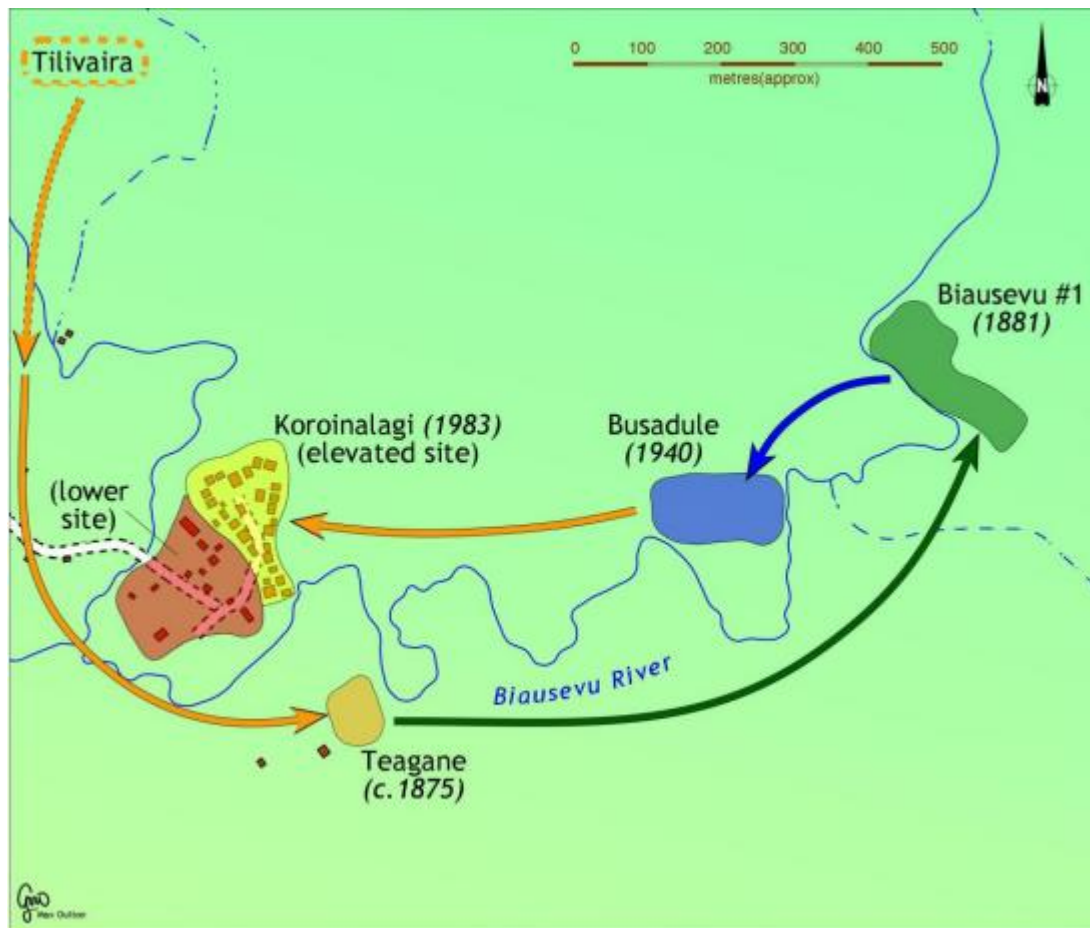


Figure 5. Map showing the various locations of Biausevu since 1875.

'International' relocation

It is generally assumed that community relocation will be limited to proximate or nearby lands for most communities and certainly not beyond national borders. This will hopefully be achievable although there remains uncertainty about the fate of atoll countries which may have insufficient options for in-country resettlement of affected communities, depending on the physical response of atoll islands if sea level continues to rise, and/or to rise more rapidly. There are three existing cases of communities that were relocated in the colonial era with varying levels of success.

The first of these is the relocation of people from Banaba, a raised atoll, by the UK colonial government to make way for continuation of phosphate mining which was rendering the island bare of soils and other resources. After the Second World War, the Banabans, who had been taken to several other Pacific Islands by the Japanese military, were taken to the island of Rabi (in Cakaudrove Province) in north-eastern Fiji (Silverman, 1971; Teaiwa, 2015) by the UK government. This move was made possible by the fact that Fiji and the Gilbert and Ellice Islands Colony were both British colonies. Land was divided up, and villages created on Rabi in ways that are similar to what existed in Banaba. In some ways, Rabi has a much more abundant material resource base than Banaba. Today people living on Banaba still miss their homeland, but some have mixed feelings. Others have returned to Banaba and others live in Tarawa in Kiribati. Kempf (2017) writes that those in Tarawa

have mixed attachments to Banaba or Rabi as a home they may have to return to if Tarawa becomes uninhabitable. Meanwhile, on Rabi, Banabans have Fiji citizenship, but are often still 'othered' by the majority populations (Teaiwa, 2015). Adding to these tensions, descendants of the original landowners from Rabi are aggrieved that their land has been occupied (Campbell, 2010).

The second form of 'international' relocation was from Vaitupu in the then Ellice Islands to the island of Kioa, not far from Rabi in Cakaudrove Province, in 1947 (Koch, 1978). Again, it was enabled by the British colonial administrations in the two territories. This was a voluntary movement encouraged by leaders on Vaitupu. It was not a full relocation and a majority of people remained on Vaitupu. Nor was it carefully planned, and the first three groups of migrants found a rugged environment far removed from their experiences in Vaitupu. In time, however, the community adjusted to their new home and thrived (Falefou, 2017). Relations between the people on Vaitupu and Kioa remain positive and it appears that the relocation has been successful. Falefou noted that the people in Kioa, while maintaining cultural traditions that had waned in Vaitupu, including the dialect (which had been somewhat modified by Tuvaluan in Vaitupu), were beginning to be influenced by Fijian customs. Interestingly, the ownership of the land on Kioa is vested in the *matai* living in Vaitupu with representatives of the *matai* living on Kioa only having rights to use the land (Falefou, 2017).

The third example is also from the Gilbert and Ellice Islands Colony and involved the sequential movement of people from the Gilbert Islands to the Phoenix Islands (still within the colony); on the failure of this resettlement because of persistent drought conditions, the people were then relocated to two locations in Solomon Islands: Ghizo and Wagina. Like the other two community relocations, the arrangement was between two British territories, both of which came under the jurisdiction of the Western Pacific High Commission. The 'Gilbertese' population in the Solomon Islands remains as a distinctive minority with limited access to land (for a fuller account see Tabe, 2019, 2020). Indeed, rights to land have been a persistent problem for this group despite initial assurances from the colonial government when the relocation took place that land would be made available (Donner, 2015; Tabe, 2019). When Solomon Islands was affected by a tsunami in 2007 it was reported that indigenous Solomon Islanders informed by indigenous knowledge sought refuge in upslope areas when intense earthquakes occurred. The Gilbertese did not have such traditional knowledge, there had been no major tsunami since their arrival almost half a century earlier, and they suffered disproportionately as a result. In Ghizo, 60 per cent of the fatalities were among Gilbertese even though they made up only 14 per cent of the affected population (McAdoo et al., 2009). An important factor in relocation is to ensure that people are not placed in situations where they might be exposed to hazards, at least without some kind of knowledge sharing on local risks.

It is doubtful if such arrangements could be made today as the countries involved are now independent states and have quite strict laws around immigration and the transfer of lands. On the other hand, people from countries that may not be able to accommodate internal community relocation may wish to resettle in Pacific surroundings rather in locations beyond the region where the possibilities of recreating a community structure would be very difficult. There has been much discussion around the purchase of freehold land (sold

by the Anglican Church) on Vanua Levu in northern Fiji by the government of Kiribati. Speculation that it would be used for resettlement has been rejected by Kiribati which sees the purchase as a means of obtaining productive land which will add to the food security of people in Kiribati. However, all is not simple as a community descended from Solomon Island blackbirded plantation workers has been established on part of the land (with the Church's support). Their situation now is the source of considerable anxiety. This has been increased with the understanding that Kiribati has entered into an agreement with the government of China to develop the land (Baleinakorodawa, 2021).

Gender, Climate Change and Mobility

Very little has been written about gender and climate change in PICTs, let alone in relation to mobility. Moreover, most references to gender are restricted to binary distinctions between women and men or females and males rather than as a social construct allowing for a range of possibilities. For example, I was unable to find any research that referred to LGBTQ+ people in relation to climate change impacts, vulnerability or adaptation (including mobility) in the region.

Projections of climate change suggest increasing frequency and/or magnitude of events linked to natural disasters. International and some PICT literature clearly indicates that in disaster settings in all parts of the world gender-based violence (GBV) increases. In addition, it appears that GBV is more prevalent in urban areas and in evacuation centres. Preparing climate change adaptation (and disaster response) strategies clearly needs to take these factors into account and improve safety in these settings.

Vulnerability to climate change effects, as outlined earlier in this report, is contingent on social, economic and political processes. Where these processes are gendered then we can expect vulnerability to also be gendered. Gioli and Milan (2018, p137) wrote that "In a nutshell, the key message of the hazard literature is that existing inequalities multiply vulnerability, and are exacerbated through disaster processes." The same may be said in relation to the impacts of climate change, and not only in relation to increasing extremes.

Typically, migration is dominated, at least, initially by males. This often leaves increased livelihood and other burdens on those who remain behind, a majority of whom are women. However, as the number of women migrants increases, the pressure to send remittances often affects them through childcaring responsibilities and the need to work long hours in low paid jobs. For example, in Aotearoa New Zealand the largest gender pay gap is in relation to Pasifika women who earn \$0.72 for every \$1.00 earned by a Pākehā (European) male (Gender Equal New Zealand, n.d.). Expectations that expatriate Pacific communities provide remittances after disasters at home add further pressure. As Bettini and Gioli (2016) observe, the assumption that migration is a valid form of adaptation has its roots in neoliberalism, a factor that needs to be accounted for in the promotion of this form of climate change response in which inequalities may be deepened rather than reduced.

Relocation in comparison involves all community members, all genders, young and elderly and able and disabled. However, several of the articles outlining relocation projects and processes of decision-making point out that most decisions to relocate, where to relocate to,

and the layout and structures to be built are made by males and in many cases older men, reflecting the gendered nature of social structures of many PICT communities, especially in rural areas. On Koro, shortly after Cyclone Winston had devastated all but one of the villages and planned relocation was being considered Dumararu et al. (2020) conducted a survey including questions about gender. They found:

Women were almost seven times as likely as men to say that they had 'no influence at all' in *mataqali* decision-making, and four times as likely as men to say that they had 'no influence at all' in village decision-making ... With regard to household decisions, 59% of women and 84% of men indicated they had 'a lot of influence'. However, with regards to *mataqali* and village level decisions, only 24% and 26% of women reported having 'a lot of influence', compared to 51% and 56% of men. These outcomes are reflective of current customary norms and practices associated with land negotiations and transfer whereby clan chiefs and elders (of patrilineal hereditary) are the primary decision-makers (p. 62).

The outcomes of such processes often affect women negatively. As noted above, Cagilaba (2005) reports that when her community moved uphill, water had to be carried up the slope, together with clothes that had been washed, from the fresh water source. These tasks were ones that were allocated to women. At Vunidogoloa, the intention had been to build kitchens for each household, but this did not occur, and kitchens had to be constructed from materials salvaged from the original site (Bertana, 2018). Women at Biausevu reported the same thing had occurred when their village was relocated in the 1980s (Campbell et al., 2007). In many parts of the region, nearshore fishing (e.g., on lagoons, reef flats and mangrove areas) is the domain of women and a daily task. Where communities are separated from the coast, as may be the case when they are moved up hill, this adds to their labour.

The neglect of gender in climate change policy development, relocation planning and in climate mobility research is an important gap which urgently needs greater attention.

Relocation issues

Typically, a number of actors are involved in community relocation projects. These include local communities with traditional, local government and religious leaders; national government representatives often from a range of ministries/departments and non-governmental agencies. Efforts must be made to restrict the development of tensions among these actors.

In saying this, above all, community involvement is critical and needs to be real. Several studies have indicated that quite often there is a strong top-down element in relocation decision making even when the projects have been initiated by local communities. Groups that are often excluded from decision making include women as noted above (despite their expertise on many of the needs for newly established villages) and young people.

The importance of Christianity in the lives of the great majority of people in PICTs must be taken into account. Where Christian leaders, from local ministers to national and regional

Christian organisations such as the Pacific Conference of Churches, are involved, greater acceptance of the move is often the outcome. It has been argued that the secular nature of climate science and adaptation planning alienates those community members who have high levels of Christian faith. In addition to Christianity, many people in PICTs still have relational ontologies (including Christianity and traditional beliefs) that include a strong spiritual connections to their **banua*.

'Donor' requirements need to be constrained. Generally, 'donors' are emitters and from this perspective should not have overbearing control on relocation projects. In particular, relocation projects that are only partially funded have the potential to divide communities creating tensions and possible conflict. Such divisions can have long-term consequences

Similarly, unrealistic time frames imposed by external 'donors' need to be reconsidered. Allowing more time increases the likelihood that relocation projects are not adequately completed and allows time for communities to make unrushed decisions. On the other hand, relocations should not be unnecessarily drawn out, leaving communities in limbo and creating divisions between those who have been moved and those who are still waiting.

It is important that new sites are carefully selected taking particular account of land ownership and tenure. Also important is that environmental impact assessments are carefully carried out to ensure the relocated community does not find itself at further or even greater risk. Land clearing for new village sites also needs to be conducted in ways that do not cause environmental deterioration. Land (**banua*) is critical and in all relocations relationships between people and land at a variety of scales must be taken into account. There is a need for the development of inclusive social and cultural impacts assessment procedures.

Major differences between scientific understandings of climate change and its impacts on the one hand and the relational and spiritual ontologies of communities on the other have to be addressed without prejudice. This requires clear and humble explanations of the 'science' (scientific understandings) of climate change in relation to the place concerned and listening with respect to local understandings.

Relocation should be undertaken in conjunction with adaptation programmes that promote sustainable livelihoods. If people are moved away from the coast, then access to fisheries becomes constrained as is the case if people are moved away from their agricultural sites. Water is a critical resource and moving communities uphill away from fresh water sources can create serious burdens.

Pacific Island (Im)mobilities

In line with, and perhaps leading, the emergence of research about immobility related to climate change (e.g., Cundill et al., 2021; Brown & Gilmartin, 2020; Zickgraf, 2018, 2019) a significant counter-discourse has recently emerged in Pacific research that calls for recognition of immobility as a valid strategy for PICT people, if they do not wish to be forcefully relocated. Much, but not all (see Perumal, 2018 for an example from Vanuatu), literature on immobility in the Pacific has emerged in relation to atoll states and atoll

dwellers. Thus Rudiak-Gould (2013) reports that while some people in the Marshall Islands accept that one day their islands may become uninhabitable and some think it would be wise to at least have a 'plan B' in case such an outcome unfolds, many people simply reject the idea that they would have to leave their island homes. Similarly, Carol Farbotko (Farbotko, 2018; Farbotko & McMichael, 2019; Farbotko et al., 2016; Farbotko et al., 2020) has written extensively about immobility, particularly in relation to Tuvalu, but also in relation to atolls in general. Several other researchers report that most people in Tuvalu do not consider mobility, especially relocation, to be a suitable option (Falefou, 2017; Mortreux & Barnett, 2009; Shen & Gemene, 2011). Hermann and Kempf (2019) make the same point in relation to Kiribati where a change in government saw a 'migration with dignity' policy replaced by one of staying in place. In most examples, people have expressed that they would rather die than be separated from their homes. For people living in the atoll only countries, relocation may at some point require international migration. In comparison, some people living on the coasts of high islands have the option, while relocating, of remaining on customary land, or if this is impossible, at least close to it. In many cases, even if settled on non-customary land they can continue to use the resources of their land and ocean – in Fiji, their *vanua* and *qoliqoli* (marine resources).

Another factor is that while environmental degradation is being observed, most atoll islands remain habitable at present. Atoll dwellers are being expected to uncritically accept 'scientific' representations of climate change impacts. There are, however, problems with the science. First, the projections of sea level rise remain uncertain dependent upon scenarios of future GHG emissions. Second, the scientific understanding of atoll response to sea level rise is limited and there are challenges to the notion that atolls, or perhaps more specifically, atoll islets will disappear (McLean & Kench, 2015; Kench et al., 2018). Third, small islands are among the most under researched places. Fourth, but perhaps most important, local environmental knowledges and observations are almost universally excluded from the discourse. It should be noted that marine, coastal and coral 'scientists' are not necessarily involved in the relocation discourse (though some are, e.g., Patrick Nunn who has consistently encouraged people to think about relocating rather than leaving it too late). Generally, the discourse is promulgated by environmentalists who rightly are drawing attention to the alarming possible consequences of climate change, and people in the planning/consultancy communities as well as many social scientists concerned about the social effects of climate change.

As noted, most atolls remain safe places to live on and it is possible for people to aver that they will stay forever and die if necessary (Falefou, 2017; Corcoran, 2016). Perhaps if (or when) atoll islands begin to become uninhabitable, food cannot grow, water becomes salinized, erosion rates increase and land becomes inundated increasingly frequently by king tides and storm surges and life becomes more onerous and dangerous, people may be less determined to stay put. But these are material aspects of habitability and do not reflect people's non-material and spiritual needs which include maintaining the unity of their **banua*. Moreover, most local conceptions of habitability are excluded from scientific analyses of habitability of atolls (e.g., Duvat et al., 2021).

Not all immobility is necessarily fully 'voluntary' nor fully 'forced'. Piggot-McKeller and McMichael (2021) and McMichael et al. (2021) refer to the village of Dreketi on the island

of Qamea in Cakaudrove Province, Fiji. Here the community members consider higher elevations within their customary lands to be unstable and equally, if not more, risky than their coastal site. While many residents were concerned about their current coastal situation, others are content to remain on site, reflecting differently influenced immobilities.

The Carteret Islands, where serious environmental degradation has resulted from rising sea levels in combination with land subsidence resulting from tectonic processes, provides an interesting case where degradation and loss of land is already occurring. Rather than being imposed on the island population by 'experts', the idea of relocation has come from people in the community itself who have set up their own organisation (Tulele Peisa) to facilitate relocation to the large high island of Bougainville some 60km away. It has been a difficult process to find sufficient land to support the migrants' subsistence needs although church land has been located for building a settlement. There have been several stalled attempts over several decades, mainly hindered by difficulties in finding sufficient land to sustain people's livelihoods, including subsistence food production (Boege & Rakova, 2019; O'Collins, 1990).

The term (im)mobility (with the parentheses) has been used by several people working in the field of climate change and adaptation in PICTs. The term subtly recognises the range of mobilities that typically exist in many, if not most, PICT communities. Accordingly, while some people choose to migrate (for many reasons, not just climate change) others may opt to stay, even if they die as a result. An important enabler of 'safe' migration is the existence of a population at home maintaining the critical link as part of the **banua*. This enables the identity of the migrants as people of the home place to be sustained. That is an identity that otherwise would have little substance. In addition, people may be both mobile and immobile during different phases of their lives, and their mobilities may play out at many scales from nearby lands/islands, within nations to international migration. This non-binary, multiplicity of (im)mobilities is an important characteristic of climate change migration phenomena.

Immobility has emerged as an important counter to the dominant Western discourses of vulnerability and 'forced' migration. Pacific people desire to have their own input into building knowledge about climate change effects and possible adaptive actions that may be necessary and culturally acceptable. This does not preclude the right to be mobile and mobility in the form of urbanisation and international migration for economic and social reasons is bound to continue. In this sense, the term 'right to stay' may be a better option although '(im)mobility' includes both staying put and migrating.

For those who want to stay on their homelands, the issue is very important. They also fear that possibilities for adaptation, which may be expensive, will be overlooked by the international community. The costs of accommodating a few hundred thousand people may be significantly less than repairing the damage caused across the Pacific region by the polluters' greenhouse gas emissions.

Conclusions

It is likely that climate change will either cause some people to migrate or some communities to relocate. Indeed, communities have begun relocating already and it is difficult to determine to what extent climate change may have influenced recent rates of individual and family migration. The extent to which this will continue to happen, or increase, is very difficult to foresee. It will depend upon the resilience of communities affected by climate change and sea level rise, their conceptions of (un)inhabitability, the existence of suitable destinations, the technical feasibility of *in situ* adaptation, and the financial willingness of greenhouse gas emitters to pay for it.

The possibility of community relocation perhaps causes by far the most concern among people in PICTs, especially those living on atolls where there is no elevated hinterland to move to. In their case relocation may be particularly harsh, cutting off people's ties to their **banua* and leaving it unprotected. For those living in atoll only states, the fear is even greater as people's identity while strongly defined by their **banua*, is also linked to their sense of belonging to a nation. There is a fear that culture, customs and language will be lost, especially if communities cannot be relocated in destinations. In such cases communities may become significantly fragmented and possibly spread across nations.

So, what are the implications for communities at such risk. As many writers have observed, there is a pressing need for control of knowledge, planning and decision making to be placed in the hands of those who have most at stake, the atoll dwellers themselves. This is problematic in the current CCA environment where support for adaptation is represented more as aid than compensation, where 'concrete' adaptation actions are most likely to be funded and where perceptions of vulnerability and the inevitability of mobility are likely to dissuade funding agencies and bilateral funders, from supporting adaptations that they believe will not be sufficiently sustainable.

A cause of tension lies in the desire to exercise their right to stay and the development of a contingency plan to facilitate a least disruptive, and possibly more peaceful, relocation if this becomes unavoidable. Unplanned, last-minute relocations are typically extremely precarious and often fail, with conflict between newcomers and members of host communities, and difficulties in accessing land and establishing durable livelihoods. While it does not fit in contemporary funding or planning timeframes, building connections between communities over decades in which mutual exchange, visits and interaction may smooth the way for greater understanding between hosts and relocatees, would be beneficial even if relocation was not necessary. Taking such proactive steps does not need to set an inevitable path to relocation but may help if it does become necessary.

Individual and family migration are likely to be the dominant form of climate change mobility in terms of numbers involved. Two sets of destinations are likely. At the domestic level, most climate related migration will be in the form of urban migration. Urban areas in PICTs are already growing rapidly and there are numerous problems relating to land availability for new migrants, both from the perspective of land tenure and land suitability. As a result, many urban migrants live in densely populated informal settlements with

inadequate service provision and low levels of employment, and in highly exposed environments that are likely to be at further risk from the effects of climate change.

The other likely form of individual and family migration is to international locations. These may include other Pacific Countries but if current trends are indicative, it is likely that existing flows of migrants will continue, particularly to Aotearoa New Zealand, Australia and the United States. For those countries with very limited migration access, options for climate change migrants will be limited unless countries open up their borders in a general sense or create climate change related immigrant categories (see Part III for a fuller discussion of these issues).

Finally, the costs of climate change mobility are great, both for communities that are relocating and for individuals and families venturing to towns and cities within the region or overseas. While some international funding for a small number of community relocation projects has been made available, it is far short of what is needed. There is virtually no support for individual migrants as it is argued that they cannot be distinguished from economic migrants.

Climate change has already proved to be a problem for PICTs and impacts are likely to become more disruptive and persistent if reductions in GHGs are not quickly achieved. While we must address issues of adaptation, and this will be necessary for decades to come if not longer, it is also critically important that the globe as a whole and the high emitting countries in particular implement effective mitigation as soon as possible.

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