Asia-Pacific Network for Global Change Research

Community Relocation as an Option for Adaptation to the Effects of Climate Change and Climate Variability in Pacific Island Countries (PICs)

Final report for APN project 2005-14-NSY-Campbell

The following collaborators worked on this project:
John R. Campbell, University of Waikato, jrc@waikato.ac.nz
Michael Goldsmith, University of Waikato, mikeg@waikato.ac.nz
Kanyathu Koshy, University of the South Pacific, koshy_k@usp.ac.fj

THE UNIVERSITY OF
WAIKATO
Te Whare Wānanga o Waikato

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Final Report submitted to APN

Overview of project work and outcomes

Non-technical summary

There has been widespread conjecture that some, if not many, Pacific Island communities may have to be relocated in the event that climate change scenarios unfold as projected. The purpose of this project was to examine the implications of such an adaptive response. There were three main sets of activities. First, we conducted a literature and documentary search for examples of relocated communities in Pacific Island Countries and for literature on the general issue of community relocation. Second, we conducted participatory research in a village, Biausevu in Fiji that had relocated in response to tropical cyclone related flooding. Third, we held a regional workshop in which participants shared experiences and/or expectations of relocation in their countries. In this workshop we also reported on the village based research and conducted training sessions using hypothetical scenarios where community relocation may be considered as an adaptation option.

Our research indicated that community relocation is not uncommon in the Pacific region although in many cases the distances moved are relatively short. Long distance relocation is quite rare, especially in the post-colonial era. However, if climate change scenarios are borne out it may well be that communities in countries entirely comprised of atolls may have to face the need for such relocation in the future.

Objectives

The main objectives of the project were:

1. To build on the findings of the APN workshop on ethnographic perspectives on residence to climate variability

2. To identify, synthesize and integrate existing research on community relocation in PICs

3. To undertake a pilot project on assessment of community resilience and the role of relocation as adaptive options

4. To set the foundation for an applied research project in the PIC region investigating the social, economic, political and cultural implications of community resilience and relocation

5. To set the foundation for a training programme for PIC personnel in conducting human dimensions research and applying it to policy needs.

6. To provide policy makers with an initial evaluation of community resilience and relocation as a climate change adaptation option for PICs.

Amount received for each year supported and number of years supported

Received: US 35,436 (80% of 44,295)

3

Number of Years: ONE

Participating Countries

Fiji
Kiribati
New Zealand
Niue
Papua New Guinea
Solomon Islands
United States of America
Vanuatu

Work undertaken

The work undertaken included:

1. A literature search for information on the occurrence of environmental extremes and community relocation in Pacific Island communities.

2. Participatory community based fieldwork in the village of Biausevu in southern Viti Levu (the largest island in Fiji). Preparation for the fieldwork was conducted in Suva, at USP, prior to the visit to Biausevu.

3.   A regional workshop in which participants discussed national experiences and/or expectations of community relocation, the results of the community based research were shared and some exercises based on hypothetical scenarios were conducted.

Results

Community relocation has been subject to relatively little research and that which has been conducted has been skewed towards long-distance relocations virtually all of which took place in the colonial era.

The project established a four-fold classification of relocation based on distance and boundaries crossed. We have identified the lessons learned from a community that has relocated several times. The boundaries include land tenure and international political borders. The costs and problems associated with relocation increase with distance and boundary crossing. In fact it is unlikely that communities will be able to be relocated (as we define the term) across international boundaries under current social, political and economic conditions.

The project also developed a series of steps that might tentatively be considered in relocation decision-making and drew on lessons learned from a community that has relocated several times in the past century or so.

Relevance to APN scientific research framework and objectives

This project is squarely situated under the rubric of human dimensions of global change. Given the natural science scenarios of climate change and existing understanding of climate variability in the Pacific Islands region, this project sought to build understanding of adaptation options, especially that of community relocation.

Self evaluation

The project was deferred by a year because of funding delays. This caused some stress for project personnel as clashes with other deadlines emerged. Perhaps the most unexpected event was the development of serious political tension in Fiji with the likelihood of a coup d'état around the time of our planned regional workshop. As a result, and in consultation with Prof. Koshy at USP, we decided to change the venue to the University of Waikato (the only available site in the time available) approximately two and a half weeks prior to the scheduled date. The coup did eventuate, in early December, just two weeks after our scheduled meeting. The change of venue placed considerable pressure on us. Many participants had to obtain visas and there were some who could not make it: four participants withdrew (for a range of reasons from sickness, through work pressure to local political turmoil and the shutting down of the New Zealand High Commission for visa processing) essentially on the day of their planned departure. Nevertheless, the workshop went very well and we have received very positive feedback from the workshop participants.

The participatory village based research went extremely well. This was in no small way due to the excellent preparatory work carried out by Ms Daiana Taoba, our student researcher, and Mr Isoa Koroiwaqa, a graduate student based at USP. The site was perfect in that the community had relocated on a number of occasions and community members were eager to actively engage in the project activities. The original work plan included a small workshop in Suva to prepare the group for the participatory research. In the end this was replaced by a half day briefing session among the four researchers who visited Biausevu because of time constraints. This seemed on reflection to have been satisfactory. Materials on participatory research were made available to the researchers prior to the field visit.

Potential for further work

The field work, and the workshop, confirmed our prior assumptions, that relocation is an extremely complex process and often can only be achieved at considerable economic, environmental, emotional and social cost. International relocation is likely to be extremely difficult in the post-colonial era. Any relocation that involves moving away from a group's traditional territory and into that of another is likely to be highly fraught and will require considerable consultation and negotiation. There remains an urgent need to consider the implications of such relocations. Land tenure is a critical factor in relocation within the Pacific region and further research is required to identify the implications of customary role of land rights in relocation (both for those who relocate and those who 'own' land at the destination).
This study focussed on rural communities. There are two issues associated with urban areas that need to be considered in relation to relocation. First, nearly all urban areas in

PICs are in coastal locations. Should sea-level rise or flooding become a threat to these sites the issue of relocating, at least parts of, urban areas will need to be considered. This has numerous implications relating to such considerations as land availability, infrastructure and informal urban settlements (many of which are located in at risk sites such as low-lying lands).

The second factor concerning urban areas is that many relocated communities may have little option other than to move to urban areas given the importance attached to land tenure. In our study we came across several references to urban communities of migrants (not relocatees). The problems of such communities and their adaptive strategies (to urban living) may provide important lessons for communities that may find themselves forced to relocate to urban areas.

If relocation is to be considered as an adaptive option for communities affected by climate change there is a great deal that needs to be learned. This study indicates that relocation is a long-term process that requires considerable effort from identifying suitable sites through negotiation and consultation both with relocating communities and those in the jurisdictions or land owning communities of the destination. Hasty relocation, which may result if further research and negotiation, is not conducted, is almost certainly bound to be problematic.

Publications

There are two pending publications from the project.

1. *Community relocation as an adaptive response to climate change and variability in Pacific Island Country.* This report will be made available to organisations and governments in the Pacific island region.

2. Community relocation implications and expectations. This paper will be submitted to a refereed journal for publication. At this stage we are considering *Global Environmental Change*.

Technical Report

Preface

This project was first envisaged some years ago. An application was made to APN in 2004 and the project was short-listed as a reserve should any of the successful applications not go ahead. We applied again in 2005 and were successful but delays in the delivery of funding forced us to postpone most of the activities to 2006. We completed our final major activity in November of that year despite a looming military coup and political unrest in parts of the Pacific region that interfered with our plans. This report outlines the conduct of the project and its main findings.

Our aim was to explore the issue of community relocation as an adaptive response to climate change. At the extreme end, alarmist claims that some Pacific Island communities may become environmental refugees have caused considerable concern in some parts of the region. However, many Pacific Island Communities have relocated in much less spectacular ways over the years. If climate change is manifested in ways that have been projected, and to date international attempts to reduce greenhouse gas emissions are likely to have little impact, some communities may indeed need to relocate. We hope that this study will serve as a beginning to our understanding of the best ways that this may be achieved and the costs that relocated communities will have to bear.

Table of Contents

List of Figures

List of Tables

1.0 Introduction

This project is about community based adaptation to climate variability and change. A previous APN project examined ethnographic perspectives on resilience in PICs. The earlier project placed relatively little emphasis on relocation – where communities were resilient, an implicit assumption may have been that relocation would not be necessary. However, it is possible that some communities will need to relocate (and we have found that many have done so in the past) in order to retain their vitality and cohesion in the face of climate change and variability. In this sense we expand on the earlier project by examining the implications of community relocation as an adaptive option.

Climate change is one of the major threats to Pacific island aspirations for sustainable development. In recent years increasing attention has been given to the issue of adaptation as a response to climate variability and change. This is especially so in relation to Pacific Island countries (PICs) which have been identified as being among those most likely to be effected by global environmental change (Nurse and Sem, 2001). Given the slow response in mitigating climate change the need to develop policy for adaptation is becoming a necessity. One of the sets of adaptive response that has received a considerable amount of media and political attention is relocation of communities from sites that might be rendered uninhabitable as a result of climate change. There has been a good deal of postulation about the likely need for, or problems associated with, relocation. However, there has been very little research into the types of relocation that might be required, and the social, cultural, political, economic and environmental implications of such an adaptive option. Relocation, although a last resort, may become more common with many communities residing close to the high water mark on the coast, in wetland areas and on river flood plains. The logistics of relocation need to be investigated more thoroughly than has been the case to date.[1]

While most attention has been focused on international relocation (particularly of atoll populations) other forms of relocation are likely to be at least as significant including moves within countries (island to island) and within single islands including "proximate" relocation such as moving inland from a coastal village site. All forms of relocation have happened and/or continue to occur in Pacific Island countries for a variety of reasons including environmental change (phosphate mining, nuclear testing and tropical cyclone events, particularly following storm surge devastation). In many cases these population movements have been associated with numerous social, cultural, political, economic and environmental issues relating to tensions over land, dislocation of communities, inadequate resource bases and unsuitable sites.

The project includes a detailed search of geographical, anthropological and other literature sources to establish a comprehensive list of relocated communities in the PIC

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[1] There have been some criticisms of this approach with assertions that it is giving up on the need to mitigate the growing concentrations of atmospheric greenhouse gases. However, it is our perspective that it would be negligent to leave at risk communities increasingly exposed in a political climate in which reduction of greenhouse gas emissions is being achieved at a rate that is far too slow to bring about the changes identified by the IPCC as necessary to bring about a cessation or even slowing of climate and sea-level change.

region and a systematic inventory of the procedures under which relocation occurred and the implications of relocation for the communities concerned. The project also included a participatory field survey of a relocated community involving local research personnel in addition to the project collaborators. A regional workshop followed in which the field team shared results with researchers who have studied other relocated communities (at a variety of scales: international, inter-island and proximate relocation) and climate change researchers or policy makers from other PICs.

We had set out initially in this project to build on our findings to develop a region-wide project of training and community based adaptation. To some extent this objective has been overtaken by events. Adaptation is now much more strongly on the climate change response agenda and a number of adaptation and community based adaptation projects have emerged in the Pacific Island Region since the original proposal. Nevertheless, relocation remains a very poorly understood topic. We know of no other research project on community relocation as a climate change and variability response in Pacific Island Countries. Our research showed that even within a community's traditional land boundaries relocation can be a complex, and not always successful, procedure. Relocation beyond such boundaries is typically much more fraught. It is our consideration that more research, and indeed more dialogue among the actors likely to be involved in relocation, is critically needed in relation to relocation.

2.0 Methodology

The project incorporated three sets of activities:

a) A literature search for information on community relocation in Pacific Island communities.

b) Participatory community based fieldwork in the village of Biausevu in southern Viti Levu (the largest island in Fiji). Preparation for the fieldwork was conducted in Suva, at USP, prior to the visit to Biausevu.

c) A regional workshop in which participants discussed national experiences and or expectations of community relocation, the results of the community based research were shared and some exercises based on hypothetical scenarios were conducted.

Literature and documentary search

A research assistant was hired to search the literature for information on disaster occurrence and relocation in the Pacific Island region. An Endnote bibliographic database was used and in excess of 500 entries were included. On the basis of this information a classification of types of relocation was established. We found relocation was not uncommon in Pacific Island countries and had resulted for a number of reasons.

A note on terminology. There are a number of terms used in the context of environmental variability and change and the movement of people. Quite often the term relocation is used in relation to a variety of these concepts. For this study it is important to distinguish community relocation from other concepts such as evacuation, displacement, migration and environmental refugee, although there is often some overlap in the meanings of these notions.

In our literature search the term relocation was often used in the place of evacuation. Evacuation, however, usually refers to a temporary movement of people from a place that is considered unsafe or dangerous to one that is safe, or safer. In the context of our study, evacuation often occurs when communities are at risk of flooding during storms or tropical cyclones and usually involve the movement of people to higher ground, if it is available. Usually, the people return once the extreme event is over and repair what damages may have occurred. On some occasions a community may decide, usually where the destruction is total, not to rebuild on the same site but to consider less exposed locations. In this case the community will have relocated.

Lieber (1977: 343) uses the general term resettlement to refer to 'a process by which a number of homogenous people from one locale come to live together in a different locale.' He then distinguishes two forms of resettlement: relocation and migration. We do not use this distinction in the present study as there are many forms of migration which do not result in homogenous communities being established at the point of destination. In the present study, the term relocation is used to refer to the permanent (or long-term) movement of a community (or a significant part of it) from one location to another. This is distinct from the movement of individuals away from an origin to a variety of destinations. It infers that the community stays together at the destination in a social form that has some similarities to the community of origin. In the Pacific Island region most communities are in the form of rural (and some urban) villages. In urban areas there are often distinct communities (often built around the place of origin of the individuals) although some suburbs exhibit lower levels of community cohesion. In the rural context, which is the basis for this study, village communities may be seen as a group of people connected by kinship and linked by birthright and/or kinship to local land and sea resources (after Hunnam, 2002).

As noted, community relocation is considered to be different from migration which is usually seen as based on a series of individual or family decisions. In some cases migrants may, over time, re-establish a community similar to the place of origin, but the original community remains. In many occasions migrants settle in new communities that at best would only loosely resemble their home village. For example, urban migrants might settle in a suburb (or squatter settlement) of people from their original province or island including members who originated from other villages as well as their own. In the case of international migration, the new communities may be quite distinct from the places of origin and be composed of people who share only a common national, rather than provincial, island, or local village, origin.

There are quite high levels of migration from a number of island countries (especially those with access to metropolitan countries) and while communities of Pacific Islands have emerged in cities such as Auckland, Wellington, Sydney, Honolulu and Los Angeles, they are not relocated communities but new communities of people from a range of origins.

We also needed to find a term to denote people or groups who relocate. Perry and Lindell (1997) use the term relocatee or relocatees. We have also used this term: despite its awkwardness it saves the use of lengthy phrases to describe people who have relocated.

Site selection

After a period of scoping, in which several potential sites were identified, the village of Biausevu (see Figure 1), located in southern Viti Levu, was selected. This community had a history of river flooding associated with tropical cyclones and heavy rainfall events.
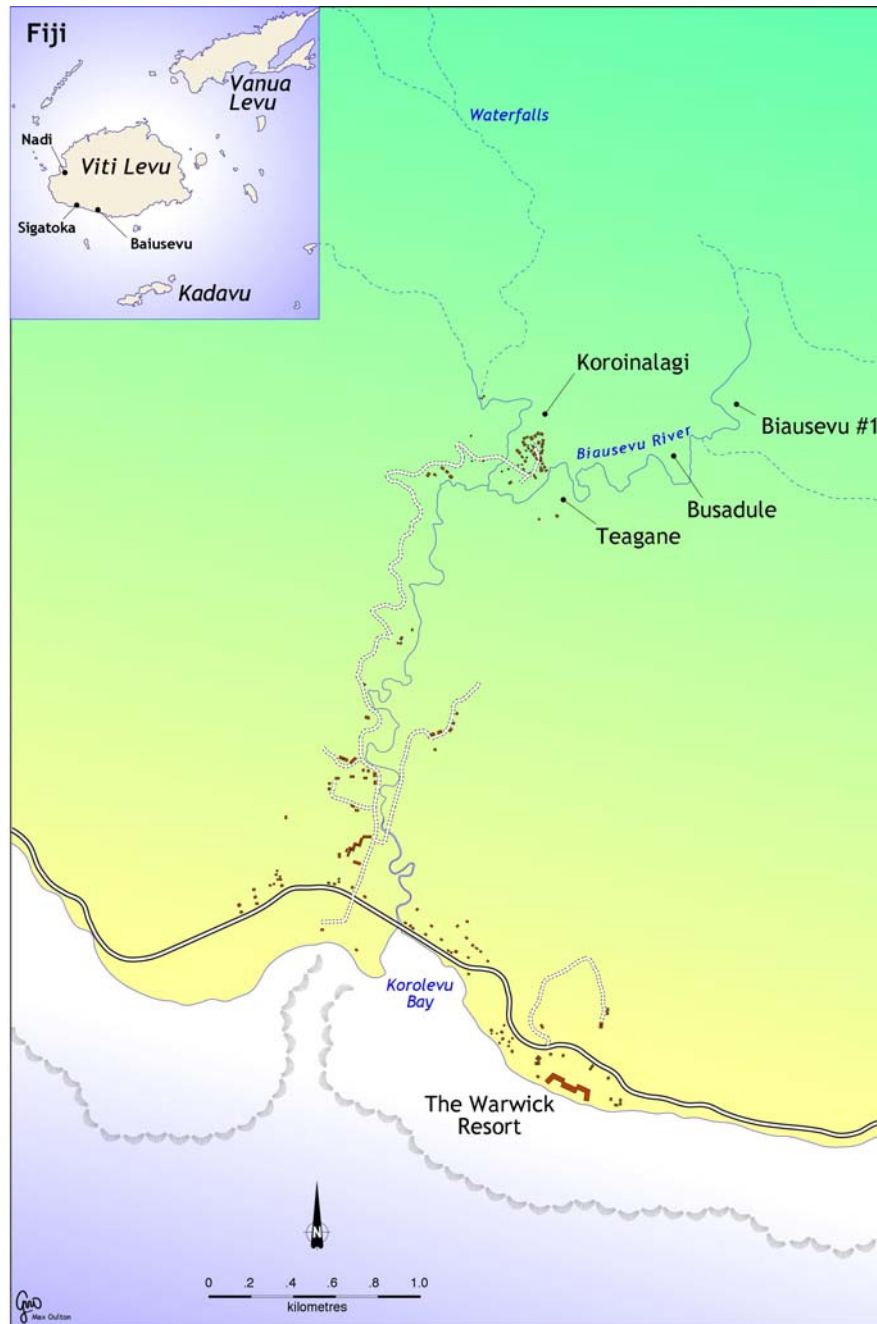
Figure 1. Map showing the general vicinity of the field research site. The current location of Biausevu village is at Koroinalagi. Teagane, Biausevu No. 1 and Busadule are all previous village sites.

There were several reasons for the selection of Biausevu:

1. Climate change may be manifested through increases in the severity and/or frequency of such events as tropical cyclones and heavy rain events, such as those experienced by Biausevu.

2. The village is reasonably accessible, being approximately 8 km. from the King's Highway, the main southern road in Viti Levu.

3. The village had engaged in an eco-tourism research project with the University of the South Pacific and protocols had already been established for research in the community.

4. The village had been relocated on several occasions over the past century or so.

5. The current village site is available in relatively high resolution on Google Earth enabling some preliminary mapping to be carried out.

6. Project participants from USP visited the village in to complete the scoping and verify that indeed the community had relocated as a result of climatic extremes.

Field activities

The field activities included the following:

1. *Focus group meetings*. These meetings were conducted in a traditional setting with (mostly) men from the village during *yaqona* ceremonies. Initially the meetings were conducted using flip sheets but these were used less intensively as the discussions progressed. *Yaqona* sessions are conducted with all participants seated on the floor. This made the use of flip charts less suitable. Notes were taken by all four members of the combined Waikato and USP team. These were shared among the members and clarification of points was obtained at later group meetings. All participants in the focus group were also given exercise books and these were used by them to take notes and draw maps (e.g. see Figure 2). The main purpose of the focus groups was to establish a 'disaster chronology' for Biausevu, to gather information about community response to previous incidents of climate variability, and to trace the series of relocations that had taken place, and to discuss the processes involved.

2. *Community mapping.* Members of the Biausevu community drew maps of the present and two previous village sites. These were useful for a variety of reasons. First, they identified the previous village sites. Second, they engendered considerable discussion about when the villages were constructed and then abandoned, about where different individuals lived, and about the damage that was caused by the various tropical cyclone events. Figure 3 is an example of such a map drawn by Daiana Taoba in conjunction with women from Biausevu.

Figure 2. Map of Busadule (the third village site) drawn by village men one evening following a focus group session. The series of blue crosses indicates the location of levee that was constructed to hold back flood waters. It was at this point that the flood waters entered the village. The house identified as the evacuation centre still stands in a dilapidated condition. Note that one house was built on stilts (lower right of village) in an effort to adapt to the flood hazards.

Figure 3. Map of Busadule village completed by village women during a focus group with Daiana Taoba.

3. **Transect walks**. Two walks were taken with male village members to three previous village locations (see Figure 4). These walks were particularly useful not only in that they enabled us to identify the location of the previous sites but they also helped community members clarify points of detail that had emerged during the focus meetings. For example, at the initial focus meeting it was stated (and it seems it was generally agreed) that the Teagane village site had been abandoned in 1881 because of conflict with a local colonist. However, as we walked around this site several participants recalled the history of a flood event which destroyed the village and initiated relocation. That the village was relocated some distance upstream may have been influenced by the coloniser's actions.

Figure 4. Participants in a transect walk discuss the layout of Biausevu Number 1 village.

Regional Workshop

The format of the regional workshop is shown in the programme in Appendix 1. Essentially the purpose of the workshop was to share the results of the Biausevu participatory research and to obtain, from Pacific Island participants, information about relocations in their country and anticipated relocations that may occur as a result of climate variability and change. In order to facilitate capacity building, the workshop also included two work groups that evaluated hypothetical case studies of communities that may consider relocation (one in a high island and the other on an atoll). These exercises are outlined in Appendix 2.

The workshop was initially planned to be held in Suva where we hoped several USP staff would be able to participate. Unfortunately, political tensions and the possibility of a military coup d'état (which occurred two weeks after the workshop date), required us to move the venue to the University of Waikato where arrangements could be made with very late notice. As a result we lost some participants. In addition, political unrest in Tonga, left another participant stranded as he was not able to obtain a visa, the participant from Tuvalu was hospitalised the day prior to his planned departure, and the participant from Samoa withdrew on the day of her departure. As a result, the numbers were curtailed, although the workshop went very smoothly and the feedback from participants has been uniformly positive. One unexpected outcome was that the small numbers contributed to the establishment of a closely knit group that worked very effectively. A number of issues emerged at the workshop that added to our understanding of relocation.

3.0 Results & Discussion

The research results are outlined here in relation to the three sets of activities. This material is integrated in the general discussion at the end of this section.

Literature search

General literature on relocation. Our initial aim was to identify literature on communities that had relocated as a result of environmental change or variability. We soon found, however, that most literature on relocation was related to 'forced' relocation of communities to make way for 'development' projects such as the construction of dams, airports and mining activities. Such procedures are usually noted for their negative outcomes, community disruption and feelings of loss. As Kirsch (2001, p167) observed

> 'The sense of loss [associated with among other things relocation from traditional lands] is especially pronounced in the wake of environmental disasters that damage local land and resources, including oil spills, exposure to nuclear radiation, deforestation, and the toxic impacts of mining.

Kirsch's work has involved examination of communities relocated by mining and nuclear weapons testing. Such degradation renders traditional lands uninhabitable and may be seen as an analogue for some projected climate change effects.

The concept of moving people away from hazardous areas is not a new one and has been applied in a number of developed nations in the form of voluntary acquisition schemes in which homeowners in flood plains or earthquake prone areas were encouraged to sell their property to government agencies. The land is then converted to lower density land uses such as parkland. There are few such instances where communities have been moved as a whole. Perry and Lindell (1997) examine one such instance in Allenville, Arizona. They developed a set of five principles for achieving positive outcomes in relocation projects:

1. The community to be relocated should be organised.

2. All potential relocates should be involved in the relocation decision-making process.

3. Citizens must understand the multi-organisational context in which the relocation is to be conducted.

4. Special attention should be given to the social and personal needs of the relocates.

5. Social networks need to be preserved. (Perry and Lindell, 1997, pp. 53-56)

Relocation in Pacific Island Countries. Relocation of Pacific Island communities has a relatively long history. In many instances coastal settlement was limited in Pacific Islands where communities established fortified settlements on ridges and other high points on their lands. Missionary 'pacification' saw a number of communities

encouraged to establish villages at sea level to enable ease of contact by missionaries and colonial administrators.

A key publication is the book *Exiles and Migrants in Oceania*, edited by Michael Lieber and published 30 years ago, in 1977. The book reports on ten case studies of communities that 'relocated' in the colonial era (a point that will be returned to later in this study). The content of the book is summarised in Table 1. As the editor points out there were a range of movements ranging from what we have defined as relocation in this study through gradual development of 'satellites' on new islands through to community dispersal upon relocation.

Despite the variety of cases it does appear from the study that relocated communities often, but not always, face difficulties in their new setting. This is exacerbated where the relocatees are immersed among members of a different culture. Several of the cases, while being of inter-island relocation within countries, outlined the movement of people from what might be broadly called one cultural (or indeed minority) grouping into communities made up of people from different cultural backgrounds. Thus Polynesians from Kapingamarangi and Nukuoro were relocated in Micronesian Pohnpei and similarly Polynesians from Tikopia were transplanted to the Melanesian Russell islands in Solomon Islands. Similar situations faced the international relocatees: Micronesians in Melanesian Solomon Islands and Fiji.

The studies also indicated considerable divergence between communities at the origin and those which became established in new destinations. As a result, tensions have arisen between the old and new communities in some occasions (Carroll, 1977). In addition to the Lieber volume being set in the colonial context it also focuses on relatively long-distance relocations and only one of the case studies (Schwimmer, 1977) is of movement to nearby lands, and this was an evacuation rather than a relocation. Much of the limited literature on relocation tends to focus on these longer-distance movements as shorter relocations are less obvious, are perhaps less attractive as objects of study for migration specialists and often take place under relative obscurity.

Table 1. Summary of community relocations analysed in *Exiles and Migrants*

Author	Origin	Destination	Year of Move	Dist (km)	Reason for Move	Colonial Admin	Type of move [a]	Boundaries Crossed
McKnight	Southwest Islands, Palau	Babeldaub, Palau	1905	350 to 600	Tropical Cyclone	German	R	Inter-island
Lieber	Kapinga-marangi, Pohnpei State, FSM	Porakiet, Pohnpei Is., Pohnpei State, FSM	1919	780	Drought	Japan	R	Inter-island
Carroll	Nukuoro, Pohnpei State, FSM	Phonpei Is., Pohnpei State, FSM	1920s	480	Conflict	Japan	M	Inter-island
Kiste	Bikini, Republic of Marshall Islands (RMI)	Rongerik (RMI)	1946	230	Nuclear Testing	USA	R	Inter-island
	Rongerik	Kwajalein (RMI)	1948	290	Food Shortages		R	Inter-island
	Kwajalein	Kili (RMI)	1948	380			R	Inter-island
Silverman	Banaba	Rabi, Fiji	1945	2100	Phosphate Mining	UK	R	International
Howard and Howard	Rotuma, Fiji	Central Fiji	20th Century		Rural to urban migration	UK	M	Inter-island
Knudson	Southern Kiribati	Phoenix Islands, Kiribati	1938	1600	Population Pressure	UK	R	Inter-island
	Phoenix Islands	Ghizo, Solomon Islands	1955	3600	Drought	UK	R	International
Larson	Tikopia, Solomon Islands	Russell Islands, Solomon Islands	1956	1150	Land scarcity, tropical cyclone	UK	R	Inter-island
Tonkinson	Ambrym, Vanuatu	Epi, Vanuatu	1951	40	Volcanic eruption	UK & France	R	Inter-island
	Epi	Efate, Vanuatu	1952	110	Tropical Cyclone		R	Inter-island
Schwimmer	Mount Lamington	Temporary displacement	1951	10	Volcanic Eruption	Australia	E	Nearby

[a] This categorisation differentiates relocation (R), migration (M) and Evacuation (E) as used in the present study.

Source: Extracted from Lieber (1977)

In our search of relocated communities in the Pacific region we initially identified 86, of the more than 500 items entered into the bibliographic database, items that involved population movement that had been described as relocation. These 86 cases were categorised according to the reasons why relocation took place. These are summarised in Table 2.

Table 2. Reasons for Community Relocation in Pacific Island Countries: 86 case studies

Reasons for Relocation or other form of Population Movement	Number of examples
Environmental Variability (e.g. natural hazards and disasters)	37
Conflict (e.g. war and localised conflict)	9
Environmental degradation due to human actions (e.g. mining, nuclear testing)	13
Development Projects (e.g. airports, plantation development)	9
Cultural lifestyle	6
Urbanisation as a form of relocation	4
Conversion to Christianity	4
Miscellaneous	4

On closer examination, many of these were, by the definition adopted for this study, cases of evacuation in which the communities concerned returned to their home site or migration. Some of these were of interest to us. Because there is very little long-distance relocation, migrant communities from the Pacific may provide important information about the problems, benefits and other implications of this form of relocation. Eventually we reduced the number of relevant case studies to 28 and these are summarised in Table 3. A number of themes emerged from the various studies and these are discussed below. These relocations range in distance from over 1800 km to less than one and date from 1920 through to 2004.

The importance of land. Communities that are forced to relocate (either as a result of government edict or environmental degradation (e.g. Carteret Islands, Bikini Atoll)) often find themselves in a state of discontent wishing to return to their homeland. Given that climate change is an external "force" it is likely that such discontent would be an outcome for communities that are relocated as a result of climate change effects. The root of this discontent is the very strong relationship or bond that exists between most Pacific Island Communities and their land – in most cases they are inseparable. This is certainly the case in Fiji as Ravuvu (1988) notes in relation to villages located in central Viti Levu:

Table 3. Summary of relocation events identified in literature and documentary search

		Origin	Destination	Year of Move	Approx. Distance (km)	Reason for Move	Country or Colonial Context	Type of move[a]	Boundaries Crossed
Gorenflo	1995	Chuuk	Saipan	1920	1100	Labour	Japan, Miconesia	M	International (current borders)
Gorenflo	1995	Chuuk	Pohnpei	1920	750	Labour	Japan, Miconesia	M	International (current borders)
Nunn	2000	Naikorokoro, Natokalau, Nukutocia, Rukuruku and Toki on Ovalau I.	Inland	1930	1	Coastal Erosion	Fiji	R	Nearby, own land
McLean Campbell	1976 1977	Qaliqali	Naikeleyaga	1936 1936	3 3	Tropical Cyclone	Fiji	R	Nearby, other land Nearby, other land
Supreme Court of Western Samoa	1987	Satuimalufilufi vllage at Faleolo	Faleapuna	1942	5	Airport construction	NZ	R	Nearby, other land

Gorenflo	1995	Nauru	Chuuk	1943	1800	Labour	Japan, Micronesia	M	International (current borders)
Spennemnn	1996	Majuro	Laura, Majuro	1944	10	War	USA	E	Nearby
Gagahe	2000	(Capital at) Tulagi	Honiara	1945	20	Make use of WW2 infra-structure	UK, Solomon Islands	R	Inter-island
Koch	1978	Vaitupu, Tuvalu	Kioa, Fiji	1945	1200	Population pressure	UK/Western Pacific High Commission, Fiji	R	International (current borders)
Spenneman	1996	Rongelap	Ejit Islet, Majuro	1946	650	Nuclear testing	USA	R	Inter-island
Kirsch	2001	Ejit, Majuro	Rongelap	1957	650	Return	USA	R	
Kirsch		Rongelap	Kwajalein, Majuro	1985	280	Nuclear contamination	USA	R	
Cronon et al.	2004	Nabukelevuira, Kadavu	Higher ground	1960	1	Tsunami	Fiji	R	Nearby
Nunn and Omura	1999			1960					
Donner	2002	Sikaiana	Tenaru, Honiara	1970	360	Population Pressure	Solomon Islands	M	Inter-island

Feinberg	2002	Anuta	Honiara	1970	1150	Employment	Solomon Islands	M	Inter-island
Hilson	2002	Wopkaimin communities, Ok Tedi		1970	ns	Mining	PNG	R	Nearby
Cagilaba	2005	Solodamu, Kadavu	Inland	1970	2	Tropical Cyclone	Fiji	R	Nearby, partially other land
Campbell	1985	Var, Mota Lava	Inland	1972	1	Tropical Cyclone	Vanuatu	R	Nearby, partially other land
O'Collins	1988	Carteret (Tulun) and Mortlock (Taku'u)	Kuveria, Bougainville & elsewhere in PNG	1984	200	Coastal Erosion	PNG	R	Inter-island
Connell	1990								
Seneviratne	2001								
Field	2003								
Fauolo	1993	Vaisala, Savaii	Inland	1992	1	Tropical Cyclone	Samoa	R	Nearby, own land
World Bank	1999	Raboul	Variety of locations	1994	70	Volcanic Eruption	PNG	R, E	Nearby and distant
Blong	1994								
Waninara	2000								
Neumann	1997								
Waninara	2000								
Helvarg	2000	Muani, Kadavu	Five houses moved inland	1997	<1	Tropical Cyclone	Fiji	R	Nearby, own land

Hayashi	2000	Sissano	Rowoi, Ramo, Pou	1998	4-10	Tsunami	PNG	R,E	Nearby, other land
McSaveney et al.	2000			1998					
Davies	2002			1998					
IFRC	1998	Mariant Area, Enga		1998	ns	Drought, Frost, Forest Fire, Tribal Fighting	PNG	R	ns
Jacka	2001	Paiam Clan, Porgera	Downstream	1998	2	Mining	PNG	R	Nearby, own land
OCHA	1999	Bay Martelli, St Henrie, Pentecost	Inland	1999	6	Earthquake, Tsunami	Vanuatu	R	Nearby
AFP	1999				6				
Marks	2000	Duke of York Islands	New Britain	2000	ns	Coastal Erosion	PNG	R	Inter-island
Tavita	2003	Lano	Inland	2003	1	Flooding & Coastal Erosion	Samoa	R	Nearby, own land
Tamate	2006	Alofi (move planned)	Inland from coast	2004	5	Tropical Cyclone	Niue	R	Nearby
OCHA	2004		Inland				Niue	R	Nearby

[a] This categorisation differentiates relocation (R), migration (M) and Evacuation (E) as used in the present study.

> The people of Nakorosule wherever they are and in whatever work they are involved are often reminded by their elders not to forget the *Vanua*, meaning the land and the social system and the *dela ni yavu*, one's house site back in the village. … The *Vanua* in terms of the *dela ni yavu* is the physical embodiment of one's identity and belonging. (p. 6)

> The people of Nakorosule cannot live without their physical embodiment in terms of their land, upon which survival of individuals and groups depends. It provides nourishment, shelter and protection, as well as a source of security and the material basis for identity and belonging. Land in this sense is thus an extension of the self; and conversely the people are an extension of the land. (p. 7)

Given this inseparable nature of the society-land relationship it is clear that for many Pacific Island communities either abandoning land (particularly ancestral home sites) or giving land to relocatees, is likely to be extremely problematic. As Ravuvu implies migrants are secure knowing that their *vanua* remains. Relocatees, however, may no longer have such security.

Ravuvu also refers to the importance of the house site and Cagilaba (2005, p76) makes a similar observation when discussing the village of Solodamu, Kadavu, Fiji.

> A traditional Fijian house or *bure* is always built on a *yavu*, which is the foundation of a house … The task of allocating where a certain *yavu* will be laid involves the chief throwing stones from his own house [usually located in the village centre]. Where those stones land is where each person will build their house and lay their *yavu*. These *yavu* remain in that family always for them and their offspring's use. Before the house is constructed and before the layingdown of the *yavu*, it is the tradition that a *magiti* or feast is prepared in honour of the foundation laying. These *yavu* become almost sacred over time, having become imbued with Fijian metaphysical qualities and there are usually repercussions for those who choose to build on a *yavu* that is not of their family. Over time these *yavu* come to hold *mana*.

As these descriptions of *vanua* and *yavu* indicate, there are extremely strong relationships between people and their place. The act of relocation may be seen as a measure that can create a fissure in this set of relations. This may be particularly so for those who leave their *vanua* and *yavu*, but also may apply to those who may give up some of their *vanua* for relocatees. This disruption of the land-person bond is not so significant for migrants who may always have the option of returning, but where land is physically lost or made uninhabitable the disruption is much greater. O'Collins (1990, p. 259) describes the poignant situation of people relocated from the Carteret islands. These atoll communities are faced with a growing population and subsidence of their land and are being resettled on the high island of Bougainville some 200 km. to the south.

> The problems of adapting to a new environment for which most members of the family had little or no preparation meant that the timetable for building a new Carteret Village, establishing food gardens and moving from the transit houses had to be considerably extended. Many women sat for long periods of time thinking about their island homes. On Sundays they would often risk the 20 minute walk through terrifying tall trees and bush to reach the seashore and gaze for hors out to sea towards the atolls.

The role of colonialism. As noted, Lieber's collection was of relocation that took place in the colonial era under a number of regimes. In his contribution, Silverman (1977) notes that there were a number of reasons why this is significant. Colonial administrations could make decisions about land and community locations much easier than is currently possible where land is enshrined in laws established in independent nations. Second, colonial administrations could easily move people across what are now international boundaries, as long as the territories were colonised by the same metropolitan power. Silverman (1977) also observes that colonisers included trading concerns and missionaries as well as administrators and these groups also benefited from the movement of people (e.g. too obtain access their land or to bring labourers to their plantations or other business activities).

Tonkinson (1977: 275) also points out another element of colonial relocation activities. Often they encouraged or enforced relocation based on their colonial perceptions of particular sets of circumstances:

> The 1951 relocation [of Ambrymese after the volcanic eruptions] differed from previous ones in several important ways. First, the prolonged ash-falls that precipitated the decision to evacuate the area were viewed as a crisis by the condominium government, not by the Ambrymese, who were accustomed to such phenomena and regarded them as inconveniences. Second, the decision to relocate was made by the administration, not the Ambrymese. Third, the places selected for refuge were chosen because of their convenience for the administration, not the preferences and needs of the Ambrymese. The Ambrymese were reluctant to leave their homes, especially if this meant relocating on the allegedly sorcery-ridden island of Epi. The misgivings of the Ambrymese were confirmed when a hurricane struck Epi six weeks after the resettlement, killing forty-eight people and levelling the shelters of the refugees.

While the majority of Pacific Island people are no longer administered by colonial governments, it is important that Tonkinson's observations are observed by contemporary civil servants and others involved in climate change adaptation work. Local environmental knowledge must be taken into account along with local understanding of such events as extreme events.

Equally important are the implications for long-distance, international relocation. It is highly unlikely that it would be possible to transplant a community from one cultural and environmental setting to another in the contemporary Pacific. Where suitable land might become available (as in a freehold coconut plantation being sold) the original

inhabitants would most likely have priority in most countries in the region, if indeed the land was to be returned to customary ownership. Relocation outside the region would most likely be to countries such as Australia, New Zealand and the United States where land is held in fee simple and where the current political economy is capitalist and lifestyles are individualistic. In this sense any form of population movement would be more likely to occur as migration with the community characteristics of the origin being considerably transformed.

Relocation to urban places. In some of the literature examined we found accounts of communities established in urban areas having been relocated from rural places. Some of the atoll countries where there is no higher ground to relocate to, it is possible that international relocation to urban areas on the Pacific rim would be necessary. Under such circumstances maintaining community would be extremely difficult.

Modell (2002) edited a special issue of *Pacific Studies* on Pacific Island migrant communities in urban settings. She captures some of the issues confronting migrants from rural areas into such settings:

> In the following essays, community creation goes on in settings of complexity, heterogeneity, and diversity characteristic of the "city." These are settings in which class replaces kinship and distance replaces closeness as the basis for interaction, where clues to personal behaviours are puzzling and anonymity the mode of self preservation.

In the case of international migration or relocation of 'minority' communities within Pacific Island countries these problems are likely to be of significance. If we take for example, communities from an atoll country migrating to a New Zealand, Australian, or even other Pacific Island city, such concerns are likely to confront the relocatees.

Field research findings

The Biausevu River meanders along a relatively short (approximately 1 km) but fertile flood plain. Its environs are home to the community of Biausevu, the seat of the Tui Vusu, or high chief of the Vusu *yavusa*. Fijian society is organised in terms of *i-tokatoka* (broadly defined as extended family) which together make up a *mataqali* or (lineage or sub clan). A larger unit is the *yavusa* (clan) which may be made up of several *mataqali*. The structure of Biausevu is shown in Figure 5. The *vanua* of the *yavusa* Vusu extends some distance inland and down to the coast and incorporates the coastal villages of Komave and Namatakula in addition to Biausevu.
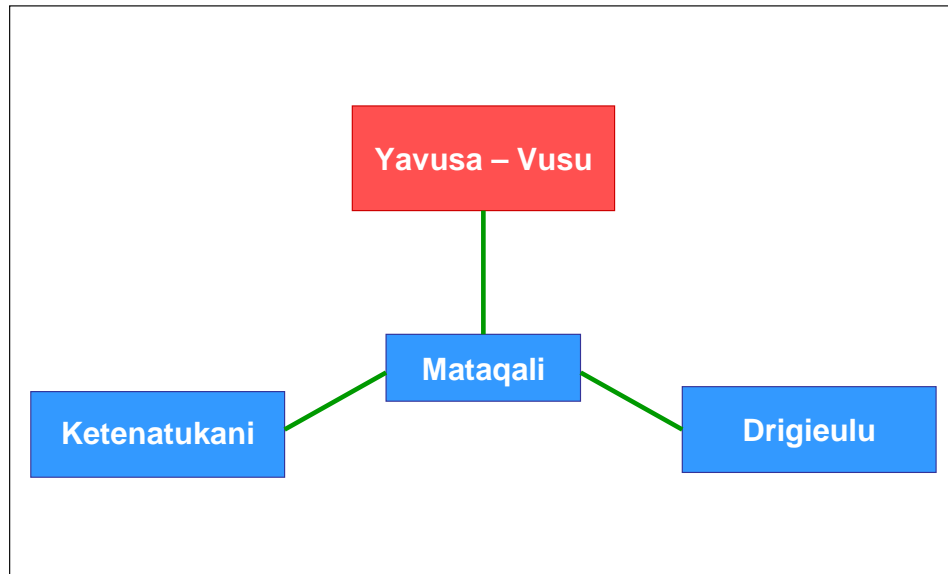
Figure 5. The structure of Biausevu village showing the two *mataqali* belong to the Vusu *yavusa*.

Today the community numbers around 150 people. The village economy is based on subsistence food production, along the fertile Biausevu River flood plain, supplemented by employment at local tourist hotels along the 'Coral Coast', the nearest being the Warwick Hotel. The village also earns income by guiding tourists to a spectacular waterfall upstream from the village. The village does not have a school – children attend a school near the coast. The current village site, however, is relatively recent. The Biausevu people and their forebears had relocated their village no less than four times (see Figure 6). These relocations are described below.

Relocation No. 1. From Tilivaira to Teagane

Originally the Biausevu people lived at Tilivaira, a fortified settlement on a high ridge inland from the present site. The move to lower land, closer to the coast, followed the 'pacification' of the local area when missionaries encouraged communities to move from their inland, high elevation, fortified, settlements. While the elders stated they held little knowledge about this relocation the date of 1875 was given, after some discussion, for the move. This move was to land that belonged to the original inhabitants of Tilivaira. However, there was conflict with a local coloniser who tried to block their path to the coastline. The settlement at Teagane was relatively short-lived and came to an end in 1881 when it was flooded.

During our walk through the site of Teagane several *yavu* were pointed out to us. These were mostly overgrown and there were no other indications that a village had been located there.
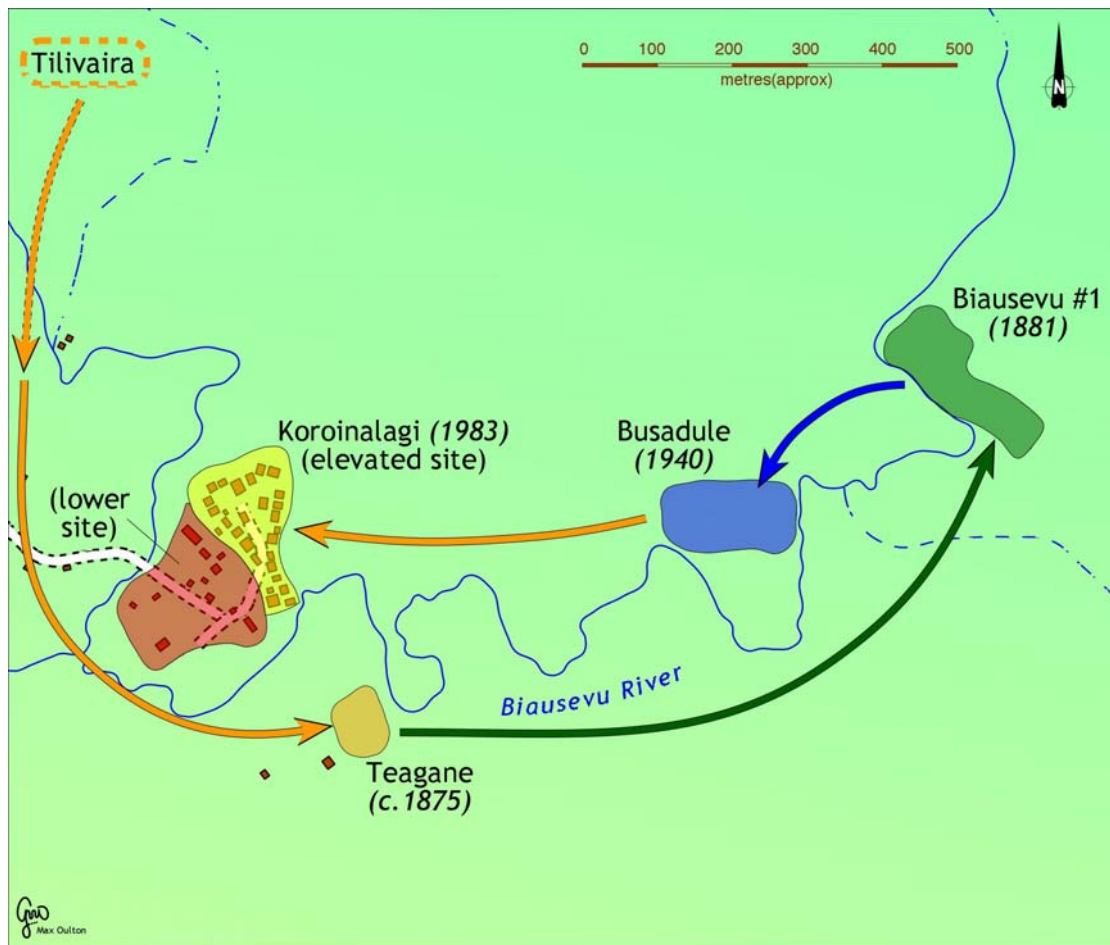
Figure 6. Map showing the four village sites occupied over the past 130 years in the Biausevu area. Note the original movement was from Tilivaira, the actual location of which is beyond the borders of this map.

Relocation No. 2 From Teagane to Biausevu Number 1.

There was some confusion regarding the move from Teagane (the most downstream village site) to Biausevu No. 1 (the site furthest upstream). During the first focus group it was stated that people had moved from Biausevu because of the violent behaviour of the local colonist who threatened them with guns and whips. However, after the transect walk to the Teagane site, the participants agreed that in fact the village had been flooded and accordingly the people moved further upstream (perhaps to be as far away from the settler as possible).

The date of this relocation was given as 1881. According to the historical records there were three tropical cyclones in Fiji in 1881. The first, on 2 February affected Vanua Levu, eastern Viti Levu and Ovalau and was a relatively minor event (Holmes, 1887; Visher, 1925). The second, in March was recorded in the west of Viti Levu but no details are available (Visher, 1925) and the third was noted in Bua and described as minor but accompanied by heavy rains (Holmes, 1987). Tropical cyclone reporting at this time in Fiji was very patchy and it is possible other events went unrecorded or affected larger areas than just those where they were observed. Nevertheless, it is possible that the second of these events was the most likely one, if the date of 1881 is indeed accurate.

The village site at Biausevu Number 1 still has clearly visible *yavu* (house mounds) (see Figure 7) and several graves are still in good repair. We were also shown a mass grave where a number of villagers were buried, perhaps as a result of the 1918 influenza epidemic. The community remained at this site for almost sixty years until they were again subjected to flood devastation.

Figure 7. A yavu (house mound) at Biausevu Number 1.

Relocation No. 3: From Biausevu Number 1 to Busadule

In the group discussions older members of the community estimated that the move from Biausevu Number 1 to Busadule took place in 1940. This would be consistent with records of a tropical cyclone affecting western Viti Levu on 28th December, 1939 (Kerr, 1976). According to Kerr this event was described as minor..

> The first tropical cyclone of the period … developed in the vicinity of the Santa Cruz Islands on or before 25 December, and moved southeast to pass over the western portion of Viti Levu in the early hours of 28 December. Only minor damage was reported. At Suva, on the fringe of the storm, the lowest pressure was 992 mb at about 0400 hours, and the maximum gust speed recorded shortly before 0400 hours was barely 60 kt. (Kerr, 1976, p. 74)

This does not discount the possibility of very heavy localised flooding. While tropical cyclones are typically described in terms of their minimum air pressure and wind speed their destructiveness may result from other factors such as rainfall and flooding or storm surge. Cyclone Bebe was one of the most destructive in Fiji's history causing

severe damage to a large part of Viti Levu and a number of outer islands. Busadule was affected by both wind and river flooding and all houses were destroyed. The village was rebuilt in the same location. As with the other former village sites, there are a number of *yavu* still clearly visible, together with several graves and the remains of two houses. After cyclone Bebe a levee was constructed between the river and the north western part of the village (see Figures 2 and 3).

As with the site at Biausevu Number 1 there are a number of graves located at Busadule. These are of great importance to the Biausevu people and every year they devote a day to tidying the graves of their forebears at the various village sites (see Figure 8).

Figure 8. Relocation causes communities to be separated from sacred sites. These graves at Busadule, along with all others in the earlier village sites are visited annually and tidied up.

Relocation No. 4: From Busadule to Koroinalagi

While Busadule was rebuilt after Cyclone Bebe, plans were put in place to seek a less hazardous site led by the Tui Vusu, Ratu Filise Matabogi. He identified a small hill, named Koroinalagi, as a suitable site. However, it was not considered suitable to have the village located on a slope. He engaged a logging company which was extracting timber further inland from Biausevu to use a bulldozer to flatten the top of the hill and place the removed material on its flanks, thereby widening the surface area. There was no engineering or other survey undertaken prior to this work. The flat surface lies about 20-30 metres above the flood plain. An aerial photograph taken in 1978 confirms that indeed the area had been levelled prior to cyclone Oscar (see Figure 9).

1983 Cyclone Oscar caused very heavy flooding. This time all but one family from Busalevu moved to the new site. Eventually they too joined the others after several years, although their house still stands, in some disrepair in Busadule. The community stayed in tents supplied as part of the disaster assistance and the houses were gradually rebuilt with assistance of other nearby villagers who were part of the *yavusa* Vusu.

The village today has filled up the area that was cleared following cyclone Bebe and prior to cyclone Oscar. New houses are being constructed on lower land between Koroinalagi and the river. It is likely that these will be exposed to future flooding. A concrete driveway has been built enabling vehicles to make the climb up to the village. There have been some minor slips on the flanks of Koroinalagi with the loss of material that had been deposited on the levelling of the village site.
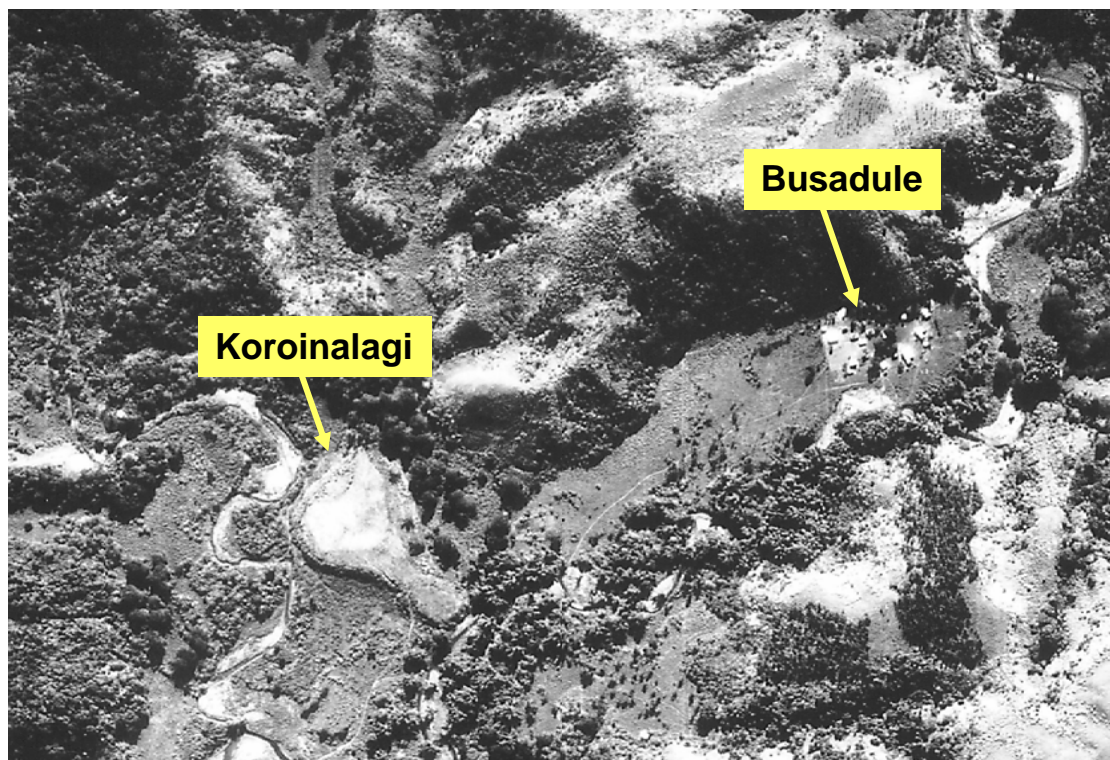

Figure 9. Detail taken from a 1978 aerial photograph. It shows the cleared hill, Koroinalagi, and Busadule village.

It took over a hundred years from the initial settlement of Teagane to the final move to Koroinalagi. From this perspective several of the relocations were unsuccessful with the community moving from one flood prone area to another. One might ask why did they not simply move uphill rather than upstream in the first place? One possible explanation is that the community needed to have access to fresh water and also needed a flat site upon which to rebuild. Cheaper PVC piping, which enabled the community to bring in water from a head some distance away, and heavy earthmoving equipment, did not become available until the latter part of the 20th Century.

Each move was precipitated by an extreme climatic event. Even the final move, to Koroinalagi followed a tropical cyclone, although planning had already proceeded for

relocation as the hill had already been levelled. While the decision to relocate may be seen as reactive, the site had been chosen and prepared proactively.

Lessons learned from Biausevu

1. While it would appear that the current site is safe from flooding (the stability of its slopes notwithstanding) it took over a century (and three 'failed' relocations) before this was achieved. There were reasons for this. The technology for removing part of the hill at Koroinalagi was not really available until the post-war period and the means of piping water from a suitable head had become considerably cheaper as well. Nevertheless, it could be claimed that three choices of relocation sites were inappropriate, although choices were limited.

2. Leadership played a vital role in bringing about the community relocation. This included envisaging the scheme and achieving 'buy in'. A key role was played by the late Ratu Filise Matabogi, a *buli* in the Fijian administration who developed the scheme and pushed it through.[2]

3. Community cooperation was also important. Biausevu is the chiefly seat for the Vusu *yavusa* and assistance was given by people from other villages with Vusu people: Komave and Namatakula.

4. Relocation can be very expensive, especially if significant earthworks and infrastructure development is needed. The costs include site preparation, house building (cost of materials and in some cases of hiring carpenters), provision of transport access, and other infrastructure including establishment of a reliable water supply.

5. Water supply is very important as relocation is often away from lower land (where fresh water is found) to higher elevations that are safer from the threat of either flooding or storm surge. This raises the issue of how can water be delivered to the relocation site.

6. Relocation is a relatively long term process and may take several years. In the event that the original site has been badly damaged or destroyed by an extreme event, there is likely to be a need for temporary accommodation at or near the relocation site.

Workshop Outcomes

Professor Richard Bedford of the Migration Research Group, University of Waikato, provided the opening presentation at the workshop. He had completed his Master's fieldwork on the relocation of the Vaitupu (Kiribati, then part of Gilbert and Ellice Islands Colony) community on Kioa Island in northern Fiji and conducted research in

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[2] Nayacakalou (1975) describes the system of Fijian administration set up originally by the colonial government in Fiji: 'A system of Indirect Rule was instituted by which Fiji was divided into twelve Provinces, each was in charge of a native official styled *Roko*; these were subdivided into divisions or districts, each in charge of a native official styles *Buli*. … These divisions and subdivisions followed fairly closely the boundaries of the traditional political units and the officers appointed in charge of them were usually high chiefs in the areas under their jurisdiction.'

central Vanuatu (where there were also communities relocated from volcanic activity) in the 1960s. He reflected on these relocations and others from the then Gilbert Islands to the Solomon Islands. His central observation was that these relocations were enabled by the existence of the British colonial system. Decisions could be made about land transfers with relatively little consultation and international boundaries were of little consequence. The Solomon Islands and the Gilbert and Ellice Islands fell under the control of the Western Pacific High Commission and moving people from one part to the other was relatively easy.

The second speaker was John Campbell who discussed traditional forms of adaptation (or resilience) in the face of climate change and variability. An important point is that Pacific Island communities traditionally had a range of measures that helped offset the negative effects of climatic variability. These included a) the maintenance of food security through surplus production, controls on consumption, crop diversity, famine foods, food storage and food preservation, b) inter- and intra-community cooperation, c) settlement patterns and housing design and d) the use of traditional environmental knowledge systems. Many of these measures have been lost as capitalism, a new religion and colonial administrative systems have been imposed. Ironically, disaster relief operations have contributed to this decline. On the other hand Pacific Island communities have retained some traditions that still offset disasters and have adopted new measures to similar effect. While these measures helped communities to cope with climate variability, they may not be so effective in the face of long-term change.

Leone Limalevu gave a wide ranging and detailed account of adaptation activities currently being conducted in, or planned for, PICs. In addition he provided a detailed overview of participatory approaches to adaptation. It is clear that adaptation and the use of bottom-up participatory approaches is now much more strongly on the agenda in the Pacific Region. He also pointed out that there has been a proliferation of participatory adaptation projects in recent years but there has been little in the way of evaluation of them. Indeed, one of the concerns regarding adaptation is that there is pressure for practical applications despite there having been very little research on what is and is not appropriate in different settings.

Much of the international attention has focused on atoll communities. However, as Moyap Kilepak observed, Papua New Guinea has an extremely long coast line and a very large number of small islands as well as the very large and mountainous 'mainland'. Similarly, it has the most well developed river systems with significant flood plains and wetland areas. Communities in all of these locations may be faced with pressure to relocate should climate change scenarios be borne out.

In the case of the larger islands of 'continental' type as typically found in Melanesia two possible processes of population movement (though not necessarily permanent relocation) could cause significant pressures on areas located between the coastal plains and highlands. El Nino events have a devastating effect on contemporary Papua New Guinea Highland communities with a combination of drought and frosts decimating staple crops such as sweet potato. A traditional response was to move down slope to communities which highlanders had alliances with (Waddell, 1975). Contemporary responses have become increasingly dependent on aid. Nevertheless, temporary migration down slope has been identified following recent events as well (CARE 29/06/1998). While some of the larger islands in Melanesia have relatively low population densities, population distribution is not even, and these islands also have

among the highest natural increase rates. Moyap Kilepak observed in his presentation at the workshop that where coastal communities may in the future relocate inland there could in a sense be pressure on those communities caught in the middle (see Figure 10). There have been reports of tensions among hosts and relocatees in the area inland from the coast following the Aitape tsunami which caused several thousand survivors to seek refuge inland (Hayashi, 2000; McSaveney et al., 2000; Davies, 2002).
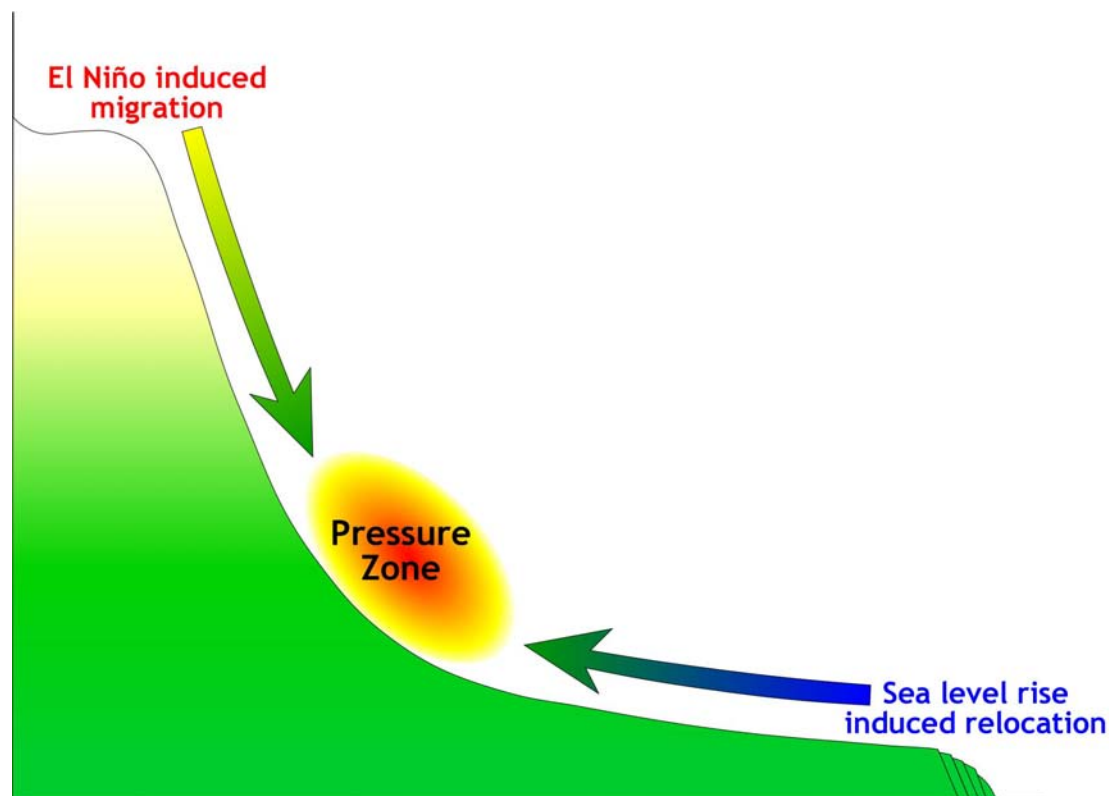

Figure 10. Population movement and relocation and the potential for pressure zones where migrants and relocatees converge.

Heather Lazrus discussed issues that affected both Tuvaluan people living on the atoll of Nanumea and a group of migrants living in Wellington, New Zealand. She was interested in how communities in these two settings coped with disasters and how traditional forms of disaster reduction may not help migrants in their new settings, often requiring considerable adjustment. She also noted that lifestyle change is considerable and gave the example of the atoll dwellers who consider the ocean to be their supermarket, an option not available to those who have moved to urban New Zealand.

Daiana Taoba outlined some of the issues confronted by women in Biausevu and often overlooked in discussions about community relocation. These included:

- At the initial stages access is often very difficult and often there are no roads and only rudimentary tracks. Often firewood, water, food supplies and children have to be carried up hill, another burden that often falls on women.

36

- In the early stages there is often a lack of infrastructure such as toilets, electricity and water supply which impact on women's activities.

- Similarly, in relocated communities the first activity is to provide shelter and necessities such as cooking facilities are left to later.

- Lack of roads makes transport to markets, often a task conducted by women, difficult.

- Even with a pipeline installed there have been failures and occasions when the water has been muddy. As a result women are required to carry water up to the village from the river.

In our literature review and reading we found little reference to the role of women in relocation decision making. This does not necessarily mean that they are excluded – it may equally reflect flaws in research designs.

John Campbell gave a presentation outlining what was meant by the terms climate variability and change and community relocation. He noted that there tends to be a focus on low islands (atolls) in discussion about relocation and the term environmental refugee is often used in this regard, particularly in the media. However, most of the populations on low islands also live in coastal locations and are likely to be confronted with environmental change that may require relocation. Many observers conclude that this is a relatively simple process of just moving inland and uphill. But land ownership regimes in the Pacific region are highly complex and such moves are often not possible.

Marii Marae observed that it has only been in recent years that people and the government of Kiribati have begun to consider relocation as a response to climate change and variability. However, she did point out that people from Kiribati (or formerly Gilbert Islands) had been involved in relocation schemes including to the Solomon Islands and Fiji and more recently within independent Kiribati to the Line Islands. Resettlement to Line Islands from the Gilbert group was to relieve population pressure, particularly on South Tarawa. She noted that there were a number of problems. The Line Islands are a long distance from the Gilbert group and transport and the provision of services has proven very expensive.

In the Solomon islands there has been considerable experience of relocation including as a destination for Gilbertise during the colonial era and of communities from outer islands to Guadal Canal. Hudson Kauhiona provided two case studies including the Gilbertese relocation and the movement of people from Repi Island to the nearby larger island of Kohinga. He pointed out that these case studies had both positive and negative outcomes. Nevertheless, he also indicated that relocation was not a matter of major importance in Solomon Islands for a number of reasons:

- High social, environmental and economic cost in the implementation of this adaptation option.

- The complexity and sensitivity of the land ownership issue.

- Lack of understanding and knowledge on the present country's conditions/effects and likely scenarios.

- Lack of reliable information on the vulnerability of some areas within the country that enables one to foresee the importance and need for this adaptation option to be undertaken.

- Lack of specific government policy on climate change related issues.

Josie Tamate provided a report on the response in Niue to Cyclone Heta which caused considerable damage in 2004. Homeowners who lost their dwellings are being encouraged to relocate inland with some financial support from the government. However the response has been slow because of the expense of rebuilding and those whose homes were only partly damaged are repairing their buildings in the vulnerable low-lying areas. Many government buildings were also destroyed and these have been, or will be, rebuilt on higher ground.

Rex Thomas Tandak reported on environmental variability in Vanuatu and observed that a new national disaster response programme has been developed. Vanuatu is exposed to a number of natural hazards and there have been a number of cases where communities have been relocated following tropical cyclones, volcanic eruptions, and earthquakes and tsunami.

Angeline Greensill gave a New Zealand perspective when she outlined adaptive measures taken by a Māori community in Waikato to avert coastal erosion. These measures, including the placement of *manuka* (Leptospermum) and macrocarpa fascines, have proved successful in capturing sand, and restabilising vulnerable areas which are then revegetated with local dune plants.

Penehuro Lefale who has been involved in the IPCC Fourth Assessment outlined some of the key aspects relating to Pacific Island Countries and adaptation. He pointed out that proactive adaptation would lead to improvements in the environmental conditions on islands and the well-being of their populations.

Vinau Rokocoko (formerly Cagilaba) outlined the results of her research on two island communities in Fiji that had been confronted with coastal erosion and serious inundation by storm surge during tropical cyclone events. One of the villages, Rukua, on Beqa, raised funds and built a seawall whereas the other, Solodamu, on Kadavu, had relocated on the slopes of a nearby hill. She noted that the relocated community suffered through lack of an adequate water supply and was experiencing tensions with a neighbouring land owning group, some members of which wanted land returned. On the other hand, one of her informants in Rukua observed that the seawall was like a 'life sentence' requiring constant maintenance and upkeep. Her work showed that both adaptive options had only been achieved with considerable cost and that a number of costs were ongoing.

John Campbell, Daiana Taoba and Mike Goldsmith reported on various aspects of the Biausevu participatory research. This material is covered elsewhere in this report.

In concluding, the workshop participants were unanimous in agreeing that relocation was a particularly complex issue. In particular, several participants referred to the importance of land in the Pacific and the huge social, emotional and cultural costs of leaving it and also of giving it to others. Many cases of relocation had resulted in tensions between the relocatees and local people in the destination area. In the case of

international relocation, the workshop concluded that years of negotiation and consultation would be needed to achieve outcomes that were acceptable both to the relocatees and the host countries. Cultural differences and the impact of urbanisation on communities of relocatees were likely to cause considerable stress.

The participants observed, as we closed the meeting, that this was the first one that they had attended on this issue and felt it was of such importance that further such meetings were required in the future to further our understanding of relocation as an adaptation option.

General Discussion

Integrating the three elements of the project has enabled us to identify a number of spatially distinct forms of relocation each of which has different sets of issues associated with them.

1. Local relocation within the land tenure boundaries of the relocating community.

- Biausevu is an example of this type of relocation.

2. Local relocation beyond the land tenure boundaries of the relocating community.

- Examples include the village of Avar (on Mota Lava, Banks Islands northern Vanuatu), Qaliqali (on Kabara where the new village was named Naikeleyaga) and Solodamu (Kadavu).

3. Relocation within national boundaries but at some distance from traditional lands.

- The Kapingamairangi community on Pohnpei, Tokopia to Russell Island in Solomon Islands and Sikaiana and Anuta communities in Honiara are examples.

4. Relocation beyond national boundaries.

We could find no examples of community relocation (cf. migration) taking place between Pacific Island Countries, or indeed between the Pacific Island region and beyond, in the post-contact era. There are a number of people from Tuvalu settled on Niue, an arrangement between the two countries to alleviate population growth and population decline respectively, although this appears more as a migration or individual families rather than community relocation.

Examples of international relocation that occurred during the colonial period include:

- The Micronesian community from Banaba (now part of Kiribati)on Rabi island in northern Fiji. The first group arrived on December 15, 1945 (Silverman, 1977)

- The Polynesian community from Vaitupu (now part of Tuvalu) on Kioa island in northern Fiji. Purchased in 1946 and settlement began 26 October, 1947 (Koch, 1978).

- The Gilbertese (I-Kiribati) community in Wagani and Gizo, Western Province, Solomon Islands, began in 1955 and continued through to 1971. It has been a source of tension, and 'while saying they were not hostile to the Gilbertese as such, Western leaders resented the fact that their province took all the burden of Gilbertese resettlement' (Knudson, 1977; Premdas et al., 1984, p45).

- There are, however, a number of sizeable Pacific Island diaspora found in New Zealand, Australia and the United States. These are not, however, relocated communities but communities of migrants.

Each of the four types of relocation has a range of associated problems. These problems are intensified where some type of border or boundary is crossed. This is illustrated by Figure 11 where within categories the difficulties are associated with distance from the origin. These difficulties are associated with distance. For example, even where a community may relocate within its own boundaries its members may have to travel further to get to their gardens and/or water supply, children may have further to walk to school, and where there is a change in elevation people may have to carry food, water and firewood up the slopes. However, the increasing difficulty with distance from origin is not linear. There are thresholds associated with land boundaries within local communities, moving from one island to another within national boundaries, and making an international relocation.

Relocating to proximate sites but beyond the traditional confines of a community's own land often results in long term friction between the origin and 'host' communities. Rokocoko outlined some of these in her workshop presentation. On the other hand the community retains access to its land and can carry on with its agricultural and other activities (although the costs of distance would need to be accounted for). Moving away from an island (or perhaps from one province to another) may result in a disconnection between the community and their land. Some communities may return to harvest copra, for example, but the regular use of land resources will decline. Lieber (1977) discusses the social, cultural and economic divergence that has occurred between the Kapingamarangi community on the atoll and that which has become established at Porakiet in Pohnpei.
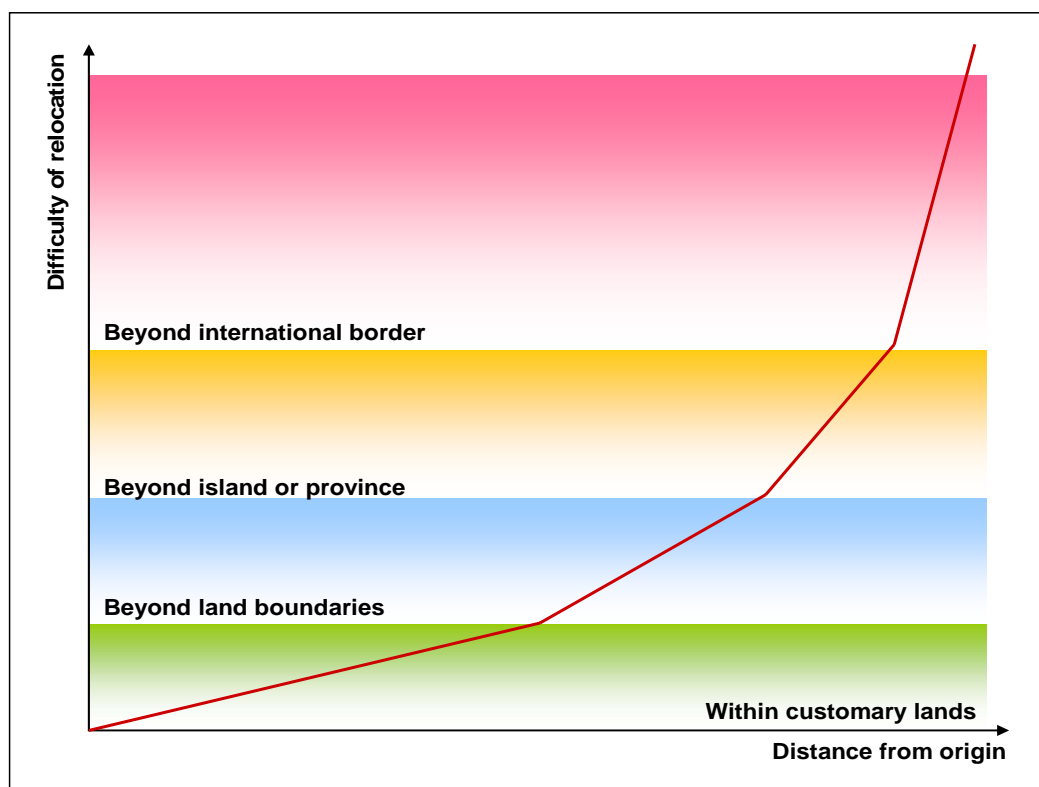
Figure 11. The difficulty of relocation. The social, cultural and economic costs of relocation increase with distance. They also increase when certain thresholds are exceeded such as crossing land tenure boundaries, island boundaries or national boundaries.

The most problematic form of relocation is likely to be that involving international travel. It is possible that should the atoll environments of Kiribati, Tuvalu and Tokelau become uninhabitable that such relocation may be rendered necessary. Given the difficulties of making customary land available the options which were available under colonial rule are likely to be more limited. There may be possibilities to buy freehold alienated land in other Pacific Island Countries (such as plantations – as was the case in Kioa and Rabi) but it is equally likely that descendants of the original land owners would be given preference in such instances. Relocation beyond the Pacific region to countries such as Australia and New Zealand are likely to pose other types of problems. While freehold land could be purchased there would be problems recreating community life in these places. It would be much more likely that relocatees would be placed in urban areas and establishing themselves in existing Pacific Island diaspora communities.

Key steps in relocation

Our findings are necessarily provisional. However, we have tentatively identified key steps that should be included in the relocation process. Communities that are suffering from repeated losses from climate variability or have been identified as at risk may well start considering their adaptive options including relocation. These steps may be a useful guide to this process.

a. The decision to relocate

Much of the literature discusses relocation as a top down process initiated by government or development agencies. Studies in developed and developing countries show that relocation is much more likely to be successful if communities have a sense of ownership of the process. This requires consultation. In the ideal situation relocation is least likely to be problematic if it is initiated by the community involved.

Often the decision to relocate is made following a disaster-causing extreme event. Where rebuilding and other recovery work is necessary it is timely to consider new locations for a community. However, as noted below, fewer problems are likely to arise if steps were already put in place prior to the disaster happening.

Local leadership is extremely important. We have found several examples where relocation has taken place, having been envisaged and carried through by people in traditional positions of leadership.

b. Identify destination

Careful consideration needs to be given to the conditions at the destination. In particular, care needs to be taken not to place the community at the same level of, or even greater, exposure to natural hazards. A strongly contrasting island environment can also bring about emotional problems and more practical concerns such as having to cultivate and consume different food crops. Most important is the issue of land ownership and how relocation can be negotiated successfully with the destination community.

- Environmental suitability.
- Land tenure/legal issues (of critical importance)
- While traditional forms of negotiation and transaction are extremely important if two communities need to decide on a suitable piece of land for relocation beyond the relocatees' land boundaries we found case studies of contemporary individuals taking legal action against relocated communities, not recognising the traditional steps their parents or grand parents might have taken.
- Socially and economically suitable
- Close to water, good agricultural land, transport, etc.
- Will the community remain together at new site (s)
- Identify what site preparation activities are likely to be necessary
- Will the topography have to be altered?
- Can water supply and roading be provided and will other facilities such as bridges be needed?
- Are building supplies available?

c. Identify economic costs

Relocation has many costs associated with it. These include the immediate costs of setting up infrastructure and building as well as long-term costs such as extra transport costs to markets and extra time walking to gardens.

- How many houses will need to be rebuilt
- Churches
- Meeting houses
- Stores / cooperatives
- Schools
- How will funds be raised
- Where will labour be found
- Is government assistance available?
- Cooperative / community activities
- What long-term additional costs are there likely to be?

d. Identify other (social, cultural, spiritual) costs

The costs of relocation are not solely economic. Relocation may involve cutting the bond with land, losing connections with neighbouring communities and kin, and having to adapt to new lifestyles and modes of living. These issues need to be given serious consideration.

e. Time and timing

Relocation is a momentous event for any community. It is important that adequate time is given to relocation decision-making. This may take years in some cases, particularly where there are sensitive land or immigration issues to be negotiated. As part of pro-active adaptation planning it would be useful to identify communities where relocation might need to be considered as an adaptation option and instigate discussion among community members rather than being forced to rush into a rapid and hurried relocation after houses have been destroyed by a climatic extreme event.

4.0 Conclusions

Main Objectives

1. To build on the findings of the APN workshop on ethnographic perspectives on resilience to climate variability.

The workshop on ethnographic perspectives dealt with a range of issues relating to adaptation but there was virtually no reference to relocation. Rather it focused, albeit implicitly, on how communities may indeed avoid relocation through resilience to climate variability and change. The current project was more specific focusing on one element of adaptation, and in addition to building on existing knowledge, also conducted participatory research in a community that had relocated in response to tropical cyclone related river flooding.

2. To identify, synthesise and integrate existing research on community relocation in PICs.

This has been achieved by the building of an endnote data base on relocation. This information is summarised in this report.

3. To undertake a pilot project on assessment of community resilience and the role of relocation as adaptive options.

This was conducted in the form of a participatory research project in Biausevu village.

4. To set the foundation for an applied research project in the PIC region investigating the social, economic, political and cultural implications of community resilience and relocation .

Our research has indicated that community relocation has received little research attention in Pacific Island Countries. This is specially the case where relocation has been over relatively short distances, the most likely type of response to climate variability and change in the majority of PIC communities that live on high islands. For the more 'popularly' cited cases of the atoll countries we have very little to fall back on in the current era. Nearly all international relocations were conducted in the colonial era under legal-political conditions that no longer operate. The workshop found that all forms of relocation require negotiation – among those who are to be relocated and where a boundary (land tenure or international) is crossed between the populations of the origin and destination. In many cases this may perforce be prolonged – the workshop participants all felt that discussion, negotiation, consultation and research is urgently needed to avoid relocation failure brought about by hasty and reactive (rather than proactive) adaptation planning.

5. To set the foundation for a training programme for PIC personnel in conducting human dimensions research and applying it to policy needs.

Two USP graduates were involved in the project, one as a 'student researcher' who assisted in a number of aspects of the research (e.g. identifying possible village sites, scoping, participatory research, data collection) and a second who participated in the village based research. In addition we had a training component to the workshop in which groups considered decision-making options for two hypothetical communities (one on a high island and one on an atoll (see Appendix 2)

6. To provide policy makers with an initial evaluation of community resilience and relocation as a climate change adaptation option for PICs.

All aspects of the project have contributed to our understanding of relocation as a social process in PICs. The findings of the research will be published and made available in a report to PIC governments and others interested in adaptation to climate change. In addition, several government personnel were engaged in the workshop.

5.0 Future Directions

Relocation has been the subject of relatively little research, especially in the post-colonial era. This is relevant as many of the early case studies took place in the context of large colonial domains (e.g. the UK which included Fiji, Gilbert and Ellice Islands, Solomon Islands, New Hebrides (in condominium with France); the United States with the Trust Territories of the Pacific Islands incorporating all of Micronesia with the exception of Kiribati; and New Zealand with Samoa, Niue, Cook Islands and Tokelau). These administrations were able, with little consultation, to move communities across considerable distances and what are now national boundaries. There remains a great deal to learn from communities that have relocated in the past 20 or 30 years.

It was clear from all three elements of the research project that land tenure is a critical factor in relocation. Where communities can relocate within their own territory friction and tension can be avoided much more easily. Any movement beyond a community's boundaries is likely to require a high level of consultation and negotiation with the "host" community. There is a need for further study of such situations where cross boundary relocation has taken place to identify problems and ways in which they might be offset.

This study focussed on rural communities. There are two issues associated with urban areas that need to be considered in relation to relocation. First, nearly all urban areas in PICs are in coastal locations. Should sea-level rise or flooding become a threat to these sites the issue of relocating, at least parts of, urban areas will need to be considered. This has numerous implications relating to such considerations as land availability, infrastructure and informal urban settlements (many of which are located in at risk sites such as wetlands).

The second factor concerning urban areas is that many relocated communities may have little option other than to move to urban areas given the importance attached to land tenure. In our study we came across several references t urban communities of migrants (not relocatees). The problems of such communities and their adaptive strategies (to urban living) may provide important lessons for communities that may find themselves forced to relocate to urban areas.

It is possible that a very large number of Pacific communities may have to relocate as a result of climate change. Such movements will be of a variety of distances and cross a range of boundaries and borders. All are likely to have considerable costs and some of these will be long-term. Research is needed to look at ways in which such costs can be reduced.

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