Fight or Flight?
Resilience and Vulnerability in Rural Fiji

by

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ABSTRACT

Increasing awareness of the likely effects of climatic change, particularly on small island states, has had several implications for these nations. The vulnerabilities of island communities are likely to increase if climatic change predictions eventuate. However, their vulnerability has not only risen out of the physical threat that is climate change. It has also arisen out of historical processes that have structured the lives of these communities and made them more or less vulnerable. Critical importance is given to the role of social processes in rendering these communities vulnerable and when the issue of climate change is added to the social element, the degree of vulnerability is likely to be even higher.

This thesis considers the experiences of two local communities in Fiji that adapted in two different ways to storm surge and coastal erosion. The village of Solodamu relocated almost its entire village while Rukua village constructed a seawall and undertook land reclamation works. The impacts that arose out of the two different measures that they embarked upon are studied here and their experiences are used as case studies.

The research found that the vulnerabilities of these communities changed over time and was more the result of social processes rather than climatic change and environmental variations. The process of development, while benefiting these communities in certain ways has also increased their vulnerability and reduced their ability to cope with natural hazards and market perturbations. The growing reality that is climate change is likely to add a further dimension of vulnerability to these island communities. However, not everything is as bleak as it seems. These communities have shown resilience in the face of upheaval and continue to adapt their circumstances to fit the situation that they find themselves in.

Dedicated to my parents
Taniela and Rusila
For the sacrifices you made in moving to Aotearoa
And for the courage to start anew
And provide us with a better future.
I will forever be grateful.

Me nomudrau na kalougata

Lou

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Au gadreva me'u vakaraitakina na noqu vakavinavinaka levu vua na Gone Turaga na Roko Ti Solo kei kemu yadudua sara na lewe ni koro vakaturaga au mai vasu ke, o (Buregadro) Solodamu ena Tikina o Tavuki ena yasana o Kadavu. Vei kemu taucoko sara na noqu Gadi kei na Nei, kemu noqu Tata kei na tavalequ ena nomu yalo ni veiciqomi, veikauwaitaki, veivukei kei na veiqaravi, ka mai vakarawarawatakina na noqu mai segata me'u jila eso na noqu ere ni vuli ena nomutu koro vinaka e Buregadro, me rawa ni mai volai tu vakamatata me baleta na i naki ni vakadidike au mai segata ka. Eso na vei ere ni noqu vakadidike ka ena mai vukea vakalevu sara eso na i tukutuku makawa sa mai yali jiko yani vakamalua. E na dua na ere ni vuli levu tu vei kira na nomuru yagone ka ra na muria mai na veimataqali vuli torocake va ke me rawa ni tukuni ka vakadewataki jiko vei kira na qai muri jiko mai. Sa noqu masu kei na noqu matavuvale me vakalougatataki kemu yadudua jiko na Kalou levu o Jiova, vei kemutou na turaga kei na marama e vica au mai cavu yaca jiko ke:

Tutu Alipate Veitarogivanua & Bubu Merelita Marama Kalouniwaqa
Momo Tomasi & Nei Emele Rokorouwa Kama
Momo Josevata & Nei Miliakere Gavutovuto Natuwawa
Momo Epeli Vurai
Momo Kameli & Nei Siteri Tinai Vuadreu
Tata Veni & Nanalevu Salanieta Kana Vunaki
Tata Isoa Tokomato
Nanalevu Merelita Vuevata (Radini Vanua)
Momo Mosese Tuvoli
Bubu Meliki Adituilakeba Belo
Nei Salote Dova Uluinaviti
Filomena Tubuna Turaganiqali
Mere Navono Lau
Akosita Marama
Suliasi Lau

Mereani Withrow

Au na mino ni tanuma rawa na veikauwaitaki kei na veivakalasai mai na vale ni vanua, vakauasivi vua na noqu Nana Levu na Radini Vanua o Merelita Vuevata. Me mu kalougata jiko!

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Tai Aisea Laione
Tai Rusi – Lutunabilo
Tatalevu Peni Sorowale
Koko Joseva Baisagale
Tatalailai Ilaitia Tagutu
Koko Sakaraia Labalaba
Nau Lavenia Vidovi
Bu Mereoni Qoroiwai
Naulevu Salata Tone
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May the Lord continue to shower his blessings upon each one of you!

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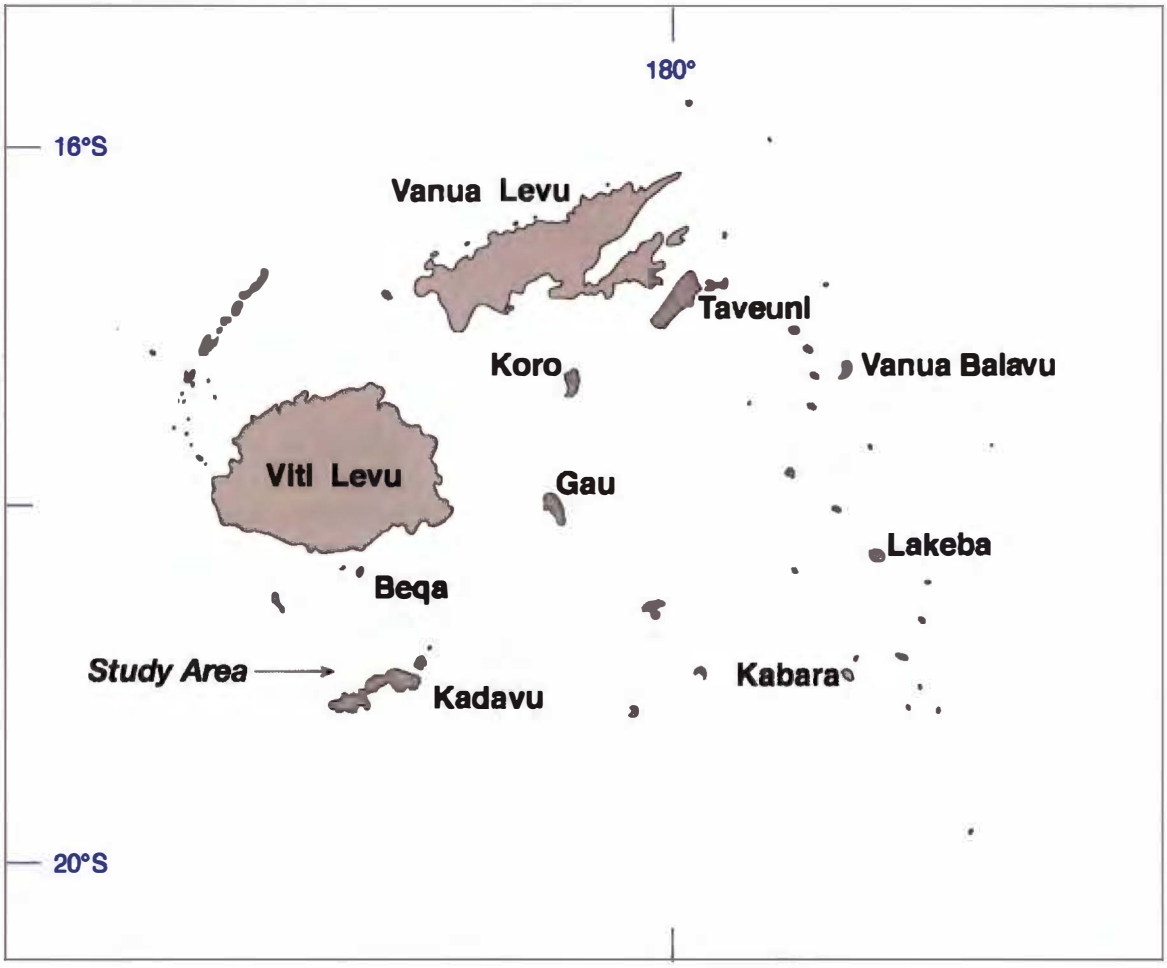

(Source: Oulton 2005)

FIJIAN PRONUNCIATION

B is pronounced MB, as in cucumber

E.g. Ba is pronounced as Mba

C is pronounced TH, as in thus

E.g. Cagilaba is pronounced as Thangilamba

D is pronounced ND, as in land

E.g. Kadavu is pronounced as Kandavu
Solodamu is pronounced as Solondamu

G is pronounced NG, as in wing

E.g. Kaivalagi is pronounced as Kaivalangi
Magiti is pronounced as Mangiti

Q is pronounced NGG, as in linger

E.g. Beqa is pronounced as Mbengga
Mataqali is pronounced as Matanggali

FIJIAN GLOSSARY

bilo a cup or a bowl

boka a traditional apology for not being present to carry out one's own responsibility of burying his or her own kin upon their death.

bure a thatched house

dela ni yavu house platforms

galala a person who is independent of the village and free of, or exempted from, communal obligations

i-tokatoka sub-lineage of a *mataqali*, an 'extended family'

i-yau treasures usually comprised of mats, *masi* or tapa, and *tabua* or whale's teeth

kaivalagi person of European descent

koro village

koro-i-drodro Village or place of refuge

koro makawa old village

koro-ni-vasu one's mother's village

koro vou new village

magiti feast

mana supernatural power

masi tapa, bark-cloth made from the bark of the mulberry tree

matanitu a political federation of *vanua*; in modern use, a kingdom, independent country, government

mataqali an agnatically related unit, usually a lineage of a *yavusa* descent group. It is exogamous, patrilineal and the main recognized land-owning unit

matavuvale the family living in a house; includes all blood-members, but not retainers, servants etc.

rara	the village green or square
sevusevu	ceremonial offering, usually of *yaqona*, between guest and host in respect and recognition of the other
soso	a village meeting
solevu	a large gathering of people for the ceremonial exchange of food and mats etc., with feasting on magiti. It is generally considered to be a feast
tabua	whale's tooth, used for ceremonial exchange
talanoa	tell a story
vale ni vanua	a village meeting house
vanua	the land, the people, custom; also an association of *yavusa*
vasu	a female's children
veicavuki	rotational gardening; a large number of young men will go from garden to garden weeding and cleaning until all the gardens have been weeded
veikauwaitaki	to be concerned and considerate of others
yaqona	kava, liquid from the pounded root of *Piper methysticum* strained through water
yavu	The foundation of a house, a flat mound of earth at least 35 centimetres high, and often considerably more edged round with stones built up
yavusa	agnatically related clan, comprised of a number of *mataqali* and sharing a common male ancestor

Chapter 1

Introduction

1.0 Thesis Aim, Objectives and Research Questions

The reality and intensity of the 2004 Asian tsunami illustrated numerous issues which are of significance to this thesis and which are explored at length here. It brought home to many the increasing risks associated with coastal settlements and particularly small and low-lying islands. It also highlighted the important issue of why the occurrence of natural hazards in certain areas escalated into natural disasters while in other places, the hazards were able to be contained and people were able to recover just as easily.

The purpose of this thesis is to explore the impacts that may arise when villages and communities are relocated because of coastal erosion and inundation and to compare and contrast these with the option of reclaiming land and building protective walls to prevent further encroachment of the sea upon land. The research proposes to deal specifically with the effects of sea level change and variability at a community or village level in the Fiji Islands. A community-based approach has been adopted within this study because too often top-down approaches to hazard responses have been the norm and these often ignore the realities and concerns of the communities involved. Community-based or bottom-up approaches typically have a lot more local input in them and do not employ the authoritative methods that top-down approaches customarily exercise.

Different communities have different ways of responding to the effects of sea level change and in this study I wish to look at the way two different communities have adapted to the effects of sea level rise and variability. The village of Solodamu in the Tavuki district, on the island of Kadavu, relocated almost its entire community onto higher ground after a storm surge swept through the village in 1959 (Campbell 1984; Kerr 1976). In addition to this the village has seen the seawalls that were built as an adaptation measure in the 1970s slowly being submerged by water and the shoreline receding inland at an increasing rate. The

seawalls were built principally because a number of families had chosen to remain in the old village and not relocate and a few others were thinking of the old village as an alternative place of residence in the case of overcrowding in the new village. The villagers of Rukua on Beqa Island took a totally different approach. Rocky cliffs rise steeply behind the village which prevented it from being extended inland so instead the villagers chose to extend seaward. The encroaching sea was slowly eroding away their foreshore so they undertook major land reclamation works in the mid to late 1970s to combat the problem. By the time the land reclamation project was completed, a narrow piece of land 30 to 50 metres wide and over 400 metres in length had been added to Rukua's shoreline (Rajotte & Bigay 1981).

The intent of this research is to investigate the negative and positive effects upon these two communities as a result of the measures that they took. It will also seek to further establish whether the relocation and reclamation measures were the result of national government policies or the initiative of the villagers themselves. On a broader scale, this research will study whether bottom-up approaches to environmental variability and change are a success, and whether the process of development as it has proceeded, has influenced the vulnerabilities of Pacific Island communities in general. The following research questions are those that I seek to answer within the framework of this study:

- How have Pacific Island communities coped with sea level change and variability?
- Do bottom-up approaches to environmental variability and change really matter and are they a success?
- Has colonialism and development affected the vulnerabilities of Pacific Island Communities?

1.1 Fijian Society

Fijian society is very complex in nature and involves various numbers of alliances in hierarchical order. Kinship is the basis of social stratification in Fiji and much of the traditional social structure is still intact despite the many inroads of colonisation and

modernisation (Rajotte & Bigay 1981). The *matavuvale*[1] or the nuclear family is the smallest kinship group which includes the parents and the children. More often than not the basic social unit is not limited to these but often includes all those individuals living in a household and this may involve the grandparents, the unmarried or married siblings of the parents and their individual spouses and children. The household then does not necessarily refer to a nuclear family but rather the extended family.

The *i-tokatoka*[2] refers to the extended family or the households of a group of brothers. Several *i-tokatoka* make up a *mataqali*[3] which is the main recognized land-owning unit in Fiji. All those within a *mataqali* are blood relatives and upon marriage females do not change to become members of their husband's *mataqali* but always remain a member of their own father's *mataqali*. There are some exceptions where land rights may be inherited matrilineally, especially in cases where there are illegitimate children. The term '*mataqali*' as was used in Bau[4] in pre-modern times described the kinship or household groups with which chiefs had dealings with at village level (Macnaught 1982). In later years the term and its Bauan meaning began to be applied everywhere in Fiji for legal purposes (Macnaught 1982). This small and internally related group may become attached to, and often subject to, another larger group called the '*yavusa*'[5].

Several *mataqali* form a *yavusa* and they may or may not be related to each other as in the case of Rukua village, where each *mataqali* has come from a different part of Fiji (Rajotte & Bigay 1981). In the past, during periods of warfare, various *yavusa* would join together to form a large military alliance known as a *vanua*[6] and on occasion, especially when warfare was on an even larger scale, several *vanua* would combine to form an even larger alliance called a

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[1] The family living in a house; includes all blood-members, but not retainers, servants etc. (Capell 1991).
[2] Sub-lineage of a *mataqali*, an 'extended family'.
[3] An agnatically related unit, usually a lineage of a *yavusa* descent group. It is exogamous, patrilineal and the main recognized land-owning unit.
[4] The island of Bau was home to the first king of Fiji, Ratu Seru Cakobau in pre-colonial times. Its position as the centre of one of the most powerful kingdoms of its time has continued up until the present with the Cakobau family of Bau regarded as high chiefs in their own right and Bau as a chiefly village. The Bauan dialect is the lingua franca in Fiji and during the colonial period, after Ratu Cakobau had ceded Fiji to Great Britain, almost all things Bauan came to be regarded as the norm for all other parts of Fiji.
[5] Agnatically related clan, comprised of a number of *mataqali* and sharing a common male ancestor.
[6] The land, the people, custom; also an association of *yavusa*.

matanitu[7] (Rajotte & Bigay 1981). Overton (1999:174) discusses the term '*matanitu*' and how in pre-colonial times, it referred to 'large but relatively loose confederations that arose when powerful chiefdoms expanded their influence through conquest and a network of alliances'. Today, however, the usage of the term refers to a government or a nation state and according to Overton (1999) this reflects the political transformation that took place in Fiji. Prior to colonisation in 1874, there was no single, political entity in Fiji that was in control of the whole country. Rather, there were various alliances each controlling their own territories and after 1874, these came under the authority of the *matanitu*, according to its contemporary meaning.

The term '*vanua*' has physical, social and cultural attributes, all of which are interconnected. *Vanua* literally means land with which the Fijian people identify themselves and on a broader spectrum also refers to the traditions, customs, beliefs and values of the people, together with other institutions established to achieve harmony, solidarity and prosperity (Ravuvu 1988). The *vanua* is closely associated with the *dela ni yavu*[8], one's house site or foundation back in the village, and this is often seen as the 'physical embodiment of one's identity and belonging' (Ravuvu 1988:6). Fijians are often encouraged and urged to maintain social ties with their *vanua* and carry out their obligations to the *vanua* because this is where they gain their identity from, where their roots are established, where they draw their source of mana and power, and this is where the actualities of the Fijian 'people's past and present, and the potentialities of their future' lie (Ravuvu 1988:6).

As mentioned earlier the mataqali is the recognised land-owning unit in Fiji. In an effort to delineate tribal boundaries and establish ownership of land in Western terms, the chiefs of the various *vanua* were persuaded by the late Ratu Sir Lala Sukuna[9] to have their lands surveyed and recorded, and to be protected for future generations, by an institution called the Native Lands Trust Board. The mataqali became the best method of establishing ownership and for every new development involving Fijian land, the male heads of the

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[7] A political federation of *vanua*; in modern use, a kingdom, independent country, government.
[8] House platforms.
[9] A high chief and the first Fijian to ever receive a university degree. His great achievements included travelling to every village in Fiji to persuade each one of them to yield their *mataqali* lands over to the Native Lands Trust Board to act as a trustee for native lands. This ensured that much of the native lands were not alienated in subsequent years.

mataqali are always consulted before the development proceeds. Prior to this legalisation of Fijian lands, there was a lot of flexibility in the ownership of land and people often gave freely to others the use of their land. Upon legalisation this flexibility has been somewhat lost due to the setting of these relationships in stone.

1.2 Outline of Chapters

This research seeks to bring to light the experiences of communities who have been affected by environmental variability particularly in a Fijian context and how they have responded to the changes. Given the momentum of climate change and sea level rise and the slow response under the Kyoto Protocol, it is extremely vital that the adaptation measures available to small island states are researched properly because they may come to be of use to future vulnerable generations. In the ensuing pages, an extensive description of the context to the research is provided and the major works by Watts and Bohle (1993) on vulnerability and the associated notion of resiliency are examined in detail. Chapter two deals with the issue of climate change and its human dimensions and discusses its implications particularly for small island states including Fiji. The third chapter discusses various development theories which have been crucial in explaining the vulnerabilities of the case studies. My research would not have been complete without a thorough dissemination of the various methods that I undertook to gather data and my own self-awareness throughout the entire process and this is explored at length in chapter four. In addition to this, the two villages that I carried out research in are looked at individually and a brief background to the two communities is provided together with a discussion of the impacts of their adaptation measures. In the final chapter before I conclude, I attempt to bring together the theories that I have used, with my findings and have tried to link them to each other.

Chapter 2

Humans and Environmental Change and Variation

2.0 Climate Change

The Intergovernmental Panel on Climate Change (IPCC) defines climate change as 'any change in climate over time, whether due to natural variability or as a result of human activity' (2001:984). This definition differs noticeably from that offered by the United Nations Framework Convention on Climate Change (UNFCCC) which describes climate change as 'a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods' (1992:7). The UNFCCC thus make a distinction between 'climate change' which occurs due to human activities and 'climate variability' which is a result of natural processes.

Humans have always interacted with and influenced their natural surroundings but it was not until the Industrial Revolution in the mid-18th Century that our impacts on the environment became more severe and widespread. The Earth's atmosphere consists of various naturally occurring greenhouse gases including water vapour (H_2O), carbon dioxide (CO_2), nitrous oxide (N_2O), methane (CH_4) and ozone (O_3) (IPCC 2001:988). Human activities however have greatly altered this delicate composition of atmospheric gases by adding to the volumes of these already present gases as well as producing new greenhouse gases such as chlorofluorocarbons (CFCs) and other chlorine and bomine compounds (IPCC 2001a:92). These human activities include 'the combustion of fossil fuels for industrial and domestic usage, and biomass burning' as well as 'urbanisation and human forestry and agricultural practices' (IPCC 2001a:92). In their natural state, greenhouse gases 'effectively absorb infrared radiation emitted by the Earth's surface' and release atmospheric radiation back to the Earth's surface (IPCC 2001:988). Increasing the concentration of greenhouses gases in the atmosphere has had the result of increasing the infrared opacity as well as the

temperature of the surface-troposphere (the atmosphere closest to the earth's surface) and that is what is commonly referred to as the 'enhanced greenhouse effect' (IPCC 2001:988).

It is projected that this increase in atmospheric temperatures may lead to an increase in relative sea-level as a result of the consequent thermal expansion of the oceans as well as the retreat of glaciers and ice caps. This projected sea level rise is particularly pertinent given the number of island states and human settlements that are located along the coasts of various countries. Already there is the recognition that something needs to be done about these issues and those concerned have come up with, in principle, two main ways of dealing with the effects of climate change. The responses to the perceived impacts of climate change include mitigation and adaptation methods.

Before I proceed any further, I wish to distinguish between climate predictions, climate projections and climate scenarios. A climate prediction or forecast 'is the result of an attempt to produce a most likely description or estimate of the actual evolution of the climate in the future' at various temporal scales and should not be confused with climate projections (IPCC 2001:985). A climate projection is of 'the response of the climate system to emission or concentration scenarios of greenhouse gases and aerosols, or radiative forcing scenarios, often based upon simulations by climate models' (IPCC 2001:985). Climate projections are based upon assumptions concerning future socioeconomic and technological developments and have substantial uncertainties surrounding them because the assumptions may or may not always be fulfilled (IPCC 2001). Climate scenarios are a 'simplified representation of the future climate, based on an internally consistent set of climatological relationships, that has been constructed for explicit use in investigating the potential consequences of anthropogenic climate change, often serving as input to impact models' (IPCC 2001:985). Climate projections are often used as the raw input for constructing climate scenarios and in addition to that climate scenarios require supplementary data about the observed current climate (IPCC 2001). A 'climate change' scenario is the difference between a climate scenario and the current climate (IPCC 2001).

2.0.1 Human Dimensions of Climate Change

The International Human Dimensions Programme on Global Environmental Change (IHDP) defines Global Environmental Change (GEC) as 'the set of biophysical transformations of land, oceans and atmosphere, driven by an interwoven system of human activities and natural processes' (www.ihdp.uni-bonn.de). The human dimensions of GEC encompass 'the causes and consequences of people's individual and collective actions, including changes that lead to modifications of the earth's physical and biological systems' and those changes are most likely to affect the quality of human life and sustainable development as currently practiced (www.ihdp.uni-bonn.de). Therefore the human dimensions of GEC or climate change seeks to address how humans contribute to GEC, are influenced by GEC and how they respond to such changes that take place at a number of different levels. In most cases the responses to GEC typically take the form of either mitigation which is a proactive measure and/or adaptation which is a reactive response as shown in Figure 1 below.

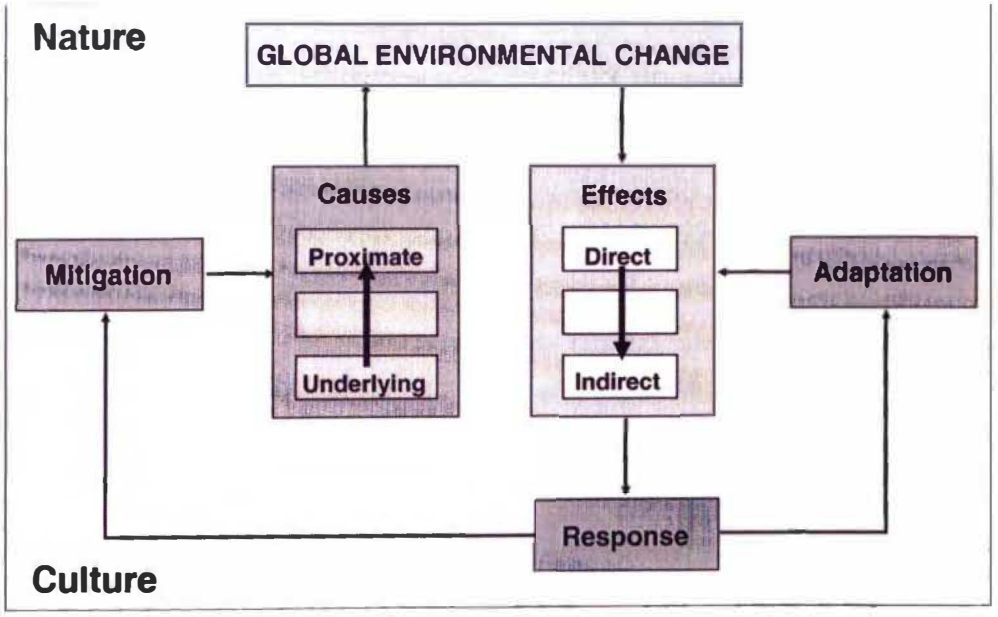

Figure 1 An approach to the human dimensions of climate change (Source: Campbell 1997:260)

Mitigation refers to measures 'which seek to reduce the rate of global warming by modifying those activities which cause climate change' (Campbell 1997:259). Campbell gives as an example the carbon dioxide emissions from automobile exhausts which contribute greatly to the increasing atmospheric concentration of greenhouse gases. This example reflects the increase in car ownership and usage and in turn reflects increasing population growth, affluence of a certain proportion of the population, urbanisation and urban sprawl as well as changing material values around the world (Campbell 1997). Consequently the reduction of emissions from vehicles could be achieved by a number of actions aimed at these different causative levels. Campbell (1997:259) argues that in most cases the mitigation measures at the level of the most proximate causes have a tendency to be of a more specific and technical nature. For example, using filters on car exhaust systems or using alternative fuels. Mitigation measures intended for dealing with the underlying causes are, according to Campbell more problematic to accomplish because often they require a reconsideration of the values and philosophies that underpin societal thinking and actions.

In contrast, adaptation refers 'to those activities that enable individuals, communities and/or institutions to cope with the effects of climate change' (Campbell 1996:350). Instead of limiting climate change itself, adaptation seeks to reduce the vulnerability which arises from the impacts of a changing climate (SPREP 2000:61). The term 'adaptation' is seen as an ongoing process which often involves individuals and groups modifying their activities to take environmental conditions into account (Campbell 1996:350). The IPCC (2001) identifies three main strategies for adaptation to sea-level rise by small island states: retreat, accommodate and protect. The retreat or flight strategy involves abandoning land and structures in vulnerable areas and relocating elsewhere and oftentimes this option involves people modifying their particular social and economic activities to reduce the impacts of climate change (IPCC 1990; NZCCP 1990). Accommodation entails the continued occupancy and use of vulnerable areas and on the whole doing nothing till the impacts occur or until there is greater certainty regarding the outcomes of climate change (IPCC 1990; NZCCP 1990). The final adaptation type is protection and defence of vulnerable areas such as urban areas, human settlements, economic activities and natural resources (IPCC 1990). This option involves substantially modifying the environment and constructing physical structures such as sea walls and stop banks to try to protect human settlements and their

activities and may be equivalent to that of a 'fight' strategy where people are consciously and unconsciously altering their physical environment instead of fleeing from it.

As shown in Figure 1, adaptation to climate change can take place at various levels, dealing with direct effects which are mostly biophysical to the indirect effects at the social or economic level (Campbell 1997:259). The figure also illustrates that where the effects of climate change are significant, there is likely to be some form of human response which includes either mitigation and/or adaptation. The causes and effects of climate change are depicted 'as having multiple and hierarchical elements' and the human dimensions may be located 'at the top of these hierarchies' (Campbell 1997:260). These then are the human dimensions of climate change and policy interventions are only likely to be successful if these human dimensions are addressed appropriately.

2.0.2 Adaptation in Coastal Settings

As more and more coastal areas are becoming increasingly vulnerable to sea level rise and other impacts of climate change, there is a need to critically examine the strengths and weaknesses of various adaptation responses. Set out on page 11 in table 2 is a list of the various environmental, economic, social and legal implications of each adaptive response and they show that for each response there are advantages as well as disadvantages to its employment in local communities and nations around the world.

2.0.3 Vulnerability as used in climate change literature

International organisations such as the IPCC, the UNFCCC, the World Bank and the International Monetary Fund (IMF) have periodically produced reports and documents which have used certain words, often with negative connotations to describe small island states and their capacity to deal with the effects of climatic change and environmental hazards. Even their websites are a testimony to this fact with the use of such terms as 'small island states', 'low adaptive capacity', 'limited funds, human resources, and skills', 'isolation', 'meagre resources', 'limited options' and they question 'whether they will have adequate potential to adapt' (IPCC 2001). The World Bank website uses such phrases as 'limited

human, institutional and financial capacity to cope' and relocation and resettlement is viewed as an 'extremely complicated' option by the IPCC. By painting a very desolate picture of the circumstances of these island states, these various organisations denigrate these highly autonomous and active states to roles of passive and submissive participants.

Table 2 Strengths and Weaknesses of Adaptation Responses

	Environ-mental Implications	Economic Implications	Social Implications	Legal and Institutional Implications
Retreat Response	Protection of ecosystems due to their landward migration	Loss of property; resettlement costs; costs of rebuilding infrastructure	Disruption of families, friendships and traditions; resettled people may face language problems, racial and religious discrimination and difficulties in gaining employment	Trans-boundary issues
Accommodation Response		Changing property values; increased damage from storms; costs for modifying infrastructure		
Protection Response	Ecosystems would be lost due to hard structures blocking their landward migration; protection in one area could hasten coastal erosion in another area	Overall & long-term costs will be much higher due to ongoing repair and maintenance; small island states not able to bear all costs		Trans-boundary issues

(Source: IPCC 1990; NZCCP 1990)

These organisations portray island states as being incapable of thinking for themselves and being unable to come up with their own solutions to the problems that they face and thus 'to implement these strategies, many small islands, will require external technical, financial, and other assistance' (The World Bank).

There are calls for a rolling back of the state's role in line with neoliberal thinking and most often there is some form of government assistance in helping local communities deal with the impacts of climatic change and environmental variability. This can be quite confusing because on the one hand there are calls to minimise government intervention while on the other hand these various organisations are encouraging 'integrated responses from all sectors' (IPCC 2001). Furthermore the World Bank proposes that "appropriate infrastructure and technology will create livelihoods and reduce the vulnerability of the poor people' and yet they and the IMF are proponents of structural adjustment policies that call for a reduced role of the state in the economies of these developing countries so there are discrepancies in their recommendations to the 'poor people' and their actual policies. Such confusion is likely to hinder the implementation of adaptive responses in the future.

2.0.4 Small Island States

In 2001 the Intergovernmental Panel on Climate Change (IPCC) produced a report titled *Climate Change 2001: Impacts, Adaptation and Vulnerability* that among other issues stressed the growing vulnerability of small island states. Their projections showed that small island states were at considerable risk from the predicted impacts of climate change, in particular sea-level rise. Many of the settlements and industries and much of the infrastructure on these islands are located in or close to coastal areas and they are prone to being affected by sea-level rise.

The IPCC's records for the Pacific islands showed that the post-1900 temperature increase has been somewhat lower than that of the Caribbean: less than 0.5°C (2001:847). But due to the strong influence of the ocean on the climate of these small island states, and based on the projected warming of the oceans (1-2°C for the Caribbean Sea and Atlantic, Pacific and Indian Oceans) with an increase in greenhouse gases equivalent to a doubling of atmospheric carbon dioxide ($2xCO_2$), small islands in these regions are expected to continue to

experience moderate warming in the future (2001:847). There were no apparent patterns that emerged from the records that the IPCC gathered to do with rainfall but their calculations were that mean rainfall intensity was also likely to increase by a projected 20-30% over the tropical oceans, where most of the island states are located (2001:847).

Of all the predicted impacts of climate change, sea-level rise is considered by many to be the greatest threat, particularly to small island states (IPCC 1996, 2001; Nunn & Mimura 1997; Pittock 1997). Each island's experience of sea-level rise will vary greatly and the adverse impacts that accompany such a phenomenon are projected to be 'beach erosion and coastal land loss, inundation, flooding, and salinization of coastal aquifers and soils' (IPCC 2001:847). The costs that are likely to be incurred to protect human settlements, necessary infrastructure and economic industries from sea-level rise will impose a further burden on these small island economies.

Climate change scenarios for Pacific Island Countries or PICs have been well documented in recent years. The latest IPCC report (2001:850) states that the projected 'area-averaged annual mean warming' as a result of increases in the atmospheric concentrations of greenhouse gases over the Pacific Ocean is approximately 2.0 for the 2050s and 3.0 for the 2080s. Although this projected warming is substantially smaller than the figures for other oceans, the magnitude of projected warming is still significant and could considerably impact the small island states (IPCC 2001). An area-averaged annual mean increase in precipitation is projected over the Pacific Ocean area of approximately 0.3% for the 2050s and 0.7% for the 2080s and this is a fairly marginal increase according to the IPCC (2001). The frequency of extreme temperatures during the summer is likely to be higher in all the four regions – in the Atlantic Ocean and Caribbean Sea, the Mediterranean Sea, and the Indian and Pacific Oceans and this may increase the likelihood of thermal stress conditions during the 2050s and 2080s (IPCC 2001). Although the IPCC's climate models do not project a lesser number of annual rainy days, they do project an increase in the daily intensity of precipitation (IPCC 2001). This implies that there may be an increase in the probability of more frequent droughts occurring, as well as floods, in the four main regions mentioned above (IPCC 2001). The IPCC models indicate that the warming over the tropical Pacific would be the greatest in the far west, central and eastern equatorial Pacific (IPCC 2001).

According to the IPCC (2001; 2001a) there is limited evidence that the frequency of tropical cyclones in the Southern Hemisphere has been decreasing since the 1970s but it is projected that a general increase in tropical cyclone intensity can be expected as increases in wind speed and central pressures of 10-20% with $2xCO_2$ equivalent may occur. The IPCC's (2001:855) current projections for sea-level rise (see Figure 3) is 5 mm yr^{-1} , with a range of 2-9mm yr^{-1} but the effects of this will vary regionally and 'is expected to have disproportionately great[er] effects on the economic and social development of many small island states'.

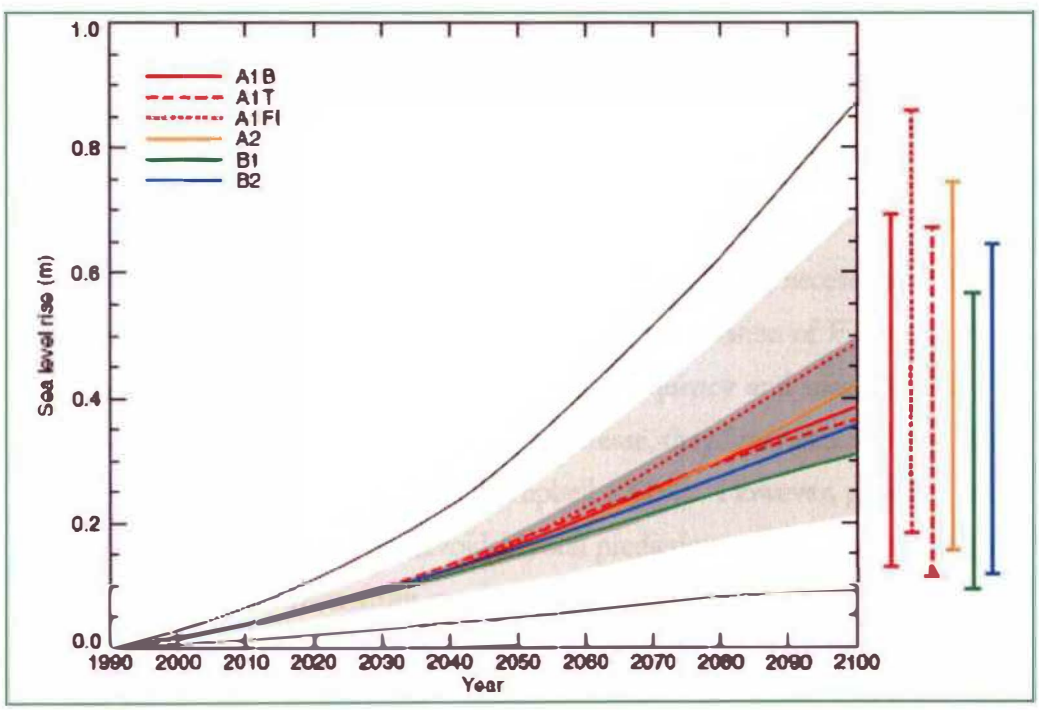

Figure 3 Global average sea level rise (1990 - 2100) for the SRES scenarios (Source: IPCC 2001:7)

The likely effects of a rise in the mean sea-level is land loss, flooding, retreat to higher ground and the use of building set-backs and in truly extreme circumstances, abandonment and off-island migration in many of the small islands and particularly in the atolls and low islands (IPCC 2001). The heights of storm surges have also been predicted to increase and

this is in addition to mean sea level rising and this could have severe damaging effects on small islands.

If current projections eventuate, Fiji, along with its Pacific Island neighbours, may soon face the effects of climate change on its physical and natural environments. Rising sea surface temperatures have already led to cases of increased coral bleaching in some parts of Fiji on a scale never seen before (Helvarg 2000:29). Increased cases of beach erosion have led to more villages constructing seawalls: Mimura (1997:149) documents how since the 1960s the number of villages on Viti Levu building seawalls has risen in number and illustrates the point that the effects of climate change are very real for many ordinary people. Relocation is not an unusual option for villages that have been destroyed by storm surges as demonstrated by the village of Naikeleyaga in the Lau group in eastern Fiji (Campbell 1977). This is likely to be a familiar option if the need ever arose and as always relocation has its own sets of problems as will be discussed in Chapter 5.

The daily newspapers regularly report cases of drought or flooding necessitating evacuation of people and whole communities especially in the Western division of Fiji, which is usually known as the dryer part (Helvarg 2000:29). If the frequency and magnitude of tropical cyclones affecting Fiji in the next few years does increase, they "may cause greater incidence of coastal inundation and erosion events" (Campbell 2000:6). However, projections are still not strong at this stage and they are unavoidably still predictions and not necessarily absolute certainties. Salt-water intrusion from storm surges has been experienced by some of the smaller islands of Eastern and Western Fiji and has severe consequences for the people who live on these islands (Helvarg 2000:29). Aalbersberg (1993) recognizes that agriculture may be positively as well as negatively impacted by global warming and climate change in the south-west Pacific. For example, current projections are that increased temperatures may place heat stress on many plants and at the same time increased atmospheric carbon dioxide may possibly lead to increases in plant growth (Aalbersberg 1993). While increased rainfall could lead to increased erosion, flooding and leaching of nutrients from the soil and other areas which were previously unable to be planted could be planted with new crops (Aalbersberg 1993).

The growing poverty in PICs and especially so in Fiji has critical implications for adapting to the effects of climate change. Marginalised sectors of society which experience dire poverty are likely to be more constrained in their ability to respond to the effects of climate change and are more prone to increasing vulnerability (Bohle *et. al* 1994). Population growth levels for some PICs is projected to considerably expand in the next decade and given the large number of coastal settlements in most PICs, there may be greater exposure to coastal hazards (Campbell 1996). The economic dependencies as well as growing disaster vulnerability of most PICs may also serve to further hamper adaptation measures to the effects of climate change (Campbell 1996). The impacts of climate change are likely to be numerous and extremely varied across and within PICs. In addition to this, adaptation will be a task most likely to be undertaken by individuals and their communities while the government's role will be to facilitate this process (Campbell 1996).

Despite the grouping of small island states into a single, identifiable category, they are by no means homogeneous: indeed they are extremely heterogeneous. They differ markedly in their physical geography, political systems, culture and population, and in the level of their economic growth (Campbell 1996). To a certain extent, however, do they share similar characteristics with other island states and these often highlight 'their overall vulnerability in the context of sustainable development' (IPCC 2001:847). These commonalities include the following:

- Limited physical size which effectively reduces some adaptation options to climate change and sea-level rise (e.g. retreat; in some cases entire islands could be made uninhabitable, so abandonment would be the only option)
- Generally limited natural resources, many of which already are heavily stressed from unsustainable human activities
- High susceptibility to natural hazards such as tropical cyclones (hurricanes) and associated storm surge, droughts, tsunamis and volcanic eruptions
- Relatively thin fresh water lenses that are highly sensitive to sea-level changes
- In some cases, relative isolation and great distance to major markets
- Extreme openness of small economies and high sensitivity to external market shocks, over which they exert little or no control (low economic resilience)

- Generally high population densities and in some cases high population growth rates
- Frequently poorly developed infrastructure (except for major foreign exchange-earning sectors such as tourism)
- Limited funds and human resource skills, which may limit the capacity of small islands to mitigate and adapt to the effects of climate change

  (IPCC 2001:847).

It is a widely publicized issue now that small island states are becoming increasingly vulnerable to the adverse effects of climate change. The United Nations Framework Convention on Climate Change (1992) and the Kyoto Protocol (1997) brought to the forefront and identified those countries that were "particularly vulnerable" to climate change and included in these were "small island countries as well as countries with low-lying areas and those prone to natural disasters" (Campbell & de Wet 1999:2). Global warming and sea level rise have important repercussions for the communities that live on these island states and are also likely to affect governments in all areas and at all levels of decision-making. The Pacific is highly likely to be affected by the effects of climate change in the near future, if not already, due to the many coral atolls and small islands which dot its seascape. Much has been done on the science of climate change in the Pacific but much less on the human dimensions of climate change in Pacific Island communities. As these communities continue to a position whereby they may become more vulnerable than they already are, pleas are being made simultaneously to the rich countries of the world to halt their activities which are exacerbating the vulnerability of Pacific Island nation states. Kinza Clodumar, president of the Republic of Nauru, impressively illustrated this when he made the point that:

> "No nation has the right to place its own, misconstrued national interest before the physical and cultural survival of whole countries. The crime is cultural genocide; it must not be tolerated by the family of nations" (Dunn 1998:19).

The reluctance of the rich, highly industrialized countries of the world to put a stop to their destructive activities is evidenced by the fact that the Kyoto Protocol, a proposed

amendment to the UNFCCC, was not fully ratified until very recently[10]. Its ratification by Russia in October 2004, seven years after its creation, is testimony to this fact. The poorer countries on the other hand were some of the first signatories to the Protocol and by 1998, "80 percent of the signatories to the first international accord on climate change, the 1992 Rio treaty, and more than half of those to the 1997 Kyoto Protocol" were developing countries[11] (Dunn 1998:19).

2.1 Early Natural Hazards Research and Bounded Rationality Model

The Dictionary of Human Geography defines a system as 'a group of elements organized such that each one is in some way interdependent (either directly or indirectly) with every other element' (Johnston *et. al* 2000: 818). Identifying a system typically involves defining its boundaries, ascertaining its elements and identifying its function. Studies conducted concerning systems theory have tended to address four main issues: whether the system is open or closed, whether the system can be separated into subsystems, whether the system involves links, flows and causal relationships and whether there is any feedback in the system (Johnston *et. al* 2000:819). Applying the 'systems' approach to geography and particularly environmental studies had been fashionable for a number of years and this is exemplified by White's (1945) early work in human adjustment to floods in the United States. According to Walmsley and Lewis (1984:109), White used a systems perspective to help explain how humans responded to hazards and focused on the interactions of humans with their environment as well as with the natural events that occurred within that environment. This approach, which viewed humans and their environment essentially as systems, tended to dominate much of the early natural hazards research.

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[10] In order for the protocol to come into force it has to be signed and ratified by countries that are party to the UNFCCC. In 2002 there were 104 countries that had ratified the protocol and this represented 43.9% of greenhouse gas emissions. The emissions need to total up to 55% with at least 55 countries having ratified the treaty to bring the protocol into force. The countries that ratify the protocol also need to be on the list of annexed countries in the UNFCCC document. Now that Russia, a major emitter has ratified the treaty, the Kyoto protocol should come into force 90 days after their ratification. Australia and the United States (the largest emitter) have yet to do so. The Protocol came into force on February 16, 2005.

[11] Unlike the industrialised countries, developing countries are not initially required to reduce their greenhouse gas emissions.

The first attempts to examine the relationship between hazardous nature and society emerged out of the human ecology school largely under the patronage of Gilbert White. Their focus was on how people responded to the various risks induced by the environment. White's (1974) questionnaire methodology and again his work with Ian Burton and Robert Kates (1978) on a human ecology approach to natural hazards largely focused on the floods occurring in the United States at the time. They developed a historical model in which 'folk' or traditional societies progressed towards becoming 'industrial' societies that were better equipped to handle nature's extreme perturbations and tried to apply this American derived model to the global context. These different stages followed a linear pattern common with modernization theories and their work was subsequently extensively critiqued by people such as William Torry (1979), Eric Waddell (1977) and Phil O'Keefe and Ben Wisner (1975). According to Watts (1983:240) it was criticised for its 'crude scientism' and 'ethnocentrism' and was 'insensitive to culturally varied indigenous adaptive strategies, largely ignorant of the huge body of relevant work on disaster theory in sociology and anthropology, [and] flawed by the absence of any discussion of the political-economic context of hazard occurrence and genesis'.

Watts (1983) argues that the ideologies which underpin natural hazards theory as it has emerged can be traced back to the epistemology and conception of nature itself. The idea that nature and humans were on the one hand two separate and isolated elements but on the other interacted and were interdependent equated 'human life to atomised individuals or organisms' in an ecosystem (Watts 1983:234). This conception informed Burton, Kates, and White's (1978) bounded rationality model in which 'the limits of human rationality and consequent misperception of nature lead to tragic misjudgements in our interactions with it' (Blaikie *et. al* 1994:11). This model attempted to explain why people tended to continue residing in hazardous zones even after hazards such as floods, tropical cyclones and earthquakes had damaged their homes time and time again. The focus on individual perception and choice, according to critics, implied that humans are ultimately the masters of their own fate and ignored 'the profound constraints, sometimes natural but more often social and economic, that limit the actions of both people and governments' (Kates & Burton 1986:325). According to the bounded rationality model, 'the pressure of population growth and lack of 'modernization' of the economy' lead people to continue residing in

hazardous zones and it was assumed that if people followed certain stages of economic growth, then they would be able to better their living conditions (Blaikie *et. al* 1994:11).

Burton, Kates and White's early work in the 1970s demonstrates clearly that 'the social context and political economy mediate individual perception' and yet in spite of this recognition, they failed to provide a 'social theory capable of addressing social process, organisation or change' (Watts 1983:240). In their work in 1986, Burton and Kates acknowledge, however, the critique of their work and how they had been focusing too much on the 'extreme geophysical events as a starting point for social analysis' and failing to note that this implied a 'rejection of alternative and perhaps more suitable units of analysis, such as places, livelihood systems, social groups, or societies' (p.324). By the late 1970s, hazards research was moving towards a more political economic outlook that was seriously trying to combat some of the subtle forms of environmental determinism that were inherent in conventional hazards research (Blaikie *et. al* 1994). The 1990s brought with them geographers who were all too aware of the 'human factor' in natural disaster and hazards research and simultaneously the need to avoid heralding a human deterministic perspective (Blaikie *et. al* 1994). Today hazards research has evolved to take into account, and be complemented by, vulnerability studies which emphasise the way in which communities are exposed to hazards, rather than the character of the natural or physical hazards themselves (Hewitt 1997).

2.2 Vulnerability Theory

By the 1980s some geographers were starting to question the applicability of the human ecology approach to Third World and developing countries especially when it was developed in industrialised nations. The 1970s and the early 1980s also brought with them an increasing scepticism of the notion that disasters were just 'natural' or 'normal' events. The vulnerability approaches to hazards predicated themselves on the idea that disasters were in fact not 'natural' but were actually human induced (Blaikie *et. al* 1994:11). Since then the wider sphere of vulnerability studies and the associated notion of resilient communities have been well studied and documented. Vulnerability studies have often been associated with natural hazards or natural disasters. They play an important role in explaining why

individuals and communities respond in a certain way to natural disasters and there is widespread agreement now on the general meaning of vulnerability. Blaikie *et al.* (1994:9) define vulnerability as 'the characteristics of a person or group in terms of their capacity to anticipate, cope with, resist, and recover from the impact of a natural hazard'. Lewis (1999:4) states that vulnerability 'is the degree of susceptibility to a natural hazard' and that 'degree of susceptibility to damage, destruction and death in those settlements is conditioned by the decisions and actions of society over time'. His definition acknowledges the historical processes that have shaped people's circumstances and posits that these social, institutional and political processes contribute greatly to people's degree of vulnerability and thus can also help in the reduction of vulnerability. Cannon (1994) offers a similar definition to that of Lewis in that he also gives primacy to the role that societal processes play in reducing or enhancing an individual's vulnerability. He says that 'vulnerability is a characteristic of individuals and groups of people who inhabit a given natural, social and economic space, within which they are differentiated according to their varying position in society into more or less vulnerable individuals and groups' (1994:19). This characteristic according to Cannon derives mainly from factors such as class, gender, ethnicity and age and may be influential in hazards having a different degree of impact on each individual.

Watts and Bohle's (1993:44) work on vulnerability, despite being used in a hunger and famine context, is of particular relevance to the study of natural disasters and environmental variability because they 'define the space, a sort of social map, of vulnerability' on which almost anything can be mapped. Watts and Bohle differentiate between conjunctural or proximate causes and structural or underlying causes and emphasize the structural over the conjunctural causes of vulnerability. The conjunctural or the proximate causes are the immediate triggers and when applied in this context would refer to those events or phenomena that would lead to an increase in vulnerability, such as natural hazards that escalate into natural disasters and those which place already vulnerable individuals and groups into even greater vulnerable positions. The structural or underlying causes are those which can also be referred to as the root causes of vulnerability. As will be shown in subsequent pages, the root causes of vulnerability are not so much the result of environmental perturbations but are more so the consequence of societal values and attitudes. Thus, their tripartite structure is informed by Chambers (1989:1) definition:

> "Vulnerability... refers to the exposure to contingencies and stress, and difficulty coping with them. Vulnerability has thus two sides: an external side of risks, shocks and stress to which an individual or household is subject; and an internal side which is defense-lessness, meaning a lack of means to cope without damaging loss".

They state that one can gather three basic co-ordinates of vulnerability from the definition offered by Chambers (1989) and these are:

1) the risk of exposure to crises, stress and shocks;
2) the risk of inadequate capacities to cope with stress, crises and shocks; and
3) the risk of severe consequences of, and the attendant risks of slow or limited poverty (resiliency) from, crises, risk and shocks (Watts & Bohle 1993:45)

Out of the dissection of this definition, one can see that the most vulnerable in society are those that are exposed the most to anxiety or worry, those that are least able to cope with crises, who suffer the most from the impacts of crises and those who are severely restricted in their capacity to recover (Watts & Bohle 1993:45). In other words, vulnerability can be described 'in terms of exposure, capacity and potentiality' and these are the means by which vulnerability may be reduced (Watts & Bohle 1993:45). Watts and Bohle go on to identify the detailed co-ordinates of exposure, capacity and capability and they take into account the various studies of vulnerability taken from different perspectives and at different scales of analysis.

2.2.1 Vulnerability: Entitlement and Capability

The first of the three components of vulnerability that Watts and Bohle propose is Entitlement and Capability and on their tripartite structure they identify it as entitlement. This line of thought follows from Amartya Sen's (1981) *Poverty and Famines* in which he focuses on the economic and to an extent the judicial, entitlements or endowments an individual must have in order to prevent one from being vulnerable to famines. He states that:

> "The 'entitlement' of a person stands for the set of alternative

> commodity bundles that can be acquired through the use of the various legal channels of acquirement open to that person. In a private ownership market economy, the entitlement set of a person is determined by his (sic) original ownership bundle (what is called 'endowment') and the various alternative bundles that the person can acquire, starting with each initial endowment, through the use of trade and production (what is called his (sic) 'exchange entitlement')" (Sen 1989:23).

According to Pelling (2003:50) an individual's endowments and entitlements, or what he terms productive capacities, could include 'labour, savings, land, cattle, goods, housing, and any state or social (community, NGO) support, e.g. subsidized housing, education or health service'. Sen's work in rural areas raised the understanding that vulnerability was experienced in different ways by each household or individual and that environmental factors were not the only causes (Pelling 2003:50). He also identified 'landless labourers, informal sector workers, artisans, pastoralists and service people' as the most vulnerable to the fluctuating capitalist markets (Watts & Bohle 1993:47). As a result, vulnerability from this point of view is due to the possible danger of entitlement dispossession.

Entitlement theory deals with two related approaches to hunger. The first deals with food security and coping strategy models that essentially focus on how entitlements are activated or organized at different social and spatial scales as a famine becomes more intense (Watts & Bohle 1993:47). The second is concerned with social welfare and social security theories. Where the state cannot adequately provide a welfare system, it is usually left up to local social institutions or what Scott (1976) calls the moral economy to provide some form of assistance for the people (Watts & Bohle 1993:47). Moral economies are generally common characteristics of peasant communities according to Smith and are often organised 'around the problem or risk, security and the guarantee of a margin of security' (Watts 1983:248). These moral economies usually involve complex 'familial, social structural and community' networks and often there are divisions in the methods used by the formal and informal social welfare systems (Watts & Bohle 1993:47).

In Fiji these moral economies have an enormous impact on the daily lives of the majority of the people. In the rural areas where there is little access to formal social welfare networks, moral economies provide the support needed in times of crisis and tragedy. For example,

family and kin even if distantly related will lend a helping hand in the form of food offerings or land for settlement or gardens. This is in line with the Fijian ethos of *veikauwaitaki*[12] and can often take place at a multitude of levels from the scale of familial or kinship relationships to the level of the *koro*[13] and even *vanua*. This form of reciprocity is a common element of Fijian tradition. In the village of Solodamu, during the opening ceremony of the old church, the villagers from the southern part of Kadavu went fishing and visited the new church with gifts of fish and mats to furnish the building. This was done to reciprocate the help that the elders of Solodamu had bestowed upon them by assisting in the construction of their church. Similarly in Beqa, when the villagers of Rukua were in the process of building their seawall, the other villages visited the seawall bearing gifts of food such as rice, tea and flour and so the villagers of Rukua did likewise when the Lalati and Dakuni villages were constructing their seawalls. Even during times of *solevu*[14], a large component of such gatherings is the exchange of food and gifts, whether they are weddings, funerals, births or any other Fijian ceremony. Mutual exchange is therefore a crucial element of Fijian culture and its moral economy and to not return the gesture is seen as being extremely rude and impolite.

Entitlement-based theories of vulnerability have been critiqued for providing only a 'conjunctural' analysis of why there are often shifts in entitlements. Watts and Bohle (1993:48) maintain that in failing to offer the underlying or structural causes, the theory has not succeeded in exploring the 'longer term processes which allocate and deprive assets and endowments'. Too often entitlement is interpreted from very narrow economic or legal points of view and this can lead to historical processes being neglected as well as 'social domains in which claims over food and security can be exercised' being ignored (Watts & Bohle 1993:48). Considerations of gender, age, caste and ethnicity have not received as much attention as occupation and the market workings from entitlement theorists. Over the last two decades, Dreze and Sen (1989) have expanded on entitlement theory and tried to incorporate the freedoms that people have in order that they may avoid hunger which they refer to as 'capability' and the 'totality of rights'. This important development in entitlement

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[12] To be concerned and considerate of others.
[13] Village.
[14] A large gathering of people for the ceremonial exchange of food and mats etc., with feasting on magiti. It is generally considered to be a feast.

theory has important implications for the next component of vulnerability which is empowerment and enfranchisement.

2.2.2 Vulnerability: Empowerment and Enfranchisement

The entitlements and endowments that were identified by Sen (1981) in the above approach extend to become issues of rights and politics in this approach. Whereas the entitlement component focused on market perturbations, this approach takes one step further into how entitlements are framed within a larger canvas of politics and power. When talking about empowerment in terms of famine and hunger, the issue of powerlessness immediately crops up and often it is the women and children who are portrayed as the most powerless and thus most vulnerable in households (Watts & Bohle 1993:49). According to this perspective, vulnerability is seen as the lack of rights available to individuals whether it be property rights or political rights. Thus the only way vulnerability can be reduced is to increase entitlements but such a thing cannot occur unless there is acknowledgement of the dynamics of political power in all this. Because vulnerability here is concerned with the political space, there are three domains in which power may be vested and contested: in 'the domestic sphere (patriarchal and generational politics), work (production politics) and the public-civil sphere (state politics)' (Watts & Bohle 1993:49). Vulnerability is thus created when members of society are deprived of essential rights within and among these political domains (Watts & Bohle 1993:49).

Vulnerability from this point of view relates to how the terms exposure, capacity and potentiality refer to the three dimensions of vulnerability – namely entitlement, empowerment and class (Watts & Bohle 1993:49). Watts and Bohle go on to explain and give examples of how rights and power are exercised within and among the three domains mentioned above and they differentiate between nonformal or informal rights and formal political rights. They make mention of the idea that rights and rules within the domestic sphere or at the family level along generational and gender lines are always being redefined, legitimized and contested. This idea is informed by Dreze and Sen's (1989:11) work on 'extended entitlements' which 'is the concept of entitlements extended to include the results of more informal types of rights sanctioned by accepted notions of legitimacy'. Dreze and

Sen (1989:10) give the example of a well-established convention in most traditional societies where the male head of the household eats first or receives the best portion of the daily meal and that is legitimized in its acceptance by the rest of the family and society even though this kind of right cannot be enforced by a court of law. Watts and Bohle also stress the importance of formal political rights in ensuring that entitlements and social security are attained by all and thus acknowledge that powerlessness can stem from not having both the informal as well as the formal political rights and can be approached at a multitude of scales of analysis.

2.2.3 Vulnerability: Class and Crisis

The final component that Watts and Bohle identify is Class and Crisis. Using a political economy perspective they argue that famine can also be looked at from a class-based analysis. When they use the term 'class' in this fashion, they draw upon Marxist ideas of 'the appropriation, and distribution, of surplus from direct producers' (Watts & Bohle 1993:51). Thus they are not concerned here with the way in 'which some members of society produce necessary and surplus labour' but rather they are more interested in the 'ways in which assets and property rights are distributed in society, but also in relation to the ways in which producers are exploited (i.e., the appropriation of surplus labour)' (Watts & Bohle 1993:51). As can be seen from this final approach, it is a follow on from the previous components of vulnerability and tries to incorporate the concerns of the other two approaches into its analysis.

This approach has three basic propositions which are critical to its analysis, the first of which is that 'the social relations of production are historically specific' (Watts & Bohle 1993:51). The second is that 'the historical character of the ways in which surpluses are appropriated and distributed provide a basis to distinguish the broad character of political economies as modes of production' (Watts & Bohle 1993:51). And the third one is, 'that political economies have their own crisis tendencies seen as 'market failures' or crisis of overproduction' and these crisis tendencies occur 'under capitalism as a result of structural contradictions and conflicts between classes, between the relations and forces of production, and between accumulation and production conditions' (Watts & Bohle 1993:51). Thus

political economy according to Watts and Bohle emphasises the historical and structural and endeavours to explain how and why specific patterns of entitlement and empowerment are produced and reproduced. As a result, the way in which hunger inevitably leads to famine exhibits 'a short-term expression of larger crisis tendencies and conflicts within the political economy' (Watts & Bohle 1993:51).

The main concern according to this perspective is the way in which the market has developed socially and the history of the emergence of a wage earning class (Watts & Bohle 1993:51). These periods of transition, according to Watts and Bohle can produce vulnerability and vulnerability in this sense is understood implicitly in terms of entitlement and empowerment as well as explicitly in terms of 'the social relations of production in which individuals and households participate'. This outlook acknowledges that famine and hunger are problems stemming from poverty, but in order to grasp this idea, one needs to understand 'the relations by which surpluses are mobilized and appropriated' (Watts & Bohle 1993:52). Consequently famine can be seen as a 'historically localized expression of fundamental class processes' (Watts & Bohle 1993:52).

Watts and Bohle (1993:52) draw parallels between this perspective and the work done on marginalization theories and 'political ecology' by Blaikie (1985). Blaikie's work involved trying to link soil erosion to the political economic concepts of commercialization, proletarianisation and marginalization and came up with the argument that 'production relations put pressure on the environment' and therefore land degradation occurs as a result of 'economic, political and ecological marginalization' (Watts & Bohle 1993:52). In the same way famine and, in a broader sense, vulnerability can be explained from such a political economy or class-based analysis. Class analyses have often been critiqued for being too 'deterministic' and arguing that colonialism and capitalism engender dependency, poverty and starvation and fails to take into account the 'coping mechanisms, countercrisis tendencies, and the conjunctural processes' which are present in society (Watts & Bohle 1993:52). At the same time political economy has been praised for providing 'a class map on which historically specific processes of surplus appropriation and accumulation, and the corresponding configurations of crisis, conflicts and contradictions, can be located' (Watts & Bohle 1993:53).

As a result they come up with three components of vulnerability, namely entitlement, empowerment and political economy on which different scenarios can be plotted according to their particular circumstances and this causal structure can be quite useful in mapping vulnerability spaces according to social relations, vulnerable groups as well as vulnerable regions in specific places at specific times. As shown in Figure 4 the intersection of the above three approaches creates three parallel concepts which are the 'axes about which the space of vulnerability rotates' and which reflect Chambers (1989) definition of vulnerability (Watts & Bohle 1993:54).

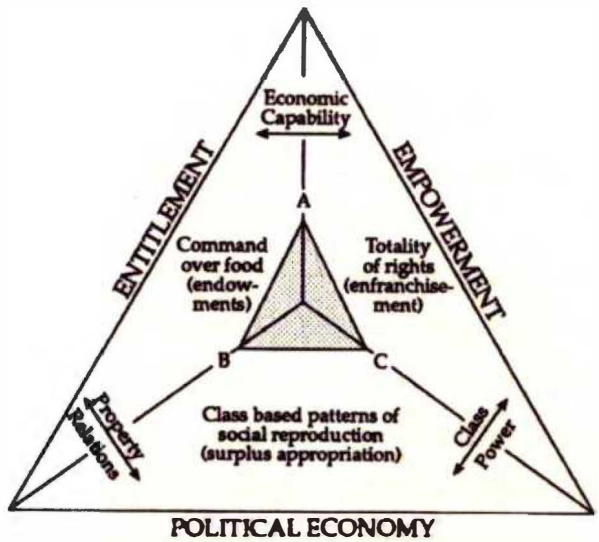

Figure 4 The causal structure of vulnerability (Source: Watts & Bohle 1993)

These three concepts: economic capability, property relations, and class power are synonymous to what was referred to previously as 'potentiality, exposure and capacity' (Watts & Bohle 1993:54). Economic capability transpires from the intersection of entitlement and empowerment, class and power from the particular relationships of political economy and empowerment and property relations from the way in which political economy and entitlement interrelate. Watts and Bohle (1993:54) are also of the opinion that

entitlement, empowerment and political economy are responsible for the structural (long-term) causes of mass poverty and that the 'violent short-term changes' in these same approaches leads to famine. Each co-ordinate or side of the triangle can only be understood in relation to the other co-ordinates or sides of the triangle because there is much overlap and complementarity among the three co-ordinates and this has implications for the issues that will fall under these broad categories (Watts & Bohle 1993:52). Within the context of this particular research, the tripartite causal structure of vulnerability has been very useful in determining the specific vulnerabilities of communities affected by environmental variations and illustrate how these may have changed over time and how they were at specific points in time. It is also useful in demonstrating whether their vulnerabilities are a result of entitlement, empowerment or political economy factors and these may be mapped out in a schematic fashion quite clearly.

This tripartite structure of vulnerability can also be used to map the different social relations that exist in society and help in understanding how hunger and famines, and even vulnerability from climatic changes and environmental variations, are the result of specific societal relations. Watts and Bohle (1993) illustrate, using their example of hunger and famine, how vulnerability is situated in each sphere according to its particular social relations (Figure 5). For example if hunger and famine are seen as resulting from food entitlement problems then vulnerability is positioned in the space of economic and market relations. If on the other hand, hunger and deprivation is due to the powerlessness of individuals, classes and groups in society to stake a claim and implement their food entitlements, then vulnerability is situated in the realm of power and institutional relations within civil society. And ultimately if famine and hunger is induced by exploitation and surplus appropriation, then it is located within the sphere of class relations.

It is also possible to locate vulnerable groups within the space of vulnerability as shown in Figure 6. The vulnerable individuals and groups can be located according to the three causal processes (entitlement, empowerment and political economy) which can allow for both possibilities and constraints in the area of subsistence, to use the Watts and Bohle example. Those individuals or groups that are vulnerable to the workings of the market and do not

have adequate entitlements, because they are resource and/or asset poor, may be situated in the economic sphere of the vulnerability triangle.

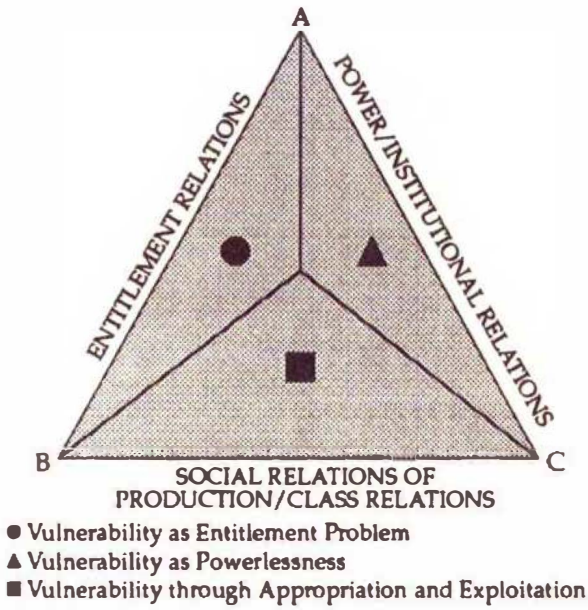

Figure 5 The social space of vulnerability: mapping the space of vulnerability through social relations (Source: Watts & Bohle 1993)

Those individuals on the other hand who experience powerlessness and inequality in their households as a result of gender and patriarchal politics, in the work place and/or at the level of the state may be accordingly located in the space of power and institutional relations. And finally, if people become vulnerable due to 'fundamental class processes' such as exploitation or 'surplus extraction and appropriation, they are thus accorded a position within the 'structural-historical' space of vulnerability which has to do with class relations.

The social map of vulnerability also has its spatial equivalent in which vulnerable regions may be located in relation to the different causal processes (Figure 7). Those regions which are marginalized as a result of economic and market processes and are more predisposed to food entitlement crises would be located within the economic space of vulnerability whereas those core-periphery relations which exist between certain regions and which illustrate certain dependency, and thus extraction/exploitation relationships, will increasingly see the peripheral and exploited regions being located within the 'political space' of vulnerability.

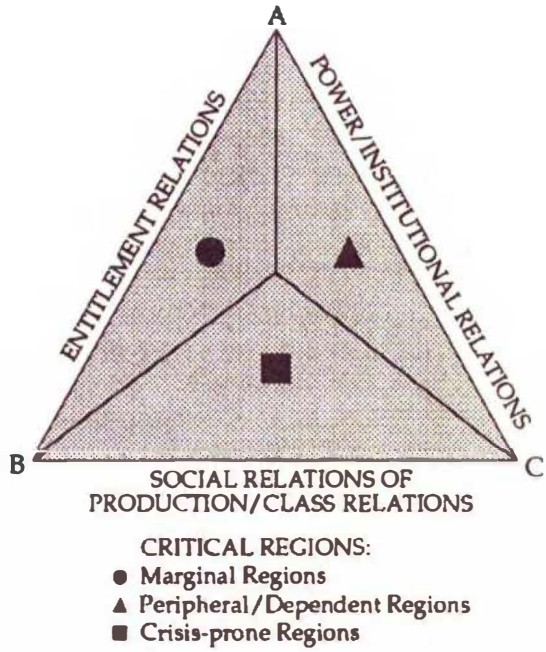

Figure 6 The social space of vulnerability: mapping vulnerable groups in the space of vulnerability (Source: Watts & Bohle 1993)

Those regions that are constantly experiencing widespread crises and conflicts whether they be economic or ecological, as a result of 'commercialisation, proletarianisation and marginalization' are understandably positioned in the 'structural-historical' space of class relations (Watts & Bohle 1993:56).

There are two obvious caveats one must take into account when mapping out the spaces of vulnerability in such a schematic fashion. Firstly, although the three spaces or causal processes exist concomitantly, 'their respective 'weight' or analytical significance is an empirical question' (Watts & Bohle 1993:56). Determining the exact weighting given to each process and in which space to locate vulnerable groups and regions becomes a matter of value judgement. Secondly, the processes which may produce a certain type of vulnerability may also have the capability to improve the livelihoods of deprived groups and thus reduce their vulnerability. Watts and Bohle (1993) give the example of how power relations which create inequality between patrons and their clients may also be able to provide some form of assistance to vulnerable individuals and groups through the operation of a moral economy.

Watts and Bohle (1993:46) conclude in the end that 'vulnerability is a multilayered and multi-dimensional social space defined by the determinate political, economic and institutional capabilities of people in specific places at specific times'. Although this theory of vulnerability is important for understanding the structural and underlying causes that give rise to such phenomena as hunger and famine, it is also relevant to understanding the vulnerabilities which occur as a result of climatic change and environmental variations. These arguments tend to emphasise the social aspects rather than the actual physical threats and yet when applied to climate change, it is the changing physical threat that is seen to be the major problem. The question arises therefore, of whether such a theory is completely useful for application to climate change.

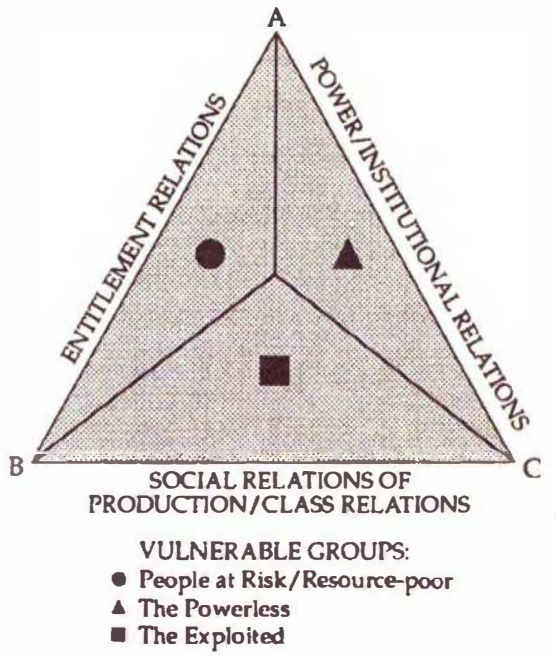

Figure 7 The social space of vulnerability: mapping critical regions in the space of vulnerability (Source: Watts & Bohle 1993)

2.3 Resilience

Resilience is a concept closely associated with vulnerability and deserves mention in this context. Cannon (1994) divides vulnerability into three aspects and terms them livelihood resilience, self-protection and social protection. Of particular relevance here is his

description of livelihood resilience as he sees it to be the capacity of an individual or group to resist the impact of a hazard. Along similar lines to that of Cannon is Pelling's (2003:48) definition of resilience to natural hazards as 'the ability of an actor to cope with or adapt to hazard stress'. Pelling (2003) views resilience as the preparatory actions which humans undertake in the knowledge of a potential hazard and the adaptation and adjustment behaviour that occur after experiencing a hazard whether or not the behaviour is innocently or deliberately carried out. He believes that both formal and informal insurance devices are likely to enhance resilience as the economic costs will be able to be spread effectively across society and over time.

Resilience has often been associated with ecological models but now there is a growing awareness that the social sciences need to start addressing issues of resiliency as well in the face of the growing environmental risks which confront societies and individuals (Adger 2003:201). Although Adger (2003) offers comparisons of resiliency in both the social and the natural sciences, the emphasis here is on resilience in the social sciences. He defines social resilience as 'a measure of the enforced exposure to critical stress, or hazard, combined with the restricted capacity to cope' (Adger 2003:201). He recognizes the importance of both social and ecological applications of resilience as having important implications for sustainable development and resource use and suggests that only through resilient ecosystems and resilient communities can we hope to 'better cope with external physical as well as social stresses' (Adger 2003:204). The main idea is that a resilient community will be able to withstand the devastating effects of a natural hazard and recover from it by adapting its circumstances in order to continue surviving. A resilient community is therefore a notion which is wished upon all communities affected by natural hazards and is quite an emancipating and liberating concept because it does not designate communities to the role of passive and submissive recipients of calamities.

Chapter 3

Society, Development and Change

3.0 Development Theories

Development theories have undergone major paradigm shifts over recent decades. The post war years were characterised by a period of 'modernisation'. War torn economies were rebuilt, and enjoyed a period of massive growth and technological development. New nations were emerging simultaneously, as former colonies were decolonised and became independent. The expectation was that these emergent economies would also develop along similar lines to those of their former colonisers, by undergoing a process of industrialisation, urbanisation, and gradual 'modernisation', and that the continued expansion of modern values would eventually obscure traditional values and ideas (Handelman 2000). During the 1970s an alternative paradigm, known as 'dependency theory' began to chart its course, grounded in a Marxist analysis of capitalism. With beginnings in the relations between Latin America and the United States it rejected the idea that Third World countries could follow the same path to development that the Western nations had embarked upon (Handelman 2000). The idea that Third World economies were locked into a global economy in a dependent relationship as peripheries to the centre or core was at the heart of this paradigm. It proposed that the West is developed because it kept the Third World underdeveloped (Weede 1998). Thus the *dependencistas* argued that the only way Third World countries could hope to develop themselves was by cutting ties with the West and becoming more self-sufficient.

By the 1970s and the 1980s the development debate was dominated by these two paradigms effectively opposing each other. The 1990s saw the emergence of what is now known as post-modernist thinking which basically arose out of the apparent impasse in development theory in relation to modernisation (Simon 1999). Although post-modernism does not offer an alternative paradigm (Nustad 2001), it soundly critiqued both modernisation and

dependency theories. Postmodernists are extremely distrustful of any kind of theory that claims to be universal in its application and this can be applied to the problems of development (Handelman 2000) and instead it promotes a various number of theories that are based on environmental concerns, gender issues, indigenous movements as well as participatory or bottom-up approaches. The most recent mainstream advancement in development thinking has been the discourse of globalisation. It is characterised by economic liberalisation, deregulated markets, privatisation of public assets, a reduction in the role of state governments, and integration of local and national economies into a global economy (Korten, 1997). In line with neoliberal thinking, globalisation discourses view economic growth as central to development both for developing and developed countries.

Development as is currently practised as well as practised in the past has greatly modified people's vulnerabilities to a wide range of different elements. The way development has progressed in past years and more recently has had several implications for the vulnerabilities that people have to certain natural disasters and events. In some instances development may have greatly reduced people's vulnerabilities while in others, it may have been quite the opposite.

3.1 Modernization

When modernization theory first developed in the 1950s and 1960s, it was largely used to explain Third World countries' poverty and why they were so behind in their development endeavours. Modernization theory as used in development today can be traced back to Max Weber's theory of modernization and traditionalism. Dani W. Nabudere (1997:204) discusses how Weber's views were at the time part of the ideas which came out of the 'Age of Enlightenment'. During this period there was an emphasis on 'science' so 'progress' was patterned after Newton's physics, 'which, with its scientific methodology and secure growth, was supposed to provide a solid foundation for a paradigm of knowledge in general' (Nabudere 1997:2004). Thus it was thought, at the time, that by using this new scientific knowledge, they would be able to put aside their 'old and inherited 'superstitions, prejudices and errors" (Nabudere 1997:204).

This faith in scientific advancement also included 'blind belief in reason and progress' (Nabudere 1997:205). When Weber realized some of the failures of particular ideologies that came out of the Enlightenment period, he came up with his own ideas on how to better things. From Nabudere's (1997) point of view, this was Max Weber's greatest contribution. Weber then came up with a theory of 'purposive, or means and ends, rationality' (Nabudere 1997:205). The main idea behind his theory was service to the people and he argued that 'purposive rationality' would lead to bureaucracies being created which were substitutes for the old 'traditional forms of authority and belief systems' (Nabudere 1997:205).

Modernization theory then evolved to explain the process by which 'traditional' societies could transform themselves into 'modern' forms. Because this process was particularly marked in the West, it was thought that non-Western societies could undergo the same process and emerge just like the Western societies. Inherent in this theory was the assumption that 'there was a dichotomy between traditional societies and the modern nation states' (Tukai 1988:13). Internal factors were deemed to be 'constraints to change' and thus the internal workings of the society had to be changed in order for these Third World nations to develop and achieve growth and higher standards of living (Tukai 1988:13). David Simon (1999) argues that modernization along with political economy/structuralism (Occidental development paradigms of recent decades) has more or less shared similar characteristics. They have both been 'rather narrow, often economistic, top-down and overtly modernizing in application' and have tried 'to provide singular, universal explanations for poverty and underdevelopment and prescriptions for overcoming them' (Simon 1999:25).

The application of modernisation theory to explain the transformation of Fijian society has been explored by a number of researchers since the 1960s and 1970s (Belshaw 1964; Brookfield *et. al* 1979; Overton & Banks 1988; Ward 1965; Watters 1970). Furthermore Fiji along with other Pacific Island countries in the region was expected to follow this modernising path to self-reliance. The proliferation of financial aid as well as technical and specialist help to Fiji, especially after independence, by its neighbours, mainly New Zealand and Australia, was seen as practical steps towards transforming its economy. Specialists from New Zealand and Australia were sent to Fiji and other parts of the Pacific to educate

the locals on Western technology and ideas. The best of Fiji's academia were given scholarships to study at overseas universities in order to impart to them Western knowledge so they could put this new-found knowledge into practice when they returned home. Subsistence farming was discouraged and instead cash cropping was encouraged as the exchanging of money soon began to replace the traditional barter system. The existence of individual *galala*[15] farmers was encouraged to increase agricultural production as well as to promote individuality as opposed to communal living (Tukai 1988). This small number of independent Fijian farmers had opted out of the village system and had chosen instead to work their own allocated land separately from the *mataqali* domain (Bayliss-Smith *et. al* 1988). A person could gain *galala* status simply by leasing undeveloped sections of mataqali land and by the 1960s a national scheme had been implemented in Vanua Levu, Lomaiviti, Kadavu and Taveuni whereby the farmers grew coconuts and cocoa and in later years, taro and yaqona (Bayliss-Smith *et. al* 1988). Commercial agriculture was actively encouraged during this period in Fiji's history and was seen as the way to move Fiji's economy forward. This emphasis on primary industry has meant that Fiji has been rather late in its participation in the manufacturing and processing industry as currently touted by international organisations today. Modernisation theory has helped explain the development character of Fiji's economy and society as well as perpetuating certain ideals that have been detrimental to the growth of its economy

3.2 Structural Adjustment Theories

When the neoclassical tradition first developed in the 1870s, mathematics had just been incorporated into economics and this created a gap between the economic and political components of its parent ideology – classical political economy (Rapley 2002). With greater input now from the mathematicians in economics, their original assumptions began to change to that of viewing individual behaviour as that of 'rational utility maximizers' (Rapley 2002:52). Because people are assumed to be self-interested, only they themselves know best know what they want and how to achieve it and they are able to achieve it rationally and

[15] a person who is independent of the village and free of, or exempted from, communal obligations

effectively. This emphasis then on individuality and being allowed free rein to achieve personal goals is what underlies neoclassical thought.

Structural Adjustment has its roots in neoclassical thinking that argues that it is not the state's job to create an equal society by redistributing resources (Rapley 2002:8). Neoclassical thinkers insist that an unequal society actually aids economic growth. An egalitarian society on the other hand slows down any sign of progress so the less well-off in society in reality benefit from such inequality (Rapley 2002:8). Neoclassical, also commonly known as neoliberal thought, according to Rapley (2002:9) discouraged the public spending that accompanied state interventionist policies because it was believed that this would increase inflation as there would be more money around chasing just a few commodities. The opposition to this idea came from John Maynard Keynes, a leading economist of the 1930s, who argued that by spending money on their economies, governments would actually be generating demand, investing in their economies, and thus reducing inflation and pulling themselves out of a recession. Keynes encouraged governments to borrow if need be to put money back into their economies (Rapley 2002:9). Neoliberals believe that it benefits everyone both economically as well as politically when there is an 'international economic exchange of goods and services' so trading relationships need to be fostered and enhanced and this is why they emphasize the opening and freeing up of economies (Green & Luehrmann 2003:116). The governments of developed countries, and the boardrooms of Multinational Corporations and International Financial Institutions such as the IMF and the World Bank are dominated by people with such ideological leanings (Green & Luehrmann 2003:116). From their perspective only growth can reduce poverty and bring less developed countries out of their underdevelopment.

Inherent in neoclassicism or neoliberalism is the premise that underdevelopment comes about because the internal working systems of underdeveloped countries fail them and that 'internal structural reforms' are needed so that their economies can grow (Green & Luehrmann 2003:139). Green and Luehrmann (2003:139) argue that 'just as the diagnosis of the problem is universal, so is the cure'. They offer an analogy and liken the process to that of a doctor prescribing medicine for a sick patient. In this case the sick patient is the less developed, the underdeveloped, the third world countries – whatever one chooses to call

them, and the prescription is virtually the same for all. If they take their prescriptions as advised and administer consistent doses of liberalization, privatization, deregulation and globalization, then they should be well on the road to economic recovery.

Structural Adjustment in a wider sense is often used to mean 'a conscious change in the fundamental nature of economic relationships within a society' (Sparr 1994:1). Today the term has a much more specific definition and is frequently used to describe the 'process by which many developing nations are reshaping their economies to be more free market oriented' (Sparr 1994:1). It is the common and often accepted notion in the national and global arenas that a nation's economy is much better off with less government intervention. A lot of government interference is seen as negative and serves to hamper the working of the invisible hand in a free market economy. The idea then is that there are no government subsidies, regulations and such so that the economy is able to operate at its best.

A country may choose to undergo structural adjustment programmes on its own for a various number of reasons but for most developing countries, structural adjustment policies are initiated involuntarily, often as conditions for receiving new funding from organizations such as the International Monetary Fund (IMF) and World Bank (Sparr 1994:1). For many of the developing countries that were forced into pursuing structural adjustment to finance their debts in the 1980s and the 1990s, the shift also included political – philosophical changes as they changed from more 'autonomous, nationalistic, inward-oriented, import substitution, state interventionist, and socialist models towards *laissez-faire* capitalism' (Sparr 1994:2). Because many of the economies of the developing world were in crisis, it was assumed that structural adjustment would be the saviour that would correct their high rates of inflation, stagnant economies, trade and budget deficits and their inability to attain and maintain development capital (Sparr 1994:2). Riddell (1997) outlines some of the conditions imposed on developing countries in exchange for loans and these included those mentioned earlier as well as currency devaluation, trade liberalization and an increase in the export of primary goods.

In recent years structural adjustment has come under heavy criticism from a number of quarters. Feminists argue against the apparent male bias in structural adjustment policies.

Shirin Rai (2002:111) has critiqued the way structural adjustment policies accompanied by decreased welfare spending have increased the 'inequalities between nations and classes and between men and women' and especially reduced women's access to subsidized healthcare and childcare. She sees this as leading to the struggle on the part of women to maintain their positions in the marketplace where their earnings are extremely vital for the survival of themselves and that of their families.

It has also come under constant attack from critics of neoliberalism who disagree with the way structural adjustment undermines the sovereignty of the state and does not allow 'the people the right to economic self-determination' (Green & Luehrmann 2003:144). Critics also point to the undemocratic way in which 'enormous decisions affecting people's lives are made behind closed doors, without their participation' (Green & Luehrmann 2003:144). They also view parallels in globalization and colonialism, describing globalization as the new form of colonialism because it does not necessarily improve the lives of people living in the third world. Rather, it ensures that the Western countries always have markets where they can dump their goods and that the non-Westerners are continuously being stripped of their raw materials and labour, just as it was in colonial times.

Today structural adjustment policies have been renamed Poverty Reduction Strategy Papers (PRSPs) by their proponents but the values that underlie them for the most part remain the same (Power 2003:23). By adopting these programmes, the developing world was expected to catch up with the 'developed' and rid itself of its colonial past by modernizing and industrializing (Power 2003:23). Both Power (2003) and Sparr (1994) lament the disappearance of the various freedoms that the third world had struggled hard for over the centuries (e.g. against colonialism) as they were forced to take up the reforms imposed upon them by the IMF and the World Bank. This leads Power (2003:23) to state that in this sense then 'it is necessary to understand that neoliberalism rose to prominence partly as a response to the wider crises of capitalist development in the 'postcolonial' world'.

In Fiji, the mid-1980s was a period of reform with the nation taking its first steps towards structural adjustment policies in line with IMF convention. The 1984 Alliance government initiated a wage freeze as well as adopting fiscal policies and moved towards restructuring the

various sectors in its economy (Prasad & Reddy 2002). This, they say is when Fiji's economic problems first started and the succeeding Labour party which came into power after the 1984 Alliance government were voted in partly because of the widespread rejection of the neoliberal approach the Alliance had taken. Fiji's economic woes were further aggravated by the military coups of 1987 and subsequent governments have continued with this trend of structural reform and it is now the rudimentary policy direction of Fiji (Prasad & Reddy 2002). Although some of the reforms brought about economic growth and employment, they were not and are not sustainable in the long-run (Prasad & Reddy 2002). After independence in 1970, Fiji's economy was very 'inward looking based on import substitution' and policies for the protection of 'domestic investors and highly regulated factor and product markets' were the norm (Prasad & Reddy 2002:3). The policy change in the 80s was aimed at transforming Fiji into a 'low-wage, export-oriented economy' in contrast to the scene directly after independence (Prasad & Reddy 2002:3).

Chand (2004) argues that Fiji's structural reform has been much more rapid than similar changes experienced in many other countries. This is due to the fact that Fiji adopted very drastic structural adjustment policies (which may have been facilitated by the 1987 coups) in the 1980s and 1990s and the result was that agriculture was neglected at the expense of promoting export-led manufacturing and tourism (Chand 2004). Akram-Lodhi (1997) maintains that structural adjustment policies have 'failed to tackle distributional issues in the agrarian sector which both reflect the agrarian question and which act as a constraint upon growth in Fiji'. The trade and tariff reforms, labour market reforms, tax reforms, as well as public sector reforms have had serious impacts that have been felt throughout Fiji's economy. Today Fiji continues to suffer from the lack of investment in most cases due to the political uncertainty and the issue of property rights in land leases continues to intensify Fiji's economic problems. According to Chand (2004) its growth rates and inflation rates continue to fluctuate and unemployment has been on the rise. The value of the Fiji dollar has been declining and real wages continue to fall. Gender and ethnic income differences as well as poverty rates continue to rise in addition to foreign debt and public sector debt levels. Structural adjustment policies have not brought about the growth that they were heralded to create.

3.3 Sustainable Development

The term 'sustainable development' first originated from the International Union for the Conservation of Nature's (IUCN's) 1980 World Conservation Strategy Report (Markandya & Halsnaes 2002:16). It was not until the World Commission on Environment and Development (the Brundtland Commission) released its report, entitled *Our Common Future* (1987), that the term gained widespread recognition. The Commission defined sustainable development as 'development that meets the needs of the present without compromising the ability of future generations to meet their own needs'. Markandya and Halsnaes (2002:16) argue that this definition asked as many questions as it answered and the operational aspects of sustainable development were never addressed in the report. However the report did acknowledge that the economic practices of nations around the world were responsible for the environmental degradation that was occurring worldwide. The report also 'emphasised that sustainable development could not be achieved without the active participation of local communities in the development process, including the management of natural resources' (Dalal-Clayton *et. al* 2003:68). Hanley and Atkinson (2003:77) have contended that because the definition of sustainable development is rather vague, it has meant different things to different people and among them is the notion that sustainable development has several goals such as 'economic development, a better environment, a particular concern for the poor, a requirement for community participation in decision-making, and so on'. Despite these variations in sustainable development's goals, there are two common themes which always seem to be associated with sustainable development and those are 'fairness and equity across generations and fairness and equity within generations' (Hanley & Atkinson 2003:78). Much of the economic literature that has prevailed has tended to emphasise the former, that of equity over time and it is now becoming widely accepted that the 'management of threats to the global environment cannot be achieved without simultaneously addressing issues of equity and development' (Burton et. al 1993:262).

It has become even more apparent today that any actions to deal with the extreme events in nature whether they are natural hazards and disasters or global warming and climate change need to take into account and consider the broader framework of sustainable development.

Any action to mitigate or adapt to the effects of such extreme natural hazards needs to give careful thought to the purpose and goals of sustainable development and ensure 'that the resources of an area will be maintained undiminished for future generations while providing support for a satisfactory quality of life for present and future communities' (Burton et. al 1993:262). In a sense, disasters as well as climate change have shown that the practices of much of the world's population are indeed unsustainable and Hewitt (1995:155) sums it up perfectly when he states that 'if there could be such a thing as sustainable development, disasters would represent a major threat to it, or a sign of its failure'. The IPCC's 2001 report also recognises that the impacts of climate change are likely to hinder the development of sustainable practices especially in developing countries and among less-privileged populations.

Sustainable development along with its progressive ideas has its own contradictions. Power (2003:13) states that because sustainable development had its beginnings in the environmentalism of the north, the 'perceptions of environmental crises held by people of the 'global South" are not always reflected in such discourses. He also argues that neoliberal thinking is at odds with the principles of sustainable development because there is considerable evidence which suggests that such a perspective increases poverty and environmental degradation. Overton and Scheyvens (1999:3) argue therefore that the notion of sustainable development represents a compromise because it 'suggests that the twin goals of environmental sustainability and human economic development are compatible, attainable and mutually inseparable'. Power (2003:13) also notes how the World Bank has altered their policy focus towards achieving 'sustainable development' and 'poverty alleviation' and yet neoliberal policies continue to dictate the Bank's actions. And despite the 1992 Earth Summit in Rio de Janeiro and other similar gatherings which have occurred since then, sustainable development continues to be paid mere lip-service without any actual commitment to change by the various world regions who have very different sets of priorities to others (Power 2003:13).

3.4 Globalisation

The process of globalisation according to Rai (2002) has been taking place for centuries but it has only started to be thoroughly discussed and studied in recent times (Robertson 1992:9). Globalisation traces its roots back to the advent of neoliberalism and is supported and driven by capitalist forces. As stated earlier, supporters of globalisation view economic growth as the ultimate achievement that economies must pursue laboriously. Again this theory has hints of similarities to that of modernisation where there is a belief that by freeing up borders and boundaries, new ideas, goods and technology may flow from the richer economies to those of the not-so-rich. Thus developing countries are encouraged to wholly integrate themselves into the global economy so that everyone may mutually benefit from such a relationship.

Mittelman (2000:5) notes that the various definitions of globalization can be grouped into two main categories. The first of these is exemplified by the statement put forward by president of the Ford Foundation:

> "The term [globalization] reflects a more comprehensive level of interaction than has occurred in the past, suggesting something different from the word 'international'. It implies a diminishing importance of national borders and the strengthening of identities that stretch beyond those rooted in a particular region or country" (Berresford 1997:1).

According to Mittelman, this definition encapsulates some of the key ideas of globalization – that of transnational flows, interdependence, identities and social relations but it is rather silent about the nature of social relations and the hierarchies of power. The second category of definitions stresses the idea that time and space have been compressed. There are two main authors who have contributed extensively to this conceptualization. Anthony Giddens (1990) distinguishes between place and space and maintains that place can refer to a local or geographical setting of a social activity. Space on the other hand, in relation to globalization, is structured by social factors that are missing from the scene or hidden from view. Space then, according to Mittelman (2000:6) is 'increasingly dislocated from place, and networked to other social networks across the globe'. Giddens (1990:64) finally concedes that

globalization is the 'intensification of worldwide social relations which link distant localities in such a way that local happenings are shaped by events occurring many miles away and vice versa'.

A second author who has also contributed expansively to this particular way of thinking about globalization is David Harvey (1990:299) who puts forward the idea of the 'annihilation of space through time'. Harvey argues that spaces from previously far-off shores are now connecting with other spaces and changing both the cultural representations of ourselves as well as the commodities which are an integral part of our daily lives. A good example is the marketplace for food which has changed so much from what it was decades ago. The consumption of local food products is now being substituted by national as well as global foods and this has serious implications for individual diets, consumption practices and price structures which are all incorporated into international trade. Both authors relate globalization to modernity and Giddens, as a consequence of postmodernity as well.

Mittelman (2000:6) attempts to go further than the definitions provided by the authors above and proposes a fairly distinctive concept:

> "As experienced from below, the dominant form of globalization means a historical transformation: in the economy, of livelihoods and modes of existence; in politics, a loss in the degree of control exercised locally – for some, however little to begin with – such that the locus of power gradually shifts in varying proportions above and below the territorial state; and in culture, a devaluation of a collectivity's achievements or perceptions of them. This structure in turn may engender accommodation or resistance".

John D. Kelly (2001:32) postulates that the main argument behind globalization is that 'there are no absolute political, social or cultural boundaries un-breached by global flows'. And this, he says, goes against the common assumption that societies, cultures, nation-states and other units are 'bounded, separate, discrete, and/or autonomous' (Kelly 2001:32). Because everything is interconnected, one cannot therefore choose to examine one aspect in isolation from the others.

A major issue in the debate around globalization is the national sovereignty of states. This becomes particularly obvious over issues pertaining to the 'management of global commons, such as space, oceans and seas, and Antarctica' (Dasgupta 1998:235). The recommended action for dealing with such issues was global integration and Giddens (1990:73) argues that 'concerted action between countries in some respects diminishes the individual sovereignty of the nations involved, yet by combining their power in other ways, it increases their influence within the state system'. Globalization was seen here as having a 'dialectical nature' because while it may have allowed for the protection of the environment through international cooperation, it could also have allowed for the 'subordination of national sovereignty to some supra-national authority' (Dasgupta 1998:235). Globalisation has also been critiqued for being a modern form of colonialism and imperialism. Power (2003:139) identifies the United States especially as today's imperialist power and sees globalisation as a 'restatement of imperial ambitions where the continuing legacies of imperialism may be seen to be relevant to many globalisation discourses'. He also argues that globalisation continues to promote certain colonial discourses especially those to do with representations of 'emerging (non-Western) markets' as currently touted by western institutions and which Power claims can be seen as a recreation of colonialism.

Stewart Firth (2000) makes the case that the Pacific Islands experienced two periods of globalisation that has had lasting effects on their economies. The first period was roughly between the 1850s and 1914 when the early settlers, traders and colonisers arrived on our shores and tried to integrate Pacific Island economies into the global economy on terms that were extremely favourable to the colonizing powers. It did not matter what the main export was, out of each country, whether it was Nauru phosphate, Fiji sugar, Solomon's copra or Papua gold. The relationship was an unequal one with the subordination of Pacific Island nations to the developed world (Firth 2000). The colonial governments that were established during this period were expected to be able to support and finance their own administration independently and not rely on the imperial governments in London, Paris or Berlin.

The second period of globalisation began in the early 1970s as PICs became independent and continues today with international organisations such as the European Union (EU),

World Trade Organisation (WTO), IMF and Asia-Pacific Economic Cooperation (APEC) calling for Pacific Island countries to open themselves up to international forces and become truly competitive (Firth 2000). Tied to Australian aid are certain conditions that Pacific Island governments must pursue and these include reducing the size of their civil services, privatising government activities, encouraging foreign investment, and so forth (Firth 2000:185). Firth consequently testifies to the idea that the Pacific Islands had no choice whether or not to accept the first wave of globalisation in their region and they have no choice this time either. Overton (1999) argues that in Fiji, there has been a transition from 'developmentalism' to 'globalism' whereby the state now has a reduced role and global influences have a much more prominent role in dictating and charting Fiji's development path. He warns of the dangers of allowing such a thing to happen and at the same time still sees an active role for the state to play in promoting development. The international pressures on Pacific Island nations to conform to the ways of the richer countries is too compelling and yet at the same time leaving their economies open to international forces and competition has severe consequences for the well being of the people of this region.

3.4.1 Glocalisation

The localization movement gained prominence as an alternative to globalisation and asserted that 'the geographic scale of production, investment, and distribution should be reduced from global to smaller units' (Mandle 2003:49). The movement's followers called for a reversal of the process of globalisation as well as greater self sufficiency because they believed that globalisation led to the disempowerment of local economies and communities. Power (2003:154) however argues that globalisation and localisation occur simultaneously instead of globalisation immediately leading to local identities being undermined and that globalisation is occurring 'through rather than in spite of the multiple identities that people have (for example with allegiances to kin, group or nation)'. Massey and Jess (1995) define glocalisation as 'the extent to which the local is constructed through a global/local nexus rather than only within local spaces' and often these spaces are produced by unequal power relations. Power (2003:154) then proposes that one observe carefully all the points at which the local and the global intersect and one should not assume that the local is always eroded by the global. The proponents of localisation have been critiqued by Mandle (2003:51) for

being blind to its high costs which are incurred when small firms produce 'lower amounts of a smaller range of goods at higher prices than would be the case in a globally integrated economy'. Mandle (2003:50) stresses his point by referring to World Bank reports that indicate that countries that are 'strongly inward oriented' generally experienced lower growth rates than countries that actively took part in global markets. He is somewhat pessimistic of the success of such anti-globalisation movements in raising the living standards of the global poor and emancipating them from their deprivation and poverty-stricken lives.

3.4.2 A Pacific Counter View

I bring into perspective here Epeli Hau'ofa's (1993) notion of 'Our sea of islands' as opposed to the frequently accepted term 'small island states' or 'islands in the sea'. The current prevailing notion is that the world of Pacific Islanders is 'much too small, too poorly endowed with resources, and too isolated from the centres of economic growth for their inhabitants ever to be able to rise above their present condition of dependence on the largesse of the wealthy nations' (Hau'ofa 1993:4). According to Hau'ofa, this belittling view of Oceania is

> 'an economistic and geographic deterministic view of a very narrow kind that overlooks cultural history, and the contemporary process of what may be called 'world enlargement' carried out by tens of thousands of ordinary Pacific Islanders right across the ocean from east to west and north to south, under the very noses of academic and consultancy experts, regional and international development agencies, bureaucratic planners and their advisers, and customs and immigration officials, making nonsense of all national and economic boundaries, borders that have been defined only recently, crisscrossing an ocean that had been boundless for ages before Captain Cook's apotheosis'.

Thus he proposes the concept of viewing the world of Oceania as a 'sea of islands' rather than 'islands in the sea' because the world of our ancestors 'comprised not only land surfaces, but the surrounding ocean as far as they could traverse and exploit it, the underworld with its fire-controlling and earth-shaking denizens, and the heavens above with their hierarchies of powerful gods and named stars and constellations that people could count on to guide their ways across the seas' (1993:7). Therefore, for the people of Oceania,

'their world was anything but tiny' and Hau'ofa goes on to say that 'smallness is relative' and 'a state of mind' (1993:6). As a result, Hau'ofa clearly acknowledges the role of globalising processes and parallels Massey and Jess' (1995) definition of glocalisation in which the local is constructed through a global as well as local nexus. In this case globalisation can be seen as actually strengthening Pacific Island identities and ties with each other.

3.5 Conclusion

The discussion here on the course of development, particularly in relation to Fiji is highly relevant to our understanding of the historical processes that have structured the lives of individuals. Because vulnerability is the result of societal processes, I have provided a backdrop in this section to illustrate the various dynamics that have been at work to aid and constrain the lives of various individuals and communities in Fiji. Against the rising physical threat that is climatic change, the people of Fiji have also undergone a period of social change that has had important implications for their day to day existence.

Chapter 4

Methodology

4.0 Introduction

The research was conducted in the villages of Solodamu in Kadavu and Rukua on the island of Beqa. This chapter discusses the various methods that I undertook in acquiring the necessary information to inform my study and outlines the issues that I encountered when utilising these different methods. It is also a reflection upon my own position as a researcher and the various constraints that I experienced whilst undertaking the research. The underpinning approach that I adopted within the context of my research, which was community-based, is also examined in detail.

I chose to use semi-structured interviews and a focus group as my main methods of obtaining data because I was seeking to gain qualitative rather than quantitative information and both of the above methods were "conversational and informal in tone" and would "allow for an open response in the participants' own words rather than a 'yes or no' type answer" (Longhurst 2003:4). My only focus group interview which took place in the village of Solodamu occurred at a women's church meeting in the evening. The meeting was held in the Methodist church and involved ten women.

My semi-structured interviews were carried out with the villagers of Solodamu and Rukua themselves and focused on their experiences of environmental variations and the relocation and reclamation measures that they took. Oral histories passed down from generation to generation were another important source of data and some of the younger villagers were quite knowledgeable in this area. Because the relocation and reclamation measures took place during the late 1950s and early 1970s period respectively, I generally only interviewed those people who had lived through these experiences. The qualitative nature of my interviews did not allow me to randomly select my research participants.

4.1 Subjectivity in my Research

My selection and recruitment of research participants had important implications for my own positionality and subjectivity as a researcher. Valentine (1997:113) in Longhurst (2003:10) makes the important point that "when you are thinking about who you want to interview it is important to reflect on who you are and how your own identity will shape the interactions that you have with others". Longhurst (2003) states that this is what is meant by being reflexive and recognizing one's own positionality in relation to one's own research participants. My research participants saw me as playing out multiple roles and I acknowledge that this may have affected the way they participated in my research. My father is from Rukua in Beqa and my mother is from Solodamu in Kadavu so I already had familial and kinship connections with these places. In addition to these I had different kinship relationships with my research participants, which may or may not have affected our interactions. For example, my interviews with my grandparents and other village elders were more formal because they commanded a certain expected respect from me. Furthermore my position as an educated person from an overseas university may have allowed me to be seen in a totally different light by the people of my villages. This may have worked for or against me in my interviews.

Dowling (2000:31) notes that in order to communicate effectively with research participants, the researcher needs to draw on personal resources and even when we read texts, our everyday understanding of the world helps us to make sense of what we are reading. Qualitative research and subjectivity work simultaneously together and therefore much of my personal opinions and characteristics will be difficult to separate from my data collection and even my analysis of the transcribed and interpreted material. According to Dowling (2000:31) my personal characteristics and social position as the researcher – elements of my subjectivity – would affect the way my research participants perceive me, the ways I perceive my research participants and the ways we interacted.

4.1.2 Choosing my Field site

I chose Solodamu as my first field site for my research because I am a *vasu*[16] to this village since my mother hails from there. I was familiar with the place and it brought back a lot of happy childhood memories for me. I had not been back there for a little over six years and the trip also provided me with the opportunity to revisit the place and rekindle familial connections with my *koro-ni-vasu*[17]. I chose Rukua because it is my *koro* (where my father hails from) and I felt comfortable going there and interviewing my own people. I was quite fortunate that both my *koro* and my *koro-ni-vasu* had been affected by storm surges in the past and both had taken steps to adapt to and remedy the effects. This made the task of finding field sites in Fiji much easier. I also decided to do my research on Fiji because I am a Fijian who has close ties with my place of birth and I was really keen to add to the much needed research done on the effects of climate change on Fijian communities. I hope that this research may produce additional questions which may fuel further research in this area.

4.1.3 Constraints in Gathering Data

A tape-recorder was used in all the interviews to save me time as well as to enable me to record accurately exactly what the interviewees stated in the interviews. Most of the interviewees felt comfortable about having their interviews recorded on tape and for most it was the first time for their voices to ever be recorded. There were a few however who seemed almost nervous about having recorded conversations and thus the interview did not flow as I had expected. I had to keep prompting them with questions to keep the interview moving. Translated transcripts of the interviews were created upon return to Waikato University. The interviews were conducted in the Fijian language and in their own dialects for the convenience of the participants. I was reprimanded on a few occasions for not being fluent in my mother's dialect and it demonstrated to me that even though I was a *vasu*, they still treated me as their own and expected me to master the dialect as well. It proved to be a lot of work especially as I had to first of all transcribe exactly as it were on tape and then

16 A female's children; a man's sister's children.
17 One's mother's village.

translate again into English. I had to take extra care when translating the interviews into English for analysis not to loose the essence of the participants' views.

I had intended to access primary documents from various government departments in Fiji. This was because I wanted to see whether such documents contained records of natural disasters that may have affected the two villages I was researching and whether there were any rehabilitation and relief funding made available to these villages in the aftermath. An expected constraint with this type of document gathering is the red tape which exists, and the chain of command I had to follow to acquire the necessary documents. Another constraint which I had also expected to occur was the way people at these various government departments and other institutions would perceive me and the importance of my research. For example, they may not have taken my requests seriously because I may have looked too young to be undertaking research of this magnitude. In such cases it was only a matter of the people that I knew and my contacts and networking that helped me access such documents. Secondary documents research was also undertaken to complement the primary data and theorize and validate the data I had collected in the field.

4.1.4 The Issue of Informed Consent

The issue of informed consent was not really appropriate in the Fijian village context in which I undertook my research. The village context is very much an oral based society and thus the task of getting the interviewees to sign consent forms was highly inappropriate. From the outset I had planned to make my research intentions clear to first and foremost the *turaga-ni-koro*[18] or village officer and chief in the form of a *sevusevu*[19] of kava or other gifts. I had also planned to discuss the rights of each research participant with the *turaga-ni-koro*. Before embarking on my interviews I reiterated with each research participant their rights, which included anonymity, confidentiality, and the right to withdraw at any time at all from the research. As all conversations and interviews were recorded on tape, the issues of anonymity and confidentiality were very important in this instance.

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[18] The village officer.
[19] Ceremonial offering, usually of *yaqona*, between guest and host in respect and recognition of the other.

As noted I was initially advised to present a *sevusevu* to the village chief in each village and inform them of my research intentions and to ask permission to carry out research in the village. When I actually arrived at the village of Solodamu and the elders of the village heard about my research interests through word of mouth, they easily volunteered themselves to be my research participants. I ended up not presenting a *sevusevu* to the village chief but performing a *boka* instead to the whole village. A *boka* is usually performed when one has not been present in the case of close relatives passing away. It is a traditional apology for not being present to carry out one's own responsibility of burying his or her own kin. With the *boka* I presented the village with food and other commodities which were to be distributed equally amongst all the households in the village.

As in Solodamu, I did not present a *sevusevu* to the village chief of Rukua. Instead, I gave rice, flour and sugar to my research participants in Rukua. I chose to do this on the advice of my parents who accompanied me on my trip. Because that was my *koro*, I also felt that I was an insider and did not necessarily have to present a *sevusevu*. I acknowledge that I may have disregarded traditional Fijian protocol in this case, because one of my research participants' questioned me about this. But I got the general feeling when I first arrived in the village that a *sevusevu* was not really necessary especially when I was an insider and also because I was of the Pentecostal denomination. Pentecostal Christians generally do not partake in cultural ceremonies or drink *yaqona*[20].

4.1.5 Solodamu, Kadavu

I conducted 10 personal interviews and one focus group interview in the village of Solodamu in Kadavu. The personal interviews included only one female while the focus group interview consisted entirely of 10 females. Half of the personal interviews took place at my family home while the other half took place at the research participants' homes. The focus group interview took place at the local Methodist church after a women's church meeting. Each interview lasted for at least an hour with a few exceeding an hour. I decided to choose my research participants according to their ages and thus I started off with the older men in

[20] A traditional drink; kava, liquid from the pounded root of *Piper methysticum* strained through water.

the village. Since the village was divided into two with people living in both the old village and new village, I also interviewed a couple who still resided in the old village because I wanted to see the differences in the views of people living in the new village as opposed to those who stayed behind. The villagers who reside in the new village or *koro vou*[21] lived at different distances from the foot of the hill since the village is built into a hillside. This had an effect on the differences in their experiences between those living higher up on the hillside and those living at the foot of the hill. The research participants who were interviewed ranged in age from 37 to 73. In addition to conducting semi-structured interviews and a focus group interview, I also asked a few young children in the village aged between 9 and 12 to draw mental maps or sketch maps of the *koro makawa*[22]. I did this because I wanted to include some input from the children in the village as well in my research and also because I had not done a sketch map myself of *koro makawa.*

I primarily undertook interviews with the male heads of households because I was initially advised to do so. Most of the women who live in Solodamu are originally from other villages and have only come to reside in Solodamu because they married men from the village. This may be why some of them were a little reluctant to be interviewed because they felt that it was not their place to talk about the history and stories of the people of Solodamu. The women in Solodamu were only interviewed during the focus group meeting when they were at church and were only asked to answer one question. I did this because that was the only time I could get most of the women together in one place. Since I had been interviewing mostly men in my personal interviews I decided to conduct the focus group meeting with the women. I only asked them to answer one question because I did not want to keep them away from their families for much longer since I felt that they also had responsibilities waiting for them at home. The question I posed to the female participants involved them discussing with me some of the positive and negative features of residing at the new village. A lot of the interviews were emotional ones for the people of Solodamu as they recalled with sadness some of their experiences in the past and the problems that they were currently facing. The focus group meeting became almost like a forum for airing issues that concerned the village and especially the women. I am glad that by organizing the focus

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[21] New village.
[22] Old village.

group meeting, the women were able to discuss such important issues and I am extremely grateful for the vast amount of knowledge that my interviewees shared with me. I acknowledge that my interviewees bestowed upon me a great responsibility by sharing their knowledge with me, and it is a responsibility that I will not take lightly.

All of my personal interviews were not totally as private as I wished they would be. I always had an audience, either just listening or to help my research participants feel more comfortable while answering my questions. I enlisted the help of an uncle on a couple of occasions to pose my questions in the local dialect to research participants who had hearing impediments. The presence of others during the interviews may have affected the way the interviewees answered my questions. All the participants were always eager and willing to be interviewed by me and some felt it was a privilege I had bestowed upon them. For some of the research participants their families had urged them to be interviewed because they were of the impression that their name and their individual stories would be taken overseas and put in a place where everyone could read them. When I first arrived in Solodamu, one of the village elders thought that I should take only one "true" version of the relocation and that he should be the only one to tell the story. But I insisted that people's experiences of the relocation were all different and I wanted to record all of their different perspectives.

I used a preset schedule of questions and before each interview, I would outline to my research participants the kinds of questions that I would be asking and the main questions that I wished to be answered for my research. I usually asked each of them to *talanoa*[23] to me so that the interview would flow and so that they would not feel as if the interview were too formal and structured. I also wanted them to feel comfortable and wanted to elicit more in-depth information so I preferred them telling me stories of the different experiences that they had lived through. After my first couple of interviews, word had spread around the community about what kinds of questions I was asking in my interviews. This may have quelled some people's nervousness about being interviewed and people were more forthcoming in volunteering themselves as research participants. This may also have affected the information gathered in the interviews in the latter stages of my stay in

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[23] Tell a story.

Solodamu. I got the impression that the villagers whom I interviewed towards the end of my stay in Solodamu had a pretty good idea of what kind of answers I was seeking. Their answers to my questions almost seemed rehearsed as they had had the opportunity to prepare themselves for the interviews.

The participants' responses to my questions may have been influenced by my age, education, gender, religious affiliation, kinship connections, and their relationship with my parents and my lack of familiarity with the local dialect. I acknowledge that it is likely and possible that the participants' may have perceived me through a number of different roles which included being a *vasu*, a close relative, a young female and an overseas-educated person. There were often jokes about how I was a rich *kaivalagi*[24] especially in Kadavu. It is possible and likely that the responses from the research participants were influenced by my presence and the power relations that were occurring during the interviews. I acknowledge that as a researcher I am in a position of privilege as the collected data is to be used for my own goals. I also acknowledge that even though I am a Fijian doing research in Fiji, I am still utilizing a Western perspective in my research and critiquing and analyzing the data using this type of perspective.

4.1.6 Rukua, Beqa

Many of the issues outlined for Solodamu were also relevant to my research in Rukua. I conducted 10 semi-structured interviews in Rukua with three women and seven men. The research participants' ages ranged from 48 to 84. Of my 10 research participants, six were from the newly established Pentecostal Church in the village and the other four were Methodists. The differences in religious denominations were quite apparent when conducting the interviews with the Pentecostal Christians being more vocal with their beliefs during the interviews.

I noticed that in both villages, the men volunteered themselves easily to be interviewed. Some were quite brazen about it, not wanting to be left out. The women on the other hand,

[24] Person of European descent.

had to be asked by me to participate in my research. Many of the women felt that it was their husbands, first and foremost, who had to be interviewed and not them. Because my parents were present with me in the village, they tended to let the other villagers know about my research. This meant that villagers I had personally and initially asked to be interviewed and had brushed me off lightly now reconsidered their decisions and were more eager to be interviewed afterwards.

4.1.7 Archival Research – Suva

Gaining access to the archival records at the National Archives Office in Suva was quite an undertaking. Each person I sought to give approval to access the provincial records at the National Archives Office would refer me on to others and I had to go through at least four people in four different places before I could get permission to access the records. I soon got the impression that the civil servants I was dealing with did not know which channels to go through and who to refer me to about my request. I finally got permission after I visited the Fijian Affairs Board Scholarships Office which may have been more sympathetic to my request because I was an indigenous student. The other organizations I visited while in Suva to gain further information were the Department of Environment, Department of Lands, and the National Disaster Management Office (NDMO). The records that were made available for my use at the Department of Environment were documents often prepared in conjunction with the International Global Change Institute at Waikato University so I did not spend a lot of time going through those records as I could obtain them in Hamilton on my return. The NDMO could not give out any information to me because it was all classified government information and since this unit was housed in the same building as the Prime Minister's Office, there was heavy security and the place had a patriarchal, almost masculine self-importance feel to it which was quite intimidating. Because I had personal contacts at the Department of Lands, it was much easier to acquire topographical maps of Kadavu and Beqa and other GIS (Geographic Information Systems) maps.

4.1.8 Analyzing the data

I encountered a few difficulties when attempting to translate Fijian words or phrases into English. Direct translation of Fijian words into English distorted the original meanings of the phrases in some cases. In other cases I just could not find the right words in English to truly capture the essence of the Fijian phrases. In most cases I attempted to use English words which were as close as possible in meaning to the Fijian word. The transcribing of interviews for my analysis was a huge undertaking. I spent numerous days transcribing the interviews and I realised that I had recorded a few interviews with the wind blowing strongly in the background making the recordings unintelligible. Because I am not fluent in my Mother's dialect, the transcribing process provided me with the opportunity to also learn a little more about the dialect.

4.2 Rapid Rural Appraisal/Participatory Rural Appraisal

Another approach that I considered within this research is Rapid Rural Appraisal (RRA) which can be seen as a research methodology that seeks a more bottom-up style when collecting data and implementing policy. As a bottom-up or community-based approach, it seeks to involve those affected the most by policy making in the initial decision-making process and even up to the implementation and review process. Chambers (1983; 1989) extols the virtues of what he refers to as Rapid Rural Appraisal, and more specifically in a farming context as Farming Participatory Research (FPR), as a technique that should be employed by government agencies, research institutions, NGOs and most importantly local communities to achieve outcomes that are favourable to all groups. Too often top down approaches are used by government agencies and even by NGOs who propose that they are utilizing community-based approaches to dictate to local communities how development methods should come about but when the local communities themselves are given the opportunity to express their views and concerns and 'conduct their own appraisal and analysis, their preferences and priorities have again and again been diverse and different from those supposed for them by Government departments, donor-aided projects, and even NGOs which say they are participatory' (Chambers 1997:223)

Chambers (1983:201) proposes 'reversals in learning' whereby 'learning has to start at the other end'. Those coming in to research and propose policies to the rural poor, to the local communities etc., must first learn from those they are coming to study or implement policy for. In most cases, government agencies and implementers of development programs go into local communities with their own ideas of 'their educational attainment, urban status, and roles as bearers and dispensers of modern knowledge' and this may prevent them from first of all learning from the local communities themselves (Chambers 1983: 201). Thus RRAs are designed to elicit as much participation and response out of the local communities themselves so that the final outcomes are policies that are not generic in nature but take into account the specificities and concerns of each local community. According to Rocheleau *et. al* (1989:17), RRA methods 'present ample scope for incorporating indigenous technical knowledge, indigenous capacity for innovation and indigenous capacity for experimentation' into policy work and this is relevant here because too often important indigenous knowledges are dismissed as irrelevant and outdated. Rocheleau *et. al* (1989:17) also raise the point that 'RRA techniques can combine readily with ethnoecological methods'. This perspective is exceptionally valuable in this research because it can be used to bring together the science and human dimensions of climate change.

Rapid Rural Appraisal as a technique does not specifically refer to one method but involves a range of procedures. Their main characteristics are that they are fairly quick, easy and inexpensive to achieve and typically engage in more 'informal' data collection procedures (Food and Agriculture Organisation of the United Nations 1997). Chambers (1997) lists various RRA methods and approaches and is of the view that creativity in data collection procedures should be the norm rather than following the step-by-step procedures apparent in manuals. He differentiates RRA from PRA saying that RRA emphasises the 'use of secondary sources, observation and verbal interaction' while PRA tends to involve 'shared visual representations and analysis by local people' (1997:116). Some of the more common RRA methods are the use of secondary data, offsetting biases, direct observation, semi-structured interviews, seeking out the experts, case studies and stories etc. (Chambers 1997:116). Typical PRA methods include 'handing over the stick' and they do it, do-it-yourself, mapping and modelling, time lines and trend and change analysis, seasonal analysis,

linkage diagrams, shared presentations and analysis, participatory planning, budgeting, implementation and monitoring to name a few (Chambers 1997:117).

The term 'Rapid Rural Appraisal' often times has connotations of being 'quick' and 'dirty'; of going in to do field research as fast as one possibly can, incurring the least possible costs and getting out of there again. Chambers (1983:199) argues, however, that RRA recognizes 'the trade-offs between the cost of information-gathering, and its quantity, accuracy, relevance, timeliness and actual use' and tries to offer a solution which is 'fairly-quick-and-fairly-clean'. It does this by looking at some of the different participatory methodologies and trying to come up with solutions to the problems associated with these different methods. RRA then, is a methodology which tries to avoid the ineptness of certain rural development projects; the usual 'long-and-dirty' of particular questionnaire surveys and looks for fitting solutions when time is running out. Chambers (1983:200) acknowledges this as one of the dangers associated with RRA – that it can be quite a rushed experience. But he argues that this is one of its stronger points because too often the remoter areas and the poor especially get left out of investigations and research. By undertaking rapid but effective research, and thus saving time and money, 'the poor are let in, as individuals and as families, to be learnt from and understood in more depth' (Chambers 1983:200).

Whilst carrying out research in the two villages I attempted to hear the unheard voices of the people. Very little research had been done on the adaptation measures undertaken by the two communities and this issue proved to be a topic of discussion that was popular with everyone. I interviewed both males and females in each village and conducted individual as well as focus group interviews. I also enlisted the help of the children to draw sketch maps of the old village in Solodamu. During the interviews I mainly listened and only interrupted when necessary because I wanted the villagers to direct the conversation as much as possible and I also wanted to learn as much as I could from them. Because I did not want to rely on secondary data, and the paucity of such data in any case, I sought to visit the two villages directly and undertake a bottom-up approach to gathering the necessary information.

Chapter 5

Na Koro I Drodro (a place of refuge): Solodamu Village, Kadavu

5.0 Introduction

The village which my mother hails from has seen a lot of upheaval in the last century. Several generations of people from the small village of Solodamu have experienced extreme weather conditions and have had to consequently adapt their lives in a number of ways. Their continued survival and adaptation to their environment today is a testament to their courage and resilience in the face of upheaval. This chapter seeks to give a brief introduction to the island of Kadavu and the village of Solodamu and describes the relocation that occurred as a result of storm surges that plagued the village. Since the relocation, a number of issues have arisen, some of which were probably never expected. These issues, while they may be unique to Solodamu, illustrate the constraints and liberties of such adaptation measures and are an indication that more study needs to be carried out on relocation methods.

5.1 Background

Kadavu (see Figure 8) is a high and mountainous island just 80 kilometres south of Suva and is the fourth largest island in Fiji (Roberts 1997). The island is 60 kilometres long and is divided into three large land masses joined by two relatively narrow sections (Roberts 1997). The Vunisea Government Station, hospital and airstrip is located at one of these narrow sections of the island. Kadavu is volcanic in origin and has many small bays and sandy beaches which are often interspersed with rocky headlands. The 74 villages, which host a population of approximately 11 000 people, are located on the coastal areas around the island (Roberts 1997). Another 18 000 people from Kadavu are estimated to be living elsewhere and they still maintain links with their villages by supporting a largely remittance economy, not uncommon in the Pacific (Roberts 1997).

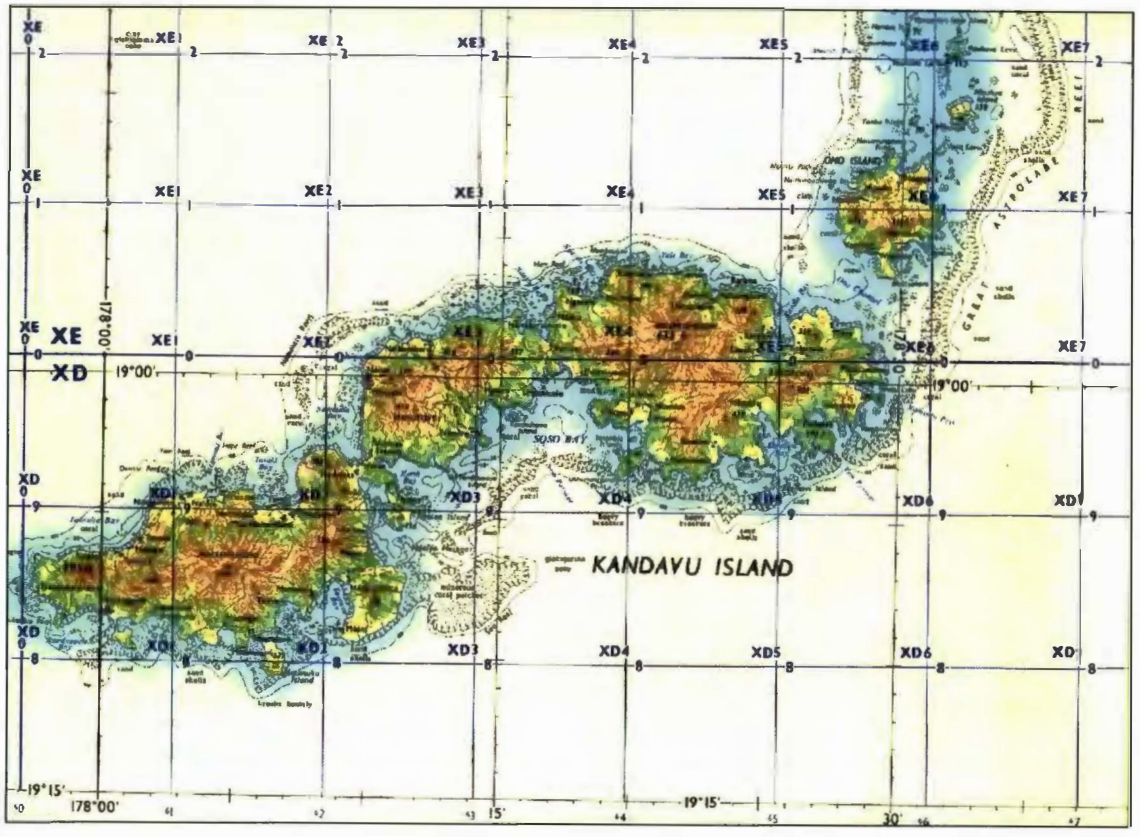

Figure 8 The island of Kadavu (Source: Ministry of Defence, UK 1969)

The village of Solodamu is in the Tavuki district in Tavuki Bay. Tavuki is the chiefly village for the district of Tavuki as well as for the whole of the island of Kadavu. It was common tradition in the past for Solodamu along with the other smaller villages in the Tavuki district to serve the chiefs of Tavuki. They were the labourers and workers for the chiefs and all the villages within the Tavuki Bay traditionally had a function and role to serve the chiefs of Tavuki as fishermen, craftsmen, warriors etc. These roles are often carried out from time to time and today the people of Solodamu still take the first fruits of their harvests to the chiefs in Tavuki. In pre-colonial times, the villagers of Solodamu would have been given land to settle on that befitted their role or position and an interviewee, Tomasi Kama, argued that the poor and inadequate lands that they have today is an unfortunate inheritance from their weak elders who did not fight for better land.

The old village of Solodamu is located on a very narrow piece of coastal land in a small inlet of Tavuki Bay (see Figure 9). The foreshore of the old village is bordered by a few clusters

of mangroves. To its east are high, steep mountains covered in pine trees which are currently being set up as a national reserve for the endemic *kaka* parrot.

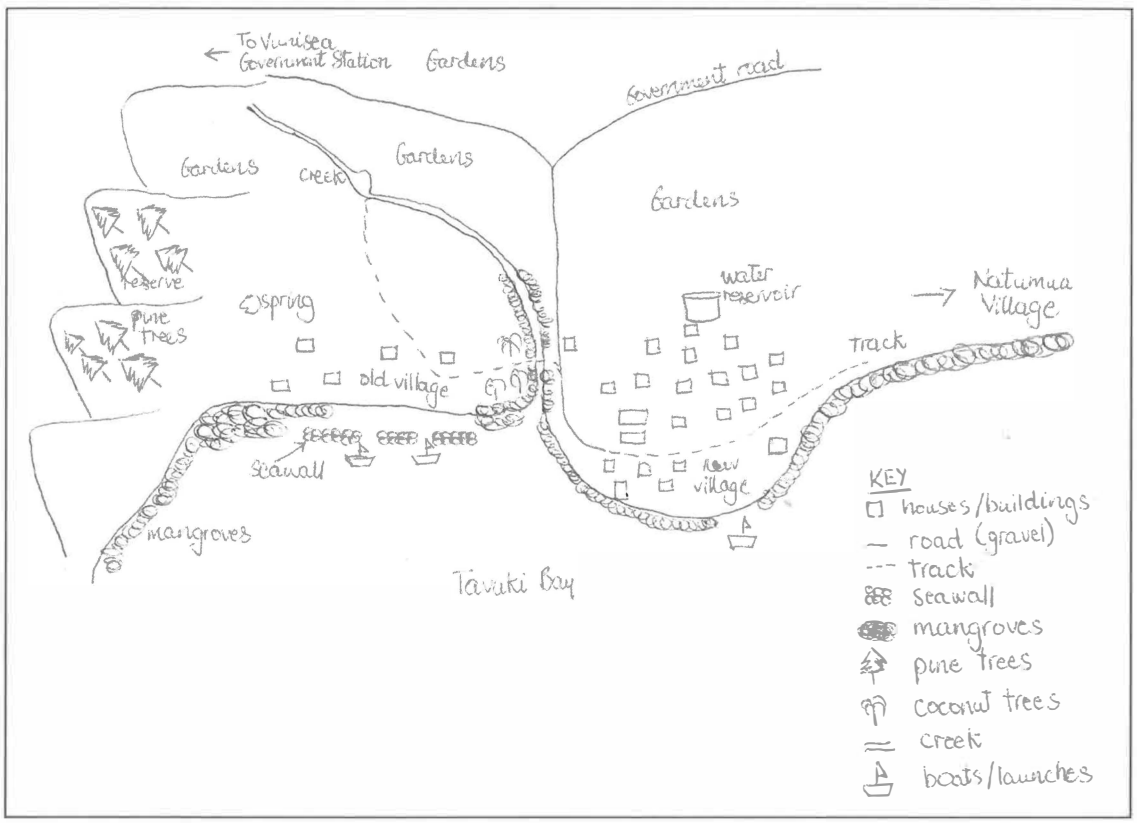

Figure 9 Sketch map of Solodamu showing the old and new villages (Source: Author)

Towards the south of the village runs a creek which during times of heavy rainfall floods the area behind the village. To the west of the village is a wooden footbridge that allows people to cross the creek and walk up to the site of the new village. There are a few concrete, wooden and corrugated iron houses interspersed in the old village but much of it remains largely vacant and empty. At times the old village seems ghostly, especially with the old, abandoned *yavu*[25] apparent for all to see and with only a few people moving around. Only in the evenings when the youths come down to play touch rugby or volleyball does it come alive with activity.

[25] The foundation of a house, a flat mound of earth at least 35 centimetres high, and often considerably more edged round with stones built up.

The new village of Solodamu is located on a hill and is always alive with the buzz of activity. During the day the villagers concern themselves with gathering their daily food requirements. The women often go fishing on the reefs or collecting shellfish while the men cultivate root crops, vegetables and fruits in their gardens. Theirs is a life of mainly subsistence living. Sometimes the young men in the village will carry out what is known as *veicavuki*[26] where they go in large numbers to a garden and weed and clean it. Afterwards they will move on to another garden as a group and keep rotating till all their gardens have been tended to. This activity usually brings a lot of fun and excitement to their task and is an easier way to get the work done. The children often follow their parents around or are left with other relatives who baby-sit them. If they are old enough they are given tasks such as feeding the pigs, washing and hanging out the clothes, babysitting, cooking etc. In the evenings, after dinner under kerosene or benzene lamps, you will usually find the men gathered around a *tanoa*[27] having a few *bilo's*[28] of *yaqona* to end the day.

At the foot of the hill in the new village, there is a cliff which drops several meters to the sea. The gradient of the hill varies in several places, with some areas being of a much gentler slope than others. Concrete houses and a few wooden ones are built onto the hill. Some of the houses in the new village and a few in the old village are remnants of the relief aid given to Cyclone Meli (March 1979) and Cyclone Oscar (1983) victims. These were the Woodtex and Union Marketing Houses respectively in which the former was named after the Woodtex panels donated by the New Zealand government and the latter named after the local company which manufactured the house parts (Campbell 1984:126).

The population of Solodamu numbers 132 (Suliasi Lau, Solodamu informant). Their main source of income is derived from selling *yaqona* and other root crops including cassava[29] and taro[30]. There have been attempts in the village to grow vanilla, cabbages and raise bees for honey. There are currently two NGO workers in the village. One is a local from the village

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[26] Where the gardens are tended to by a large number of people who keep rotating and moving on to another garden till all their gardens have been weeded and cleaned.
[27] Wooden bowl used to serve yaqona.
[28] A cup or bowl.
[29] *Manihot Utilisima* or tapioca. A common household food in Fiji whereby the roots are digested but in some parts of Fiji the leaves are also eaten.
[30] *Colocasia esculenta* or *dalo* in Fijian. Its roots, stem and leaves are all eaten.

and the other is an American Peace Corps Volunteer. They have been attempting to set up the bird reserve in the mountains adjacent to the village.

Figure 10 The new village of Solodamu (encircled) (Source: Author)

It is their hope that an eco-tourism venture may soon be run by the villagers themselves and earn money for future village development. The pine trees on the mountains (see Figure 11) have recently been logged and have started to bring in considerable income for the landowning *mataqali*.

During the colonial period, the general policy regarding indigenous Fijians was somewhat contradictory. On the one hand, the Fijians were being encouraged to remain in their villages and go about their communal living as usual and if they left their villages, they could not be away for longer than necessary otherwise they would be fined (Tomasi Kama, Solodamu informant). At the same time there were various people who left the villages to pursue work at the various mills and mines around Fiji while others were encouraged to

become individual *galala* farmers who leased out land and became farmers (Isoa Tokomato, Solodamu informant). This is particularly evident in Solodamu where a number of villagers left to work in the Naikorokoro Timber Mill in Kadavu while the majority remained behind in the village. Many others finally migrated to the urban areas in the ensuing years and continued to financially support their families who remained in the village.

Figure 11 The pine trees which are ready to be logged in the hills above the old village which is also home to the endemic *kaka* parrot (Source: Author)

The majority of the village population are Methodists, with two families belonging to the Assemblies of God congregation and another two patrons of the Jehovah's Witness denomination. The first Methodist church that was built in the new village was built when the village was still located at the old site. It was the first building to be relocated (see Figure 12) and the houses soon followed. Today the church has had its share of wear and tear and has withstood countless cyclones and storms. A new cement church is currently being built alongside the old church and services are being held there because the old church is no longer considered safe. The village also boasts a new meeting house and has a village store run by a family in the village. Various families sell certain goods to add to their income such as cigarettes, sweets and pounded yaqona. A few sell alcohol on the black market.

Figure 12 The old church which was the first building to be relocated (Source: Author)

The primary-school aged children attend the local school at Tavuki which is a mere 20 minutes by foot (see Figure 13). The older children attend either Vunisea Secondary School, which is a government school or the church-run Richmond High School, a 20 minute boat ride from the village of Solodamu. Travelling to Vunisea which is a government station typically involves a forty-five minute ride in a fibre-glassed boat from Solodamu. A few students whose parents are able to afford it and have supportive relatives get the chance to attend high school at an urban area on the main island of Viti Levu.

The process of arriving at a consensus in village meetings involved all the men of the village attending the *soso*[31] or village meeting. These meetings are often headed by the village chief and the elders of the various *mataqali* and held in the *vale ni vanua*[32] or the village meeting house. These meetings often involve the elders of the village making the decisions and the younger men of the village carrying out the decisions.

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[31] A village meeting.
[32] A village meeting house.

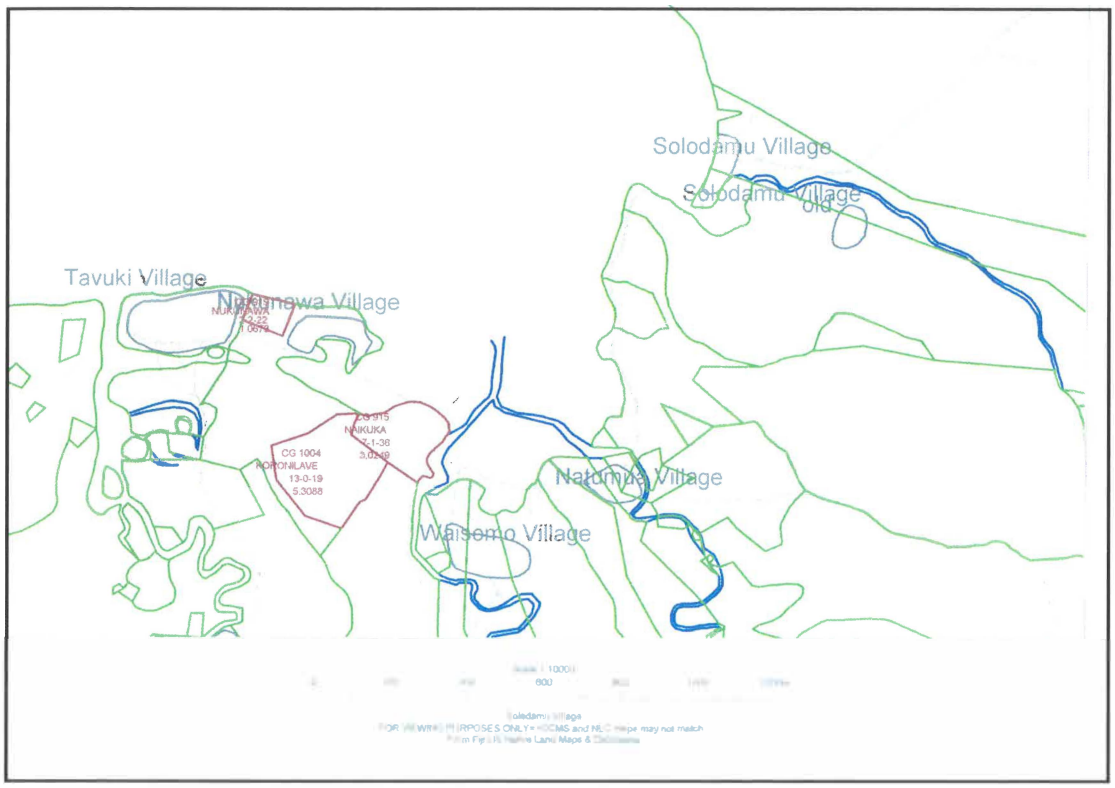

Figure 13 A GIS generated map of the Tavuki district showing the location of villages. (Note the position of stream, in blue, apparent at low tide) (Source: Department of Lands, Government of Fiji, unpublished map 2004)

5.2 The Relocation

The following account of the relocation was drawn from the interviews and focus group meeting that took place in Solodamu. The idea to relocate was born after a major flooding event occurred in the old village in 1959. Storm surges caused the foreshore to be submerged in water and the increased rainfall led to the creek behind the village overflowing its banks and flooding the area directly behind the old village. The result was complete inundation of the old village because the land area, upon which the village was located, was in itself, very narrow and small. The villagers ended up having to row through the old village to gather their personal belongings during this event. Prior to this the church had already been relocated to the site of the new village, atop the hill. In addition to this, the villagers had attempted to construct a seawall on their foreshore to stem the erosion that

was occurring. The attempt failed and today the seawall is partly completed and is submerged in water during high tides (see Figures 14 and 15).

Figure 14 The submerged seawall during high tide (Source: Author)

Figure 15 The partly-completed seawall at low tide (Source: Cagilaba 2004)

After the flood event, the elders of the village, the head of the *yavusa* and the heads of the various *mataqali* and *i-tokatoka* decided that relocation was their best option to protect themselves from similar events devastating their lives in the future. The *vale-ni-vanua* was relocated next followed by Tomasi Kama and Alipate Veitarogivanua's houses, who were the pioneer settlers in the new village. With regards to the land upon which the present village is located; part of it belongs to the *Mataqali* Vunivesi of Solodamu village and the other part belongs to a mataqali from the neighbouring village of Natumua. When the topic of relocation first came up, the task of gaining permission from the concerned landowning mataqali of Natumua village fell upon the shoulders of a certain elder of Solodamu by the name of Mosese Natuwawa. He successfully negotiated the use of the neighbouring land and it was assumed by all that everyone would move up to the new site together. However, Mosese Natuwawa opted instead to remain with his family at the old site and instructed his children to continue the tradition. Today Mosese Natuwawa's offspring continue to reside in the old village whereas the rest of the village now reside at the new site on top of the hill.

5.3 Impacts of Relocation

5.3.1 Division in the village

There is now division in the village of Solodamu since the relocation occurred because some chose to stay in the old village and not move with the rest. There was in a sense, a feeling of disunity in the village. When it came to discussion about the development needs of the village, those who lived in the new village obviously had different concerns from those that still resided in the old village. The residents of the old village prioritised the rebuilding of the sea wall and undertaking land reclamation works to make the old village inhabitable once again. They foresaw the day when the residents of the new village would once again move back to the old village, the place where their fathers had established the foundations of their homes (*yavu*) for generations to come. Residents of the new village however, had various other concerns.

5.3.2 Disagreements about conferred land

As noted, Part of the land upon which the new village is located was obtained from a *mataqali* from the neighbouring village of Natumua. When the elders of Solodamu first came up with the idea to relocate, they decided that relocating to the top of the nearby hill was their best option. They then went to the elders and head of the landowning mataqali from the nearby village and asked if they could settle on part of their land. This was all done in a traditional manner with a *sevusevu* and a *magiti*[33] or feast presented to the landowners. The landowners acquiesced and offered the villagers of Solodamu a portion of their lands to settle on.

However, in recent years a member of the landowning *mataqali* has begun to question the rights of the Solodamu villagers to reside on his clan's lands. This has distressed the elders of Solodamu who feel that their livelihoods are increasingly becoming threatened. As a result, the landowners have reduced the portion of land originally given to the Solodamu villagers and they have indicated their wishes that no more construction of homes is to take place beyond the boundary. The elders of Solodamu are obviously grieved that the agreement made so many years ago between their fathers and the elders of the landowning mataqali is now deemed almost void and unrecognisable today. Alipate Veitarogivanua Kalouniwaqa, aged 73, who was my first interviewee, shared his thoughts with me saying:

> "The difficulties that face the... when the village was uprooted and they came to reside here where it is divided into land which belongs to Natumua and land which belongs to the *Mataqali* Vunivesi of this village ... and all the traditional procedures and protocols were observed... the *i-yau*[34] and *magiti* were done in order for permission to be granted for us to build our houses on this land... so this could be a substitute for the one we had left... it was done and it was done properly... then came the... Department of Fijian Affairs to survey the land... it was approved... however what is now happening is that things are now proving to be difficult with those from Natumua with regards to the land that is now part of this village... it is proving to be increasingly difficult... the boundaries have now been reduced and moved back and the Native Lands people have come to witness and record this."

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[33] A feast.
[34] Treasures usually comprised of mats, *masi* or tapa, and *tabua* or whale's teeth.

Because it was not a formal agreement, put down on paper to serve as a binding contract, their position today is a quite tenuous one. This illustrates how insecure and unpredictable traditional arrangements and informal contracts can be in today's modern society.

There are a few other issues that have arisen up the original landowners of the piece of land in question. An elder in Solodamu, Tomasi Kama, claims that the land in question was originally the property of the *Mataqali* Vunivesi of Solodamu Village. The head of the *Mataqali* Vunivesi at that time was a preacher and he gave his land to a man from Natumua for a very ornamented layman's shirt. He allowed the man to eat the coconuts in that particular piece of land but when the next census occurred, the man from Natumua made sure that the piece of land was registered under his name.

Tomasi Kama also stated that the area at the foot of the hill where the new village is now situated used to be a burial site for the provincial hospital that was located at Natumua village. Deceased patients from the hospital were usually brought to Solodamu to be buried and when the new village was settled, these graves were dug up and disposed off elsewhere. When the elders of Solodamu went to the elders of Natumua asking to settle on some of their land, they may have had in mind the notion that maybe the elders of Natumua could reciprocate to them some of the feelings of brotherliness and kindness they had once bestowed upon them. But even with the digging up of the graves came other issues such as whether it was done properly so as not to allow for possible repercussions according to Fijian traditions.

5.3.3 Water

The water supply to the new village was a prominent issue that kept cropping up in nearly all the interviews. To the villagers, water was an essential and integral part of their daily lives. The water supply to the old village came from a spring called Nabosucu-i-dua (see Figure 16), which according to most of the research participants was "never-ending" and "never ran dry". It is purported to have healing and special qualities by the villagers of Solodamu.

Figure 16 Nabosucu-i-dua - the springs that feeds the old village (Source: Author)

Meliki Belo, a woman from the village of Vunisei, also in Kadavu, who married a man of Solodamu Village states:

> "I had always heard when I first arrived here that if we were ill... we were to go and bathe there (Nabosucu-i-dua)... we would be healthy and full of life if we bathed in that pool... in the morning when we awoke we went to the pool... when we bathed we felt our bodies changed and healed from the illness... yes I witnessed that".

It was able to supply the old village quite adequately and residents in the old village had nothing to worry about when it came to issues over water. With the move to the new village, which was located up on a hill, the water pressure from the spring at Nabosucu-I-dua was incapable of supplying all the households in the new village with water. The pressure of the water from Nabosucu-I-dua fell a few metres short of the first house at the foot of the hill of the new village.

They then ventured into the hills above the village, where most of their gardens were located and utilised water from a spring there to supply the new village. The spring directly feeds into a large water tank at the top of the new village, which then distributes water to the various houses in the village. The construction that took place to allow for the water to reach the new village involved a lot of hard, manual labour. The task of hauling the cement, concrete blocks, iron rods and PVC pipes fell upon the shoulders of the men in the village. Even this arrangement is insufficient for the village today. When this current arrangement of water supply to the village was first being planned, it was estimated according to the number of people living in the village at that time. In recent times however, it has proved to be quite inadequate for the current population. The increasing number of households and thus houses in the village has meant that each new house built has to have its own taps but they are still receiving their water from the same source.

The daily pattern in the village now is to open the taps for an hour or two early in the morning and then late in the afternoon. During this time the women and children usually fill up as many buckets and containers as they can for their daily needs. If they fail to do so, they then need to walk down to the old village to fill up their water containers from the taps down in the old village. Most of their laundry and bathing during the day is done down in the old village, either at the fresh water pools or at the few houses situated there. After coming down the hills from their gardens, they usually stop in the old village to wash their root crops, fruits and vegetables before making the slow ascent to the new village. During dry bouts the water tank at the top of the village sometimes dries up and this proves to be a real problem for the villagers. This may prove to be a greater hardship if scenarios of increased incidence of drought under climate change are fulfilled.

5.3.4 Yavu

When their ancestors first settled Solodamu, they settled in an area up in the hills above the current old village, called "Dela i solo". They lived here during the tribal wars at a time when cannibalism was still rampant. After the tribal warring years came the period which the villagers referred to as the "time of light" in which they moved closer to the sea at an area

called "Naikabai". This is probably when the missionaries first penetrated the "heathenistic" lives of these people. Tomasi Kama remarks that:

> "When our ancestors first arrived here they went straight into the hills to live there... we lived there... that was the village where our ancestors established themselves... where our present day *yavusa* originated from... cannibalism occurred... after the warring years had subsided then came the 'time of light'... Christianity had arrived by then".

They experienced a lot of death and disease in this area so they moved even closer to the sea, right on to the foreshore, at the current site of the old village. Although they fail to specify exactly what types of diseases were plaguing them in this area, the elders that I interviewed were adamant about the widespread disease and deaths that occurred there. According to my research participants, this site that had been settled prior to the settlement of the current old village is also where the first stones were thrown, to lay the foundations for each house in the village.

Every Fijian village has a predictable setting to it with usually, although not always the case, the chief's house in the centre surrounded by his people placed in a hierarchical position in relation to their own social standing in that particular society or community. It will usually have a *rara*[35] and the village layout is very cleverly and thoughtfully laid out. A traditional Fijian house or *bure*[36] is always built on a *yavu*, which is the foundation of a house (see Figure 17). The task of allocating where a certain *yavu* will be laid involves the chief throwing stones from his own house. Where those stones land is where each person will build their houses 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 laying down 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*. When I talk about *mana* in this context, I am referring to objects or words appearing to have supernatural qualities or power

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[35] The village green.
[36] A traditional Fijian house.

(Capell 1991:135). Fijian meanings of *mana* can also be seen in terms of its 'efficacy' (Tomlinson 2002).

Figure 17 A Fijian Chief's house built atop a yavu (Source: Waters 1907)

When the community relocated to the new village, their *yavu,* in the old village, were abandoned and left unoccupied (see Figure 18). There were no new *yavu* laid at the new location. Everyone did as they pleased and built their houses wherever they could find a clearing on the hill. In the words of an interviewee, Isoa Tokomato:

> "If you go through this village... as long as you can cut yourself a nook or cranny into the side of the hill... so you can lay your house in a proper or seemly fashion... whether it is lying on its side... there is no proper arrangement here... "

Thus the traditional practices of laying a *yavu* and actually living on one's family's yavu have become no more. There is no proper and seemly layout to the arrangement of houses in the new village because all the houses are crammed onto a small hill. This led one of the female research participants who still lived in the old village, Miliakere Natuwawa, to say that:

> "There was *mana* in the old village".

She and Isoa Tokomato both believed that the *mana* and power that came with living on one's *yavu* only existed in the old village because that was where the stones were first thrown. Tomasi Kama paralleled their emotions when he expressed himself saying:

> "Our power is in our *yavu*... because the power in our *yavu* comes from the act that our fathers did in throwing the stones, in placing their treasured gifts upon and preparing a *magiti* for the *yavu*".

That was where their fathers and their father's fathers had established themselves. That was where the arrangement of the houses in the village had been laid out in a proper and seemly fashion. Therefore, they believed that there was *mana* present only in the old village.

Figure 18 Mosese Tuvoli pointing at an abandoned yavu in the old village (Source: Author)

5.3.5 Tiredness and Tirelessness

The location of the new village is on a hillside in an area that is of higher elevation than the old village (see Figure 19). A few problems have arisen due to the elevation of the new village. Most of the village gardens are located further inland in the hills behind the new and old villages. Some of the villagers have been experiencing tiredness from the daily climbing

to and from the new village (see Figure 20). The elderly, especially, are feeling the effects of it today. In the old village, the villagers only had to climb the hills to their gardens and with their crops safely perched on their backs; make the descent back to the village. In the new village however, it is a different story. In order to reach their various gardens, the villagers have to make the descent to the old village, which is an area of flat land right by the sea then, make their way up to the hills. After their gardens have been tended to, they then make the descent to the old village, and then make the ascent to the new village. This is their daily pattern and if they are carrying food baskets on their backs, the journey is a much slower and more arduous one. Upon reaching the foot of the hill upon which the new village is located, the villagers must then make their way up the hill to wherever their houses are on its slopes.

For some it is quite a steep climb, especially for those who live right at the top of the hill near the summit. Isoa Tokomato explained how his father, his son and he were all suffering from health problems he believed stemmed from the fact that their house was the right at the top of the hill. Their daily coming and goings on the hill have proven to be quite detrimental to the health of only the men in his family. His father had suffered a stroke, he had very high blood pressure and his teenage son was constantly experiencing severe chest pain. He believed that they were increasingly becoming tired and weary because their house was too high up the hill and all the problems the village was facing with water and such only proved to further exacerbate their health problems. Isoa Tokomato's concerns were:

> "In the old village everything was easy with regards to the
> the things you had to carry... you could carry things easily...
> when you anchored your boats... I have a motor boat... when
> I've moored it... I need to put away all the engine parts
> and various other boating equipment... I then have to struggle to
> get all the equipment and parts up to my dwelling which is
> too far and way at the top of the hill... ".

Because his family was now experiencing health problems, he did not want his only son to go through the same experiences that he did. This has led him to seriously consider saving up to build his son's house in the old village again.

> "I feel that if I stay here... my father has had a stroke, I'm beginning

to experience high blood pressure... I'm thinking of all the other hardships I'm facing considering the fact that I only have one son... I want his future... and that of his family... to be down in the old village I will endeavour... because I only have one son... so he can enjoy his life there... I have the physical strength and the ability to speak and get things done... I am currently striving to gather between five to ten thousand dollars so I can construct a house for him in the old village so he can be free from the things up here... the hardships".

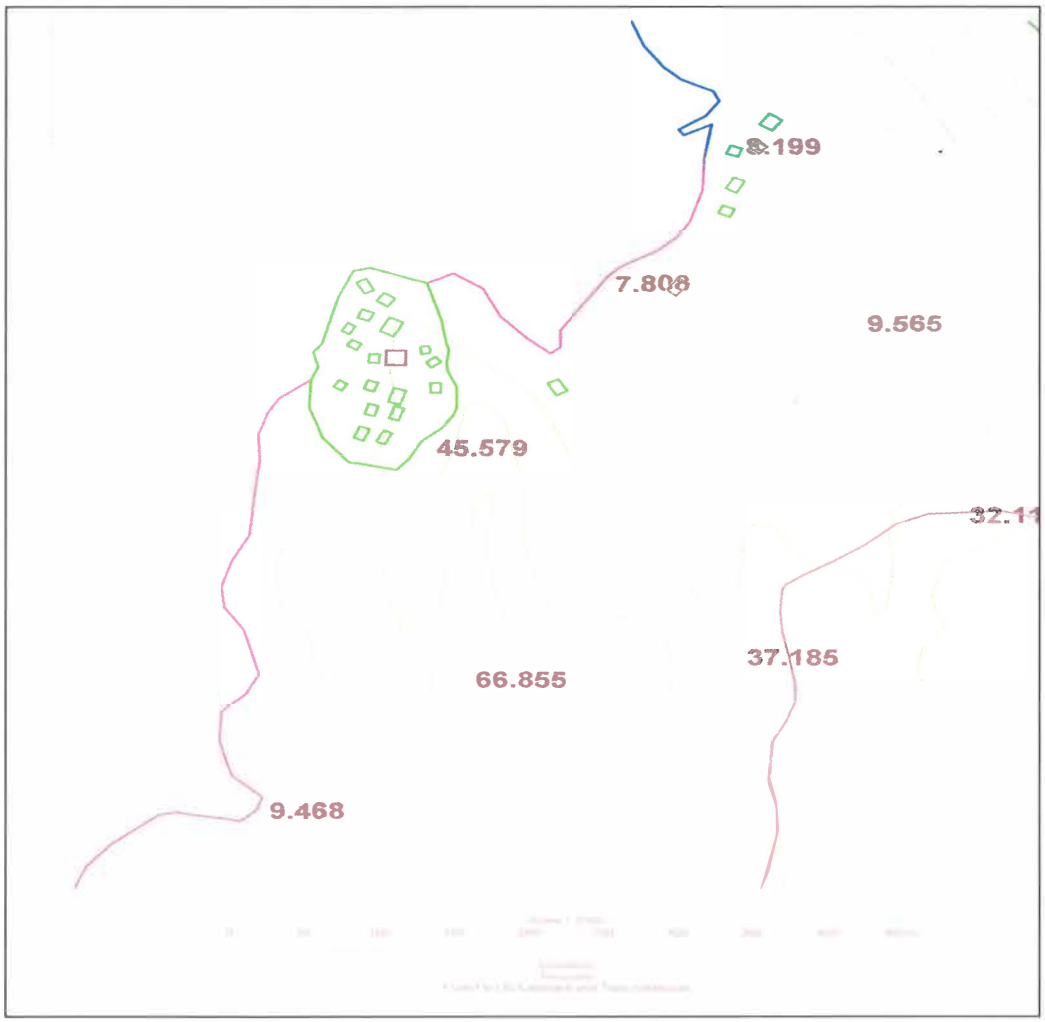

Figure 19 Map of Solodamu Village (in green) showing elevated contours (Source: Department of Lands, Government of Fiji, unpublished map, 2004)

In the old village, when it was still occupied, it was very easy to load and unload cargo onto the boats and launches because the village was right by the sea. With the new village, they have to carry the cargo a considerable distance before reaching their homes. All the

transporting of cargo is still done the old fashioned way on their backs. Every piece of machinery, building material, furniture and other heavy goods brought from elsewhere is carried on the villagers' backs. Those that have wheelbarrows are quite fortunate but even that is incapable of carrying the larger pieces of equipment.

Figure 20 The new village of Solodamu which is located on a hill (Source: Author)

5.3.6 At Peace

The villagers maintained that despite the various problems they are currently experiencing at the new site, they are finally at peace from the storm surges they used to encounter at the old village. They are no longer worried about fleeing onto higher and dry land when storm surges do occur. They now observe the surges from within the safety of their elevated homes.

5.3.7 Gender Issues

A woman I interviewed during my focus group session shared with me and the rest of the group her experiences of living in the new village. She had lived for a while in the old village when she first got married to a man from the village of Solodamu and moved there. She had also experienced the move up to the new village and stated that:

> "When we left the old village we were very distressed about moving up because down in the old village... it was so easy; the water was near... firewood was near ... when we went to our gardens it was so easy, it's true we tired at the gardens but when we came back we rested nearby... when we moved here... Alas! So tiring ... we came to experience difficult conditions up here"

She was of the opinion that the women had suffered the most upon relocation. Women had to tend to and worry about the minute details of daily living while the men "just could not care less". The woman had to ensure that their families had ample water for the day and that the clothes and dishes were washed. If she failed to collect adequate water in the morning when the taps were opened and the water was running, then it was her task during the day to walk down to the old village to fill up her containers with water and to also wash her family's dirty laundry at the fresh water pool. All the men had to worry about was tending to the gardens. At the end of the day when they came to sit down to dinner by the edge of the tablecloth, it is likely that they had no thought whatsoever to the efforts done during the day by the women to have everything ready for their husbands by the end of the day. Another woman also expressed her concern that women that had married into the village were now regretfully also coming to experience the same things that the women from the village of Solodamu were going through. There was not much difference anymore between the women who married into the village and those that were originally from the village.

5.3.8 Those that stayed behind

During the interviews I got the feeling that those in the new village were not very happy with those that chose to stay behind in the old village and refused to relocate. They had all thought that everyone would move up together and live as one in the new village. Those families that chose to remain in the old village did so because their fathers had instructed them to remain on their *yavu* and to maintain it for future generations. Josevata Natuwawa, one of the few that remained behind with his family stated that it was very difficult for him to leave his *yavu* because that was where his ancestors had established themselves. His father, Mosese Natuwawa, had also chosen to remain in the old village with his family because he felt he was too old and would not be able to manage the rugged terrain of the new village.

Josevata Natuwawa insists that his family's decision to remain behind was a good one because they had foreseen the day when those in the new village would start to move back to the old village. He believed that with the increasing population, the new village site would be insufficient to accommodate the growth in numbers. The traditional arrangements which occurred in the past to do with the land which was requested from the next village were now deemed precarious. For these reasons, Josevata Natuwawa decided that he needed to be the head of the development committee in the village so that he could promote his development concerns for the future of the village as a whole and more so for the old village. His main aspirations for the village included constructing a proper seawall and embarking on land reclamation works on the foreshore of the old village so that the residents of the new village may once again occupy the village of their elders and their elders before them. He also believed that by remaining behind in the old village, his family and the other families that chose to do so were doing the whole village a favour. They were preserving the old village for when it would be occupied again; for when the villagers would once again return to dwell upon their *yavu*.

5.4 Conclusion

Despite the safety and the peace that the villagers of Solodamu now experience from the storm surges and from the inundation, there was a general sense of dissatisfaction in the village regarding the relocation. There were numerous 'what-if's' expressed in the interviews about what would have happened if they had remained in the old village. The issues that are now facing the villagers cannot be ignored forever but history has shown that in spite of their struggles, the villagers have never given up or tired of trying to continuously better their lifestyles and living conditions in the hope that their children will have better chances at life than they themselves had. Their resiliency is evident in the fact that despite the many problems they face, the villagers have accepted their fate and new location in the *koro-i-drodro*[37] stoically and now concern themselves with ensuring that their children and grandchildren have better futures. They were able to make something of themselves upon relocation and can now watch the storm surges and destruction caused in the old village by cyclones from within the safety of their own homes perched on the hill. The instability around their traditional land tenure agreements, the subtle division in the village, the problems over water, *yavu* and their general health and well-being and the concerns of the women are all issues that, although they may be unique to Solodamu, need to be addressed when thinking about relocation in other parts of the Pacific and the world over.

[37] Village or place of refuge.

Chapter 6

The Seawall – A Life Sentence: Rukua Village, Beqa

6.0 Introduction

The village of Rukua has had to continuously fight to maintain its position against a sea that persists in threatening that position. In contrast to Solodamu who adopted a flight tactic, Rukua undertook a fight strategy that has had severe consequences for the village as a whole. This chapter briefly introduces the village of Rukua and examines the issues that have cropped up since the seawall was constructed and the land reclamation works were carried out. In doing so I wish to demonstrate that despite Rukua's apparent prosperity and material comfort, the villagers remain exposed to the growing possibility of sea-level rise and climate change.

6.1 Background

The island of Beqa (Figure 21) lies 7.5 kilometres south of the Navua delta on Viti Levu which is the main island in Fiji (Rajotte & Bigay 1981:1). A barrier reef surrounds the island and encloses it within the Beqa Lagoon, and Beqa is separated from the main island of Viti Levu by a very narrow and deep marine passage (Rajotte & Bigay 1981:1). The island is volcanic in origin and is "approximately 7.5 kilometres in diameter and has an area of 36.25 square kilometres" (Rajotte & Bigay 1981:1). Beqa, best known for its fire walking, has a total of nine villages, evenly spaced around the island's coastline. The high and rugged island also has a coral reef system which boasts one of the best fishing grounds in Fiji. Today Beqa comes under the leadership of the province of Rewa, but in the 19th century, it was 'a pawn to the super-powers further east: Bau, Rewa, Verata, Cakaudrove and Lau' (Crosby 1988:12).

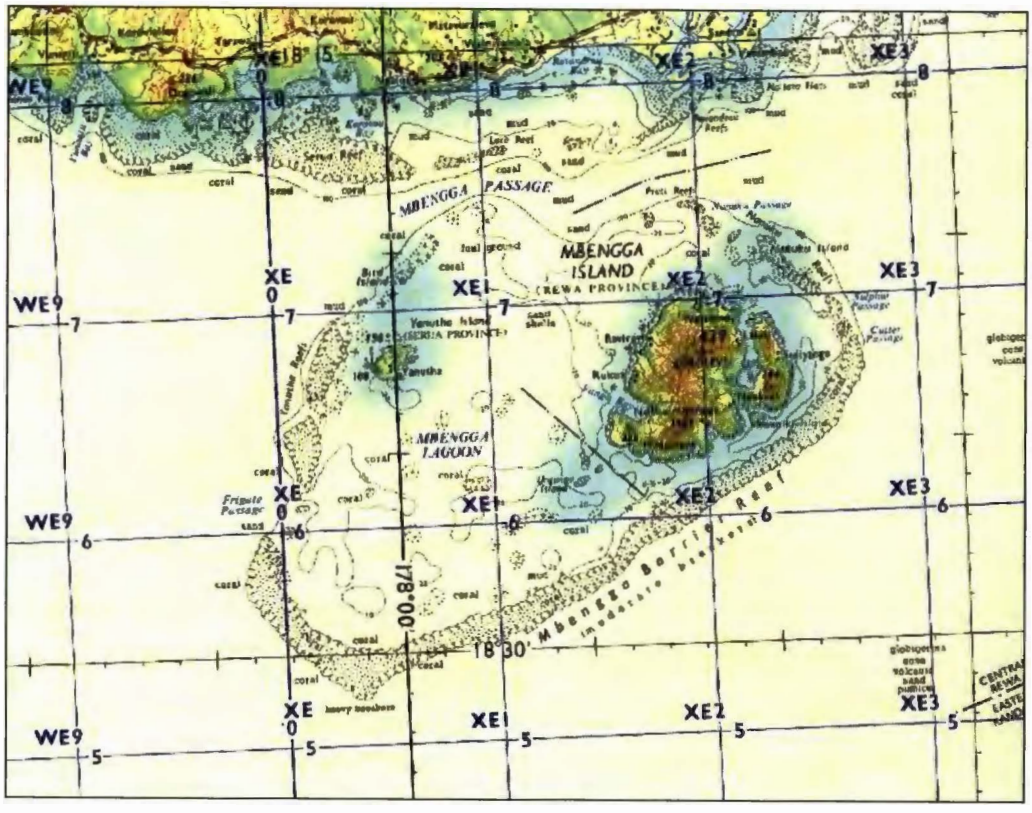

Figure 21 A Map of Beqa (Source: Ministry of Defence, UK 1969)

The village of Rukua is located on the Western side of the island and is situated on a very narrow piece of land at the foot of steep rock cliffs that span the entire length of the village. Steep hills, in which the Mataqali Rukua have their gardens, rise directly behind the village. The land upon which the village of Rukua is located also belongs to the Mataqali Rukua, one of the six *mataqali* in the village. The other *mataqali* in the village are the *Mataqali* Saumua, Matanivanua, Duruvesi, Levukana and Vaga.

The village has an estimated population of approximately 300 people (more than twice the size of Solodamu). There are 52 houses in the village but not all of them have people permanently residing in them. A few of these houses are holiday homes for some families. They are employed in the urban areas on the main island of Viti Levu to support their children's education and only come to reside in their homes during the holiday period. Others are employed in the various hotels which are located in the Western part of Viti Levu where the tourism industry is mainly concentrated while others are resident overseas. Quite a few of the young men and women in the village are employed at the nearby Marlin Bay

Resort (see Figure 22 overleaf) and work there in housekeeping, grounds maintenance and as divers and waitresses. They provide regular income for their individual families. The other main sources of income for most of the villagers are gained from planting *yaqona* and other fruits and vegetables. During the different times of the year when particular fruits and vegetables are in abundance, they are packed up into crates and carted off to be sold at the markets at either in Suva, Navua or at one of the other towns on Viti Levu.

From day to day, the villagers of Rukua concern themselves with household tasks which often involve the whole family. Everyone lends a hand to get food ready on the table or to keep the house and outside surroundings looking clean. While the children attend school, the adults are busy working at either the resort or at the gardens gathering food, or on the reefs fishing, or at home cooking and cleaning. During the school holidays the village is alive with laughter and chatter as the older children from boarding schools on the mainland arrive back in the village. The evenings usually consist of the Methodist men sitting around a *tanoa* drinking yaqona while the Pentecostal Christians usually have either choir practices or bible study meetings. Despite the differences in denominations, the village of Rukua is quite close knit and the various *i-tokatoka* and *mataqali* come together quite frequently to have family feasts and celebrate different holidays, the birth of a baby, the arrival of a long-lost relative and the like. Communal responsibilities are always undertaken with vigour and enthusiasm especially if it is on a scale that involves reuniting with relatives from other parts of Fiji and the world, and the cold-shoulder often given to those that choose not to pull their weight around the village is enough to deter people from failing to fulfil their communal responsibilities.

The village also boasts a large newly constructed concrete Methodist church, a community hall, a youth vocational house as well as a newly constructed meeting house which was completed in 2003 (see Figure 23). The village used to have its own Post Office and dispensary but those services are now no longer available in the village. There is a village co-operative store and a few families run their own canteens selling a range of consumer goods.

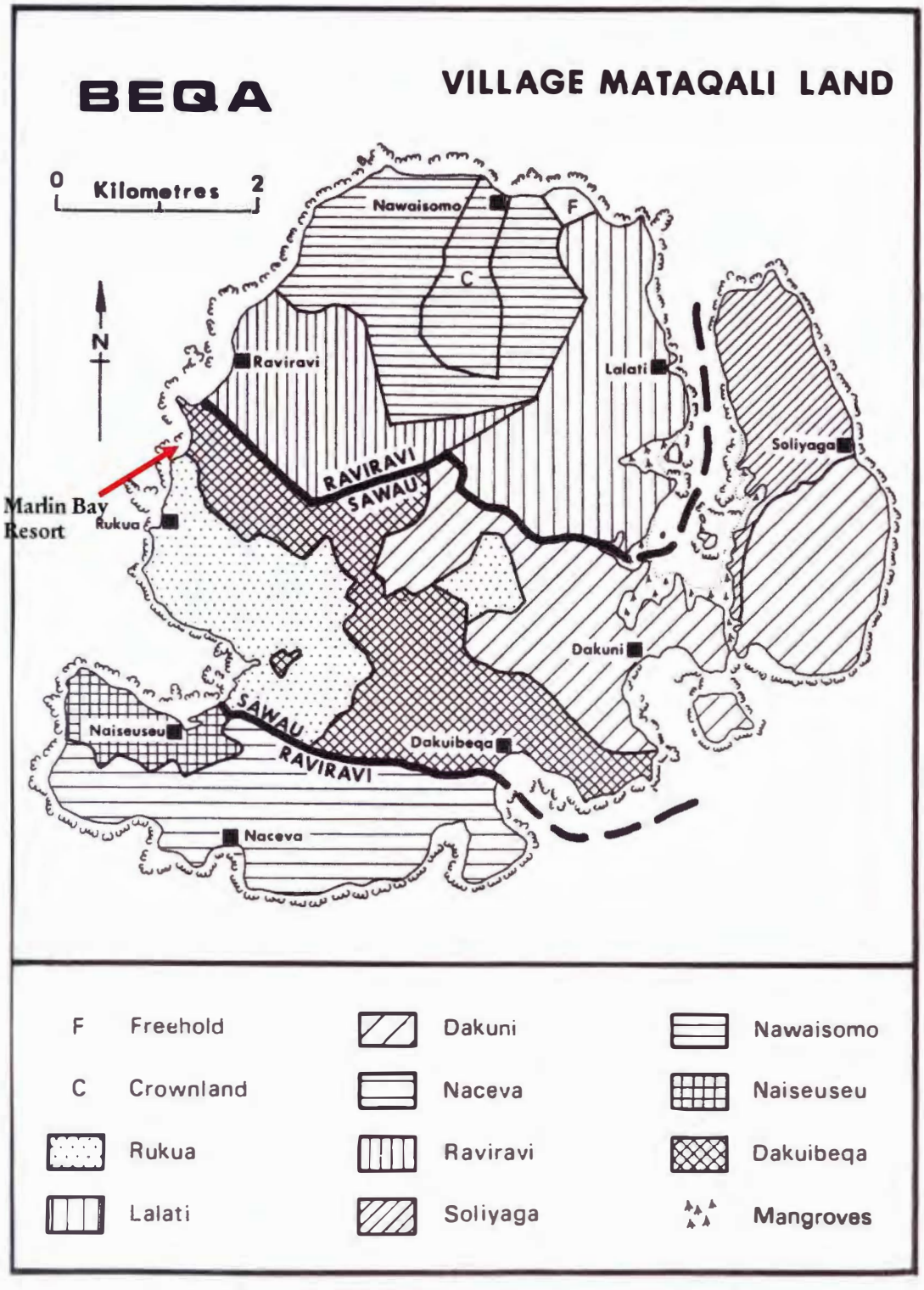

Figure 22 The island of Beqa, showing the location of Marlin Bay Resort and the villages and the distribution of land among the nine villages (Source: Rajotte & Bigay 1981:64)

The village gets a regular supply of water from a spring located close to the nearby Marlin Bay Resort. It is supplied with electricity in the evenings for about four hours and the villagers are currently working on providing footpaths throughout the entire village.

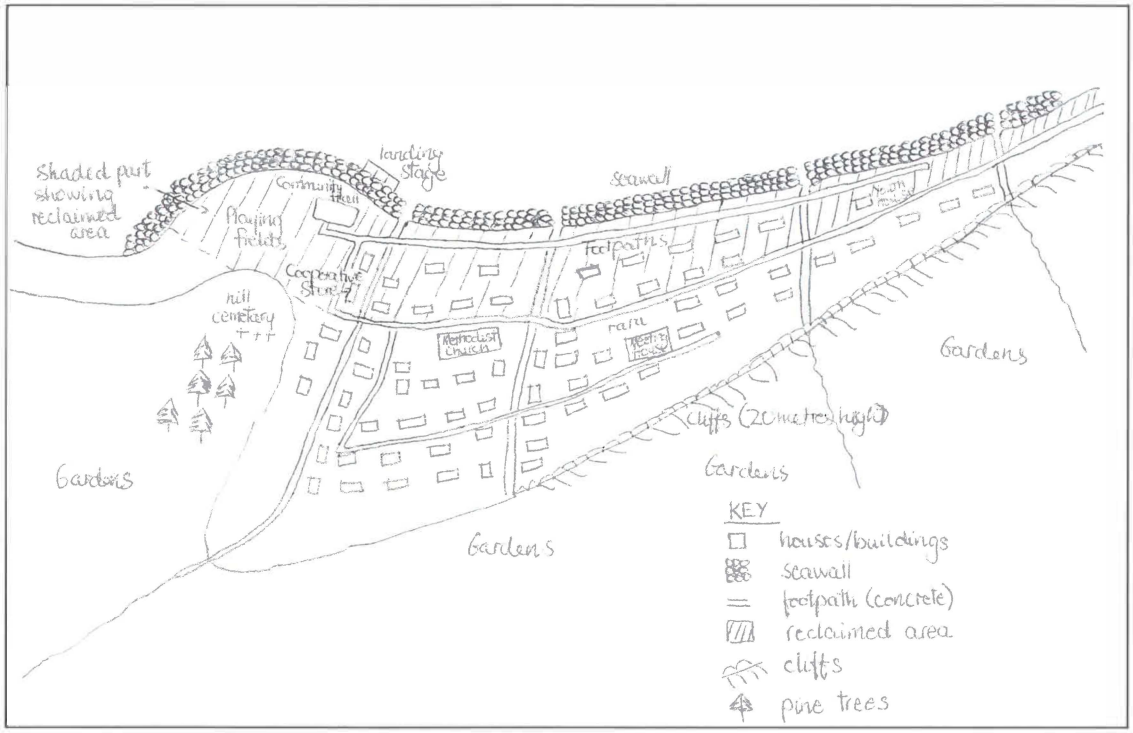

Figure 23 Sketch map of Rukua showing the location of the sea wall, houses and gardens (Source: Author)

Almost every family in the village has a television monitor and some either have VCRs or DVD players. Those that are able to have really high antennas atop their houses are able to obtain television coverage broadcast from the mainland. Most families have cellular phones because the island is also able to receive Vodafone coverage which is the cellular service company in Fiji. A few families still cook outside in open fires but quite a few now use gas or primus stoves which utilize kerosene to cook their meals. A number of families use both methods to cook their food. The outside open fires are usually used to cook heavy foods such as root crops and such while the inside stoves are usually used to cook the main course such as fish and vegetables. *Lovo's*[38] are usually only prepared when there is occasion to celebrate, during the holiday season, when there is a funeral and during big church

[38] Food cooked in an earth oven

conferences and such like. In many respects, Rukua is almost like any other urban place on Viti Levu. Many of the villagers work at either one of Beqa's six resorts. Their children go to school on the mainland. They consume imported and processed foods from the mainland and have most of the electrical appliances one would find in an urban household. Going to their gardens can be likened to a leisure activity. Only when they can spare the time in their busy schedules do they go and tend to their sometimes overgrown gardens.

The main denomination in the village used to be the Methodist church. However, in recent years, missionaries from the locally established Pentecostal church, the Christian Mission Fellowship (CMF) converted a large number of villagers and they now conduct their services every Sunday in the community hall while the Methodist congregation continues to have services in the church. The number of Methodist households in the village numbered 15; three were Assemblies of God patrons and the rest were all members of the CMF congregation (Ilaitia Tagutu, Rukua informant).

The people of Rukua were more aware of sea level rise and climate change than were the people of Solodamu. The sea wall and land reclamation works that were completed in 1973 were undertaken in order to prevent further foreshore erosion. Foreshore erosion had been occurring for an extended period of time and studies done by Nunn (1993) indicate that at Rukua the rate of lateral inundation had been 6.33 centimetres per year over a minimum timeframe of 79 years. The village of Rukua received some government assistance as well as fundraising themselves through fire walking trips overseas to raise money for their sea wall. The villagers also performed fire walking ceremonies regularly at two of the hotels on the main island of Viti Levu. Their letters of correspondence with government officials in the 1950s and 1960s demonstrate that they were aware that there was government assistance available to them if they needed it. The records of the Rewa Provincial Council show that in the provincial meeting that took place on the 17th of April, 1973, Peni Bolatagici of Rukua village had put forward his motion of asking the government for some more funds to undertake additional land reclamation works at Rukua. The motion was approved by the council and upon receipt at the colonial office, the province was informed that the request was one 'dealing with rural development matters' and would 'be channelled through rural development committees for consideration' (E. B. Seru, official correspondence).

Figure 24 Stone and cement sea wall protects new houses at Rukua (1981) (Source: Rajotte & Bigay 1981:14)

The seawall at Rukua today is much higher than is pictured above (Figure 24). The villagers have continued to increase the height of the seawall and simultaneously strengthen it in order to protect their houses.

6.2 The construction of the seawall and the land reclamation works

Prior to the construction of the seawall and the land reclamation works the villagers would plant the trunks of coconut trees along the foreshore to act as a barrier to the incoming waves. But with each successive storm surge, the villagers became more disillusioned because it was not enough to protect their foreshore. They were also told by the agricultural authorities to remove the coconut tree trunks from the beach because it was a breeding place for the dangerous rhinoceros beetle. Official correspondence between the head of the *Mataqali* Rukua and the Roko[39] of the province of Rewa[40] in 1963 included claims by the villagers of Rukua that since they were not allowed to plant coconut tree trunks on their foreshore, then the government would have to provide some alternative solution to the method they had always been accustomed to. They then hired a bulldozer to gather some

[39] A position created during the colonial era, that of being a district commissioner.

sand from the sea and placed it on the beach but again this was not very effective in combating the problem of foreshore erosion.

As their concern over the erosion of their foreshore grew, the elders in the village began to discuss the idea of relocating to a bay which was closer to the nearby village of Raviravi. The village would be located on a gentle slope, in a sheltered bay very close to their source of water and it would be protected from the damage caused by storm surges. For various reasons, the elders decided to remain and not relocate. According to Jonacani Dabea, a few of the elders who refused to relocate chose to do so because they wanted to remain and continue to reside on land which their elders had resided in.

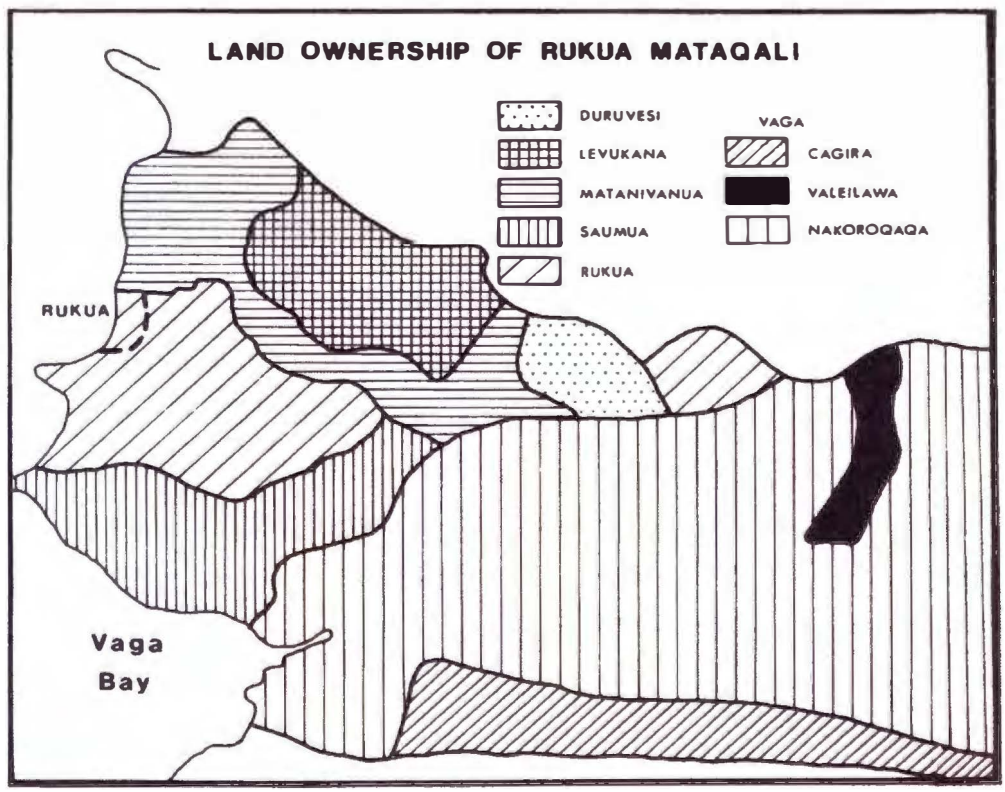

Figure 25 Mataqali Lands in the village of Rukua (Source: Rajotte & Bigay 1981)

They also felt that with the relocation they would be much further away from their gardens. The present location of Rukua village allows each *mataqali* to access their *mataqali* lands at about the same distance as the other *mataqali* in the village as seen in Figure 25 above. The village is almost in a central position in relation to their gardens and thus the relocation to

the new site was not hugely favoured. A few other families in the village had by the 1950s and 1960s built permanent homes and they also were not keen on the idea of having to disassemble their homes again to relocate. In a letter to the head of the mataqali Rukua, the Roko also mentioned having received a request for the village of Rukua to be relocated. He had discussed the issue with other colonial officials, the District Officer, the Secretary of the NLTB as well as the Town Planning Officer and all had decided that they would not coerce the villagers of Rukua to relocate; it would have to be their own decision. The general idea may have been to corner the government into doing something for their foreshore problems since their traditional protective fences had been rendered illegal by the colonial administration.

6.3 Impacts of the Construction of the Seawall and land reclamation works

6.3.1 More land

Before the land reclamation, the village of Rukua was located on a very narrow strip of land. Behind the village, a wall of rock rose steeply which prevented the villagers from extending inland. In the front of the village, the sea was gradually eroding away the foreshore. By reclaiming the land, the villagers were able to acquire more land upon which to build their houses. With the increasing village population this has proven to be a very positive move. About 15 more houses have been built on this piece of reclaimed land, including the community hall and a youth vocational house. The area near the foreshore in the photographs below (Figures 26 and 27), which has very little vegetation, is the area which is reclaimed land. The community hall is located on the far left of the photographs and when these photographs were taken, the youth vocational building had not been constructed.

6.3.2 A life sentence

The construction of the seawall has brought about the additional task of periodic maintenance. Each time a storm surge or cyclone sweeps through the village, a part of the seawall breaks or collapses. This has meant that the villagers of Rukua have to constantly

find the funds to repair the wall. This has become a huge burden for some of the villagers in Rukua and prompted Aisea Laione, the eldest male in the village, to comment on the seawall, by likening it to having "a life sentence" upon their heads.

Figure 26 An oblique air photograph of Rukua village 1981 showing reclaimed land (Source: Rajotte & Bigay 1981:76)

Figure 27 Rukua village 1988 (Source: Crosby 1988:20)

Each time the seawall breaks, they repair it and so far four major repairs have been undertaken on the wall since it was first constructed. Peni Sorowale, aged 63 claims that:

> "A lot of money was used when the seawall was first constructed... more than hundreds of thousands was used for it (constructing the seawall)... and then there's the maintenance which is done every year continuous maintenance every year... if the village had been relocated ... the money that was used on this seawall could have been spent on constructing new houses... and the maintenance (of the seawall) that is happening now... could have spent the money on other development projects occurring in the village today eh... "

Peni Sorowale believed that it might have been easier if they had relocated and not have to foot the funds to continuously repair the seawall as currently practiced by the village. The money to repair the wall could have been spent in other ways by the village. I was told by Ilaitia Tagutu that in the past a village head-man or *turaga-ni-koro* who is now deceased used to constantly repair the wall. He did not wait till the seawall was broken by storm surges to repair it. He would continually repair minor damages so that when storm surges did occur, the wall was in excellent condition and would not fare too badly.

Figure 28 The seawall at Rukua in 2004 (Source: Author)

This shows that the *turaga-ni-koro* at that time was well aware of the dynamics of the waves and tides and he tried to pre-empt the disastrous effects of the waves. He may also have been aware of the changing weather conditions which may have had some bearing on his decisions and actions.

6.3.3 Foreshore erosion elsewhere

Another issue that arose during the interviews was that of foreshore erosion occurring at either end of the village since the seawall had been constructed. The villagers were now observing that erosion was occurring at either end of the seawall. This was quite different from the past, before the seawall was constructed, when erosion occurred directly in front of the village. Sakaraia Labalaba, aged 54, raised the issue by stating:

> "Look at the seawall... when the seawall was built... it seemed like there was a lot more... we observed that there was a lot more erosion occurring elsewhere along the coast since we had curtained off this part of the foreshore... we saw that the sea was eating away at both ends of the village... because we had closed off this part of the foreshore to the sea so that the village could exist here...".

On previous childhood visits to the village of Rukua, I had always noticed large rock boulders at either end of the village but I am unsure as to whether these were conscious attempts on the part of the Rukua villagers to try to prevent further erosion or whether they were just part of the natural character of the area. These rock boulders are still present today and they may have helped prevent further coastal erosion in the area.

6.3.4 At peace

The Rukua villagers felt they were finally at peace from the constant worry of the erosion of their foreshore by storm surges. The construction of the seawall and the land reclamation that took place has greatly reduced their fears of the sea eroding away their village. They no longer have to agonize over whether their houses will be washed away or whether they have to flee onto higher ground when storm surges do occur. With the advent of the Pentecostal Church, the Christian Mission Fellowship (CMF) in the village, the adherents to this

denomination also believed that the Lord would protect them from every calamity that plagued them and thus because their faith was grounded in such beliefs, they had nothing to fear. They also believed that the construction of the seawall and the land reclamation that took place was all part of the Lord's will for their lives and it did not happen by coincidence.

6.3.5 Ease in loading and unloading cargo and passengers

A small landing stage was constructed together with the seawall and this has aided in the ease of loading and unloading cargo and passengers. Before the construction of the seawall, people usually swam out or waded out to the boats which were moored out in deeper waters with their cargo and other belongings. Today, they are able to board their boats from dry land and do not get soaked in the process. The landing stage has made life considerably easier for the villagers of Rukua, especially during high tides.

6.3.6 Heat in the village

Directly behind the village is a long stretch of rock that spans the entire length of the village and which prevented the village from extending inland. During the hot season this rock seems to reflect the heat and the villagers experience a lot of extreme heat. Added to this is the fact that most of the houses in the village have corrugated iron roofs that contribute further to the heat in the village. Sometimes the villagers whose houses are located further inland are unable to get any air from the sea and they often experience extreme heat because the more recent houses that are now built on the piece of reclaimed land are effectively blocking the breeze from getting into the inner reaches of the village.

6.4 Conclusion

Rukua is another excellent example of a resilient community. The narrow piece of coastal land that was their legacy allowed for the sea to create serious havoc upon their community. But despite this they used their initiative and embarked upon major earthworks that created more land for the village and helped reduce the severe foreshore erosion that was occurring on their shores. The foreshore erosion that is occurring on either side of the village today as

a result of the construction of the seawall is an issue that the government engineers and the elders of the village may have overlooked in their need to protect the village. This along with what Aisea Laione referred to as the 'life sentence' illustrates the apparent weaknesses of such an approach in dealing with the effects of a changing climate. Most of the interviewees were of the idea that the 'life sentence' was highly unnecessary and again as evident in Solodamu, there was a general frustration with the adaptation measure that their elders had assumed. Their continued dedication to the upgrade and repair of their seawall is to be commended and despite the relative wealth and affluence of Rukua village, they may well find themselves in an even more vulnerable position due to their proximity to the sea in the case of tropical cyclones and more so because of their growing integration into the global market economy.

All protective works have their limits and fail to prevent damage when supradesign events take place. Eventually this will happen in Rukua where, because of the increased investment in housing and other material goods, losses may be considerably greater than if the sea wall was no built at all. Erickson (1986) outlines this process in relation to the creation of urban flood disasters in New Zealand. A similar pattern may also hold in the case of coastal protection. Moreover, if sea level rises and storm surges have greater magnitude such supradesign events are likely to occur more frequently.

Chapter 7

Discussion

7.0 Introduction

This chapter is a discussion of the case studies and how the theories that have been outlined in earlier chapters are applicable to the findings. It focuses on the particular circumstances of the two communities and how different processes have more or less contributed to their vulnerability and how they have shown resilience in the face of such change.

7.1 Vulnerability

By drawing on Watts and Bohle's (1993) causal structure of vulnerability I will attempt here to map the different social spaces of vulnerability as experienced by the villagers of Solodamu and Rukua (see Figure 30). Furthermore I will address the dynamic character of such spaces by locating and relocating the vulnerabilities of the two villages within them at different points in history. I have attempted here to use empirical evidence from my field study and incorporate this with written material on the two villages. Where there are gaps in my findings and knowledge I have drawn on other case studies carried out in other parts of Kadavu and Fiji and this has meant that the data that I present below is very much a generalised picture of the two villages.

7.1.1 Solodamu

During the pre-colonial period (which is the period prior to 1874 in Fiji), the vulnerability of the people of Solodamu was a result of entitlement relations and power/institutional relations, as shown in Table 29. This is because, in a sense, the ancestors of the people of Solodamu had not fought and had not negotiated for better lands for their people. Thus the entitlements to which the villagers of Solodamu now have access include lands which are mountainous and not easily cultivated. The people of Solodamu were vulnerable even in the

past to short-term climatic variability such as floods and storm surges and their endowments (or lack of) did nothing to help either. But despite this, the villagers of Solodamu had a very strong moral economy to fall back on during times of crises. Stories have it that during this period people were allowed to eat from each other's gardens and there were no stringent rules stating that one could not eat from the mango tree or pawpaw tree of another. Their position during pre-colonial times can also be seen in terms of power/institutional relations because of Solodamu's position as, literally, the labourers of the chiefly village of Tavuki.

The colonial period from 1874 till 1970 was a time of seemingly changing allegiances to a new foreign power and for the people of Solodamu their vulnerability arose more out of a matter of power/institutional relations than because of any other concern. Ratu Sir Lala Sukuna's attempts at persuading the chiefs to yield more power to the colonial leaders lead to a period of change for the whole of Fiji as well as for the people of Solodamu (Macnaught 1982). The registration and the 'legalisation' of the indigenous lands in Fiji which Ratu Sir Lala Sukuna initiated, set down in stone the boundaries and borders which at one time had been flexible. The Western ideas of complete and codified ownership of land had begun to take root in Fiji although tenure remained communal through *mataqali* membership. As Fiji began to become integrated into the global economy during this period, indigenous Fijians were at a disadvantage because they were confined to their villages and discouraged from working (Tomasi Kama, Solodamu informant). So while the other ethnic communities present in Fiji were actively pursuing employment, the Fijians continued to live their lives in their villages.

After independence in 1970, what emerged was a wage-earning class made up most entirely of indigenous Fijians. This period in Fiji's history is consistent with Watts and Bohle's (1993) third element which deals with the social relations of production including class relations. This approach acknowledges that vulnerability is a social process that occurs over time and takes into account the entitlement and empowerment perspectives. So for most Fijians, immediately after independence, they were thrown into the market economy and had to find the means to survive in a society where money was king. Migration to the urban centres and the increase in wage labour has also led to a reduction in subsistence production. Today the village of Solodamu is still a latecomer on the scene of global market integration

and its isolation and distance from the major urban areas may continue to aid the maintaining of such a position. Its vulnerability was increased due to its position as a peripheral village both to the provincial and central government core expressed through relations of dependency which sought to drain surpluses and resources away from the periphery (Bohle *et. al* 1994). Therefore, Solodamu's position today is a result of historical processes that political economic perspectives explain and describe.

Table 29 The Vulnerabilities of Solodamu and Rukua over time

	Pre-Colonial (Pre-1874)	Colonial (1874-1970)	Post-Colonial (1970 till present)
Solodamu Village	Entitlement and Capability & Empowerment and Enfranchisement e.g. entitlements include lands which are mountainous and not easily cultivated and their position as subordinate to Tavuki	Empowerment and Enfranchisement e.g. increase in foreign influence; native land became 'legalised'	Class and Crisis e.g. its position today is as much a result of entitlement and empowerment perspectives as it is of the social relations of production that the villagers have participated or not participated in
Rukua Village	Empowerment and Enfranchisement e.g. warring tribes meant searching for fortified sites for settlement	Entitlement and Capability & Empowerment and Enfranchisement e.g. utilising their exchange entitlements to reduce their vulnerability to foreshore erosion; informal native land rights become 'legalised' and formalised	Class and Crisis e.g. the emergence of a wage earning class through appropriation of their surplus labour

(Source: Author)

7.1.2 Rukua

History has it that during pre-colonial times the island of Beqa was at the mercy of the great powers of Bau, Rewa and even Tailevu and Tonga (Crosby 1988). This coupled with the warring that was taking place between the tribes on Beqa meant that the various tribes were always in search of new sites to build their encampments and fortify themselves. For strategic reasons, a few of the tribes decided to band together and came to occupy the piece of land upon which the village of Rukua is presently located which was owned by the Rukua *mataqali* (Crosby 1988). In a sense, then, their present location is a legacy bestowed upon them by their ancestors, and this follows Sen's (1981) entitlements concept which Watts and Bohle (1993) quote frequently. One element of their vulnerability arises from their entitlement being threatened by the inroads of the tides and the waves.

By the colonial period, the people of Rukua were much more aware of and active participants in the market economy due to their close proximity to the mainland urban areas and employment from fire walking. A lot more Rukua villagers were educated and influential and thus able to be employed in key positions in the colonial offices (Jonacani Dabea, Rukua informant). Despite the ongoing foreshore erosion that was occurring in the village, the people of Rukua were able to cope with and had the means to deal with the problem of foreshore erosion. Their entitlements and endowments provided them with land with which to bury the foreshore and coconut tree trunks to line their beaches acting as a barrier against the waves. In addition, their 'exchange entitlements' allowed them to be able to access the necessary official funds to construct a seawall and undertake land reclamation works on their foreshore. Furthermore the 'legalisation' of their land rights which occurred during this period meant that, they were in a sense, dispossessed of any former rights that they had to negotiate any new dealings concerning land.

By independence, the villagers of Rukua had already embarked on the protection of their foreshore. The responsibilities and financial burdens that came with being integrated into a market economy grew as the years went by. The construction of the seawall protected their village from being eroded by the sea but at the same time the villagers had to find the funds to continue repairing the wall. The villagers appropriated their surplus labour by taking up

employment at various resorts on the island of Beqa, and on other islands as well, while others moved to the urban areas on Viti Levu in search of employment. Again what emerged was a situation similar to that of Solodamu where a wage-earning class appeared. The vulnerability of the people of Rukua in this case has not arisen so much because of entitlements dispossession but rather by their integration into the global economy and the need to maintain that position. The competing financial burdens that they face have meant that they have to weigh up their traditional obligations to their village (e.g. seawall maintenance) along with the livelihoods of their families (e.g. school fees) and their contributions to the church (e.g. tithes and offerings etc). This is in line with Vusoniwailala's (1983:4) observations that 'the Fijian of today is expected to straddle two economic systems: the communal economic system of his forefathers and the monetary economic system of his colonizers'.

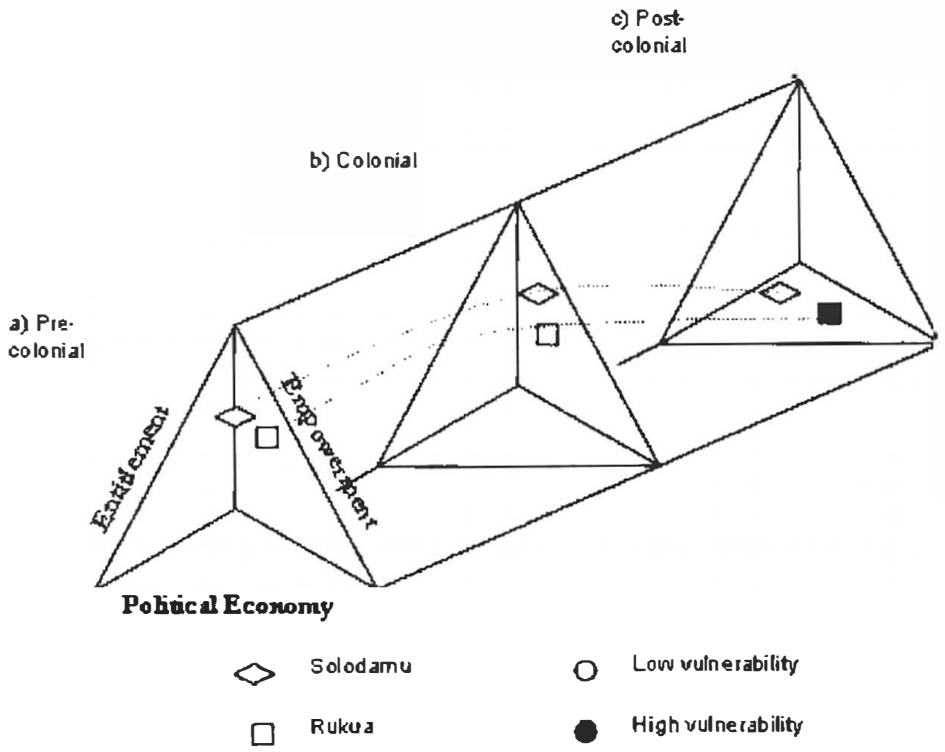

Figure 30 Vulnerability to storm surge and coastal erosion in Solodamu and Rukua (Source: Author)

As wage labourers the villagers of Rukua are dependent on their exchange entitlements and have little or no direct agricultural production and this leaves them particularly sensitive to market or political failures. This was particularly evident during the 2000 coup when the fall in tourist numbers led to immediate redundancy for a large number of Rukua workers. Their degree of vulnerability today is a result of historical processes which have structured and conditioned their lives into a certain pattern. This historical process has included the attainment as well as dispossession of elements of their entitlement and empowerment provisions and this is particularly pertinent to Watts and Bohle's (1993) third component of their vulnerability model (see Figure 3 in Chapter 2).

Watts and Bohle's (1993) model can also be used to map gender vulnerability in the two villages as shown in Figure 31. Because Fijian society is largely patriarchal in nature, the women of Solodamu would have been in a subordinate position to that of men in the period prior to the relocation. Likewise in the period after the relocation, they would still have been in a subordinate role but the difference was the additional responsibilities that they had to take on, rendering them even more vulnerable. The men of Solodamu, in the period prior to relocation, were made vulnerable by their lack of entitlements and in the post-relocation period, by their lack of integration into the global economy. As with the women of Solodamu, the women of Rukua were relatively powerless in a patriarchal society such as in Fiji, before the construction of the seawall. After the construction of the seawall, with Rukua's active participation in the market, the women who were more likely to be unskilled were left particularly vulnerable and were not in a position whereby they could easily increase their exchange entitlements. For the men of Rukua, prior to the sea wall construction, their vulnerability arose out of their subordinate position to their distant rivals and foreign powers. After the erection of the sea wall with their integration into the market economy, they have become even more vulnerable to the workings of the market as well as to the predicted impacts of climatic change upon their foreshore.

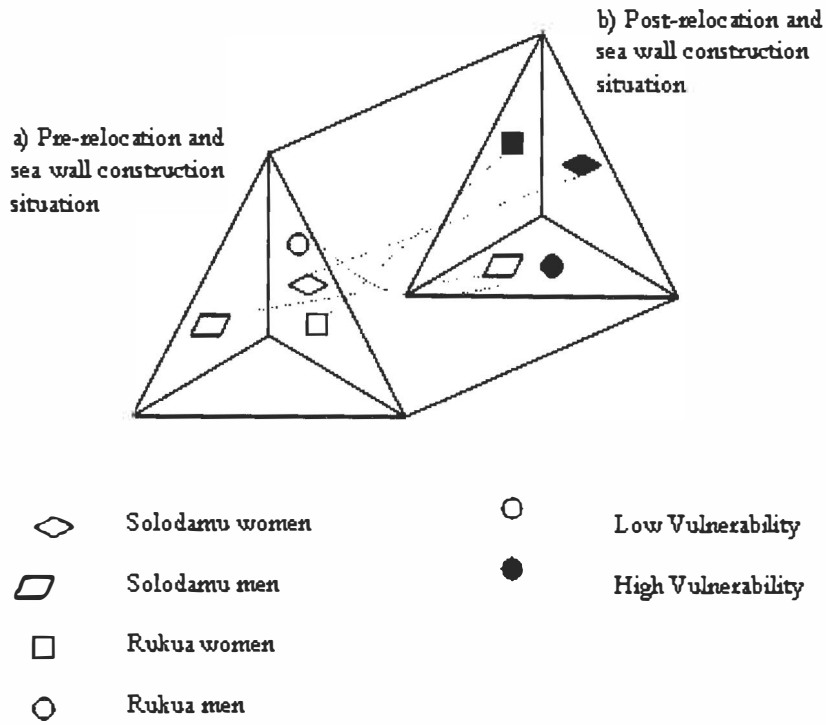

Figure 31 Gender Vulnerability in Solodamu and Rukua (Source: Author)

7.1.3 Discussion

By applying the work of Watts and Bohle, I have demonstrated how the underlying causes of the two villages' vulnerability can be explained in terms of its three components namely: entitlement and capability, empowerment and enfranchisement and class and crisis. In addition to this the relevance of this model can be seen quite clearly in a schematic fashion. Despite the original application of this model to a hunger and famine context in Africa especially, I argue that it can also be used to help explain the vulnerabilities that arise out of natural hazards and disasters in various places around the world and more importantly in developing countries. The model is also flexible enough to allow for the vulnerabilities of different time periods to be mapped out onto it. This is especially significant given the dynamic character of global environmental change and the predictions that climate change is likely to continue at an even more rapid state in the future. There is however two caveats I

wish to mention. Watts and Bohle's tripartite structure gives the impression that the three approaches involve a linear process where one progresses from one level to the next. When the model is applied to various time periods as I have done, the three approaches will not necessarily parallel the different time periods respectively. That is, that the entitlements approach which is Watts and Bohle's first approach will not automatically fall into the pre-colonial period, the empowerment and enfranchisement approach will not always parallel the second time period which is the colonial era and so forth. The case studies have revealed that each time period will have different types of vulnerability that can be applied to it and not all will follow this linear pattern where progress takes place from entitlement through to class and crisis. Furthermore, because this exercise is a purely empirical one, certain elements of the other approaches can also exist for each time period. There is no fine line separating one component from the other. The positioning of their various vulnerabilities could be a highly contested issue as the boundaries are very blurred and grey. Vulnerability analysis will also need to provide a more sophisticated understanding and representation of the capacities of different people and communities to adapt to the effects of climate change if it is to be useful. The various adaptation measures and their effectiveness need to be studied in more detail in the various regions of the world and the dimensions of the natural hazard that matter the most need to be looked at more thoroughly (Leary 2002).

Bayliss-Smith *et. al* (1988) provide an interesting example of vulnerability studies conducted on the island of Taveuni in Eastern Fiji. They present a fascinating account of the changing nature of Taveuni society over a time period similar to that which I have used above. Moreover they look at the individual groups that were present in Taveuni, from the basis of their class status mainly with regards to land, and examine the issue of which groups were the most vulnerable. Their case studies revealed that even the very rich were still at risk and vulnerable in this peripheral economy. Watts and Bohle (1993) offer a similar analysis using their tripartite structure on different vulnerable groups in the South Cauvery Delta in India. By utilising a similar approach and applying it to my case studies, I argue that its applicability is more suited to the village of Solodamu than the village of Rukua. With the villagers of Solodamu there is a clear distinction between those in the old village and those in the new village with the residents of the old village not having to experience so many of the problems faced by those in the new village. While the *koro-i-drodro* is experiencing numerous problems

as a result of their relocation, the *koro makawa* may nevertheless be extremely vulnerable to the likely event of a storm surge or a rise in sea level. While the actual physical threat may have not eventuated yet in the present period, it is likely to be an issue in the near future for the *koro makawa*. A variable that could be a differentiating factor for the villagers of Rukua could be income levels and ascertaining income levels may well prove to be increasingly complicated because it would need to take into account the regular income gained from employment, other miscellaneous income gained from selling garden produce and firewalking as well as remittances from relatives living elsewhere. Even though the village of Rukua seems to be financially better off than Solodamu, it is likely that it may be more at risk in the case of climatic variability. This indicates the subtle distinctions that exist between the notions of vulnerability and poverty.

7.2 Resilient Communities

As already mentioned in the theory chapter on vulnerability, the structural causes of vulnerability are in most cases seen as being social, economic and political in nature. Both the natural disasters that occur and why certain individuals are likely to be more adversely affected than others by such an event is due to societal processes and values. An interesting parallel is that the causes of global environmental change are also seen as being human in nature and even though the causes of such phenomena are socially conditioned, it would be irresponsible to think that a changing environment can be neglected. A paradox that springs to mind however in the event of a natural hazard occurring is exemplified by the 2004 Asian Tsunami which recognized no distinctions of race, ethnicity, religion, class, gender, or age. It devastated poverty stricken coastal villages as well as luxurious beach resorts. It ripped through lands stricken by war as well as those rooted in peace. The very distinctions that produce vulnerabilities for a large number of people in the world did not factor at all when the huge tsunami came rolling in. However, the ability to recover may well have limits to class and wealth. It is also certain that climate change, should it occur will also directly affect resource endowments and entitlements although the indirect effects are still somewhat ambiguous (Bohle *et. al* 1994). At the same time the driving forces that fuel global change such as population growth, trade liberalization, economic growth and political transitions

will also affect resource endowments and entitlement and it is likely that the most vulnerable in society will probably suffer accordingly (Bohle *et. al* 1994).

My case studies revealed that neither community was as happy as it would have been if the adaptive action had not been necessary. The relocation measure that the people of Solodamu took upon themselves actually involved a lot more suffering and hardship while the villagers of Rukua have had to continuously find the means to continue repairing the seawall and protecting their village. So if climate change is likely to lead to more communities adapting in much similar ways, then these communities can also be expected to suffer accordingly. This would make it imperative for mitigation to be given greater support by the international community. If mitigation is to occur and have some real meaning on the ground, it will need to involve combined action by the various governments of the world to reduce the production of greenhouse gases without further delay and with hopefully Russia's ratification of the Kyoto Protocol in 2004 may allow for progress to be seen in this area.

Global environmental change is likely to have severe implications for increased vulnerability to various natural hazards such as coastal flooding, tsunamis, cyclones and storm surges (Blaikie *et. al* 1994). Too often, small island states have had dismal predictions forecast for them which suggest that the communities that reside in these places are not resilient but are passive recipients of such calamities (Blaikie *et. al* 1994). The two case studies effectively show that they are in fact resilient communities and able to resist the impact of the hazards. Whether they adopted a flight or fight strategy, the villagers of Solodamu and Rukua demonstrated their continued perseverance in the face of such a hazard and their ongoing dedication to maintaining their space. Additionally these villages have experienced many other hazards in the past and the people have developed some capacity to cope by carefully selecting a combination of strategies including the use of customary practices and application of indigenous knowledge to help them survive. Much of the literature on resilience has tended to focus on ecosystems and their ability to recover from shocks and trauma. The notion of resilient communities however needs to have more examination and this needs to advance beyond merely offering definitions and descriptions of what constitutes a resilient community.

Blaikie *et. al* (1994) make the point that poverty does not necessarily mean that people or societies are vulnerable even though it is the usual case that the poor are likely to suffer more from hazards than the rich. So even though Rukua seems more well integrated into the global economy, has more affluence, wealth and material well-being than Solodamu, it may very well be the case that in the event of a tropical cyclone, Rukua will be suffer more than Solodamu. While Rukua's physical location leaves it greatly exposed to the ravages of a cyclone, the village of Solodamu is safely perched on top of a hill away from the havoc able to be caused by the sea, although they are still likely to suffer from damage caused by wind. It is only the few houses in the old village that may be adversely affected and in Rukua, the destruction of the seawall during a cyclone is an ongoing issue of concern that the villagers have to put up with.

Chapter 8

Conclusions

8.0 Disasters, Development and Vulnerability

The path that development has taken in Fiji has helped play a large part in the vulnerabilities faced by my two case studies. The colonial period saw the establishment of bureaucracies, a leading example of which was the Native Lands Trust Board which sought to bring all land ownership under a single authority whose primary role was to oversee its use and ensure its availability for future generations of Fijians. Although its intentions were good, its design and implementation suggested that Western ideas of ownership and the commodification of land were behind it. For the common Fijian, this meant that the giving and gifting of land which had always been done traditionally now had to go through a legal process. All their lands were surveyed and registered and there were now clearly defined boundaries and borders. For the village of Solodamu, the traditional giving of land which used to occur in the past became a somewhat contested act after the colonial period because the various mataqali were becoming more protective over their lands.

Modernisation theories that concerned themselves with core-periphery relations are also at the centre of partly explaining why Rukua is more 'developed' than the village of Solodamu. Rukua's relative proximity to Suva, the hub of colonial administration, compared to Solodamu's isolation and distance meant that Rukua was within reach of a colonial ear and was thus easily able to command some attention and funds. It also had a 'commodity' (fire walking) that could be incorporated into the tourism industry. Rukua's influential elders were well aware of the funds available for their perusal and how to attain it and they made good use of this knowledge and the results were the construction of the seawall and the land reclamation works done on their foreshore (Aisea Laione, Rukua informant). In addition to this, frequent trips to Suva and the observation of the Nasese seawall in front of the

Government House had led the elders of the village to have similar hopes for their village (Aisea Laione, Rukua informant). Rukua's desire to emulate the big city of Suva may actually have quickened its modernising journey.

The emergence of cash cropping during the colonial period allowed a large number of Fijians to earn some money. For many this meant that they had to concentrate on producing a single crop in large quantities and the diversification that used to occur in the past was increasingly becoming endangered. Today this situation is still common in the village of Solodamu where the villagers concentrate on cultivating mainly only *taro*, cassava and *yaqona* to be shipped and sold off in the urban areas. Rukua however has seen itself move out of this specialisation in cash cropping with a lot more of its villagers being employed in the service industry.

8.0.1 Structural Adjustment

Rukua is an excellent example of the manifestation of structural adjustment policies at the local level. Its progress from being a village heavily involved in cash cropping to one that now gains its income from the tourism industry is significant to note. Structural adjustment with its stress on becoming more free market oriented has seen a move away from the agricultural sector to an emphasis on the promotion of export-led manufacturing and the tourism industry. This has meant that villages like Solodamu, who are seen as latecomers on the global market economy, are regarded as being more vulnerable to the vicissitudes of the market and are not able to compete on an equal footing with others in the economy. Rukua on the other hand, because it is more strongly integrated into the global system, has to continue to struggle to maintain its position and this has resulted in numerous financial responsibilities for the people of Rukua, all of which have to be addressed at one point or another. It is also still sensitive to market perturbations as witnessed by the event of the 2000 coup in which a large number of Rukua villagers were laid off due to the decrease in tourist numbers to Fiji. Again while Rukua is perhaps more wealthy, this wealth is in many ways dependent on quite precarious economic activities.

8.0.2 Sustainable Development

The term 'sustainable development' is a very ambiguous term and can mean a lot of things to different people. For the villages of Solodamu and Rukua, a lot of community effort and input went into the adaptation measures that they undertook, a key feature of sustainable development. However, for the people of Rukua today who are currently experiencing foreshore erosion on either side of their village seawalls, the question arises of just how sustainable was their community-based adaptation measure. In spite of the protection that they now get from the inroads of the sea and their relative prosperity, they are even more susceptible to the devastation able to be wreaked by tropical cyclones and they continuously have to pay for the repair and maintenance of their seawall. The villagers of Solodamu on the other hand, although having relatively sustainable livelihoods, are not as wealthy as the Rukua villagers because of their lack of economic development and the extent to which they now have a better environment than before is highly questionable because of the many problems that have arisen since the relocation. If fairness and equity is to be achieved across and within generations, then both villages need to start seriously thinking about the repercussions of their actions on future generations. Already in Solodamu a few parents have started to prepare to build their children's houses on lower land where access to water and health concerns will not pose much of a problem and this is seen as a start to improving their lives and those of their children.

8.0.3 Globalization

With modernization theories comes the phenomenon of globalization. One could argue that the villagers of Rukua have had their vulnerability increased further in a sense because of their greater incorporation into a globalised world. They are part of the global economy now, with their employment in the tourism industry and their ability to consume imported products and such. Their over-reliance on imported products could affect them negatively if something happened to the production of those products in the countries where they are made. On the other hand, one could also argue that their vulnerability has been reduced because now that they are integrated into the capitalist system, they have the financial capability to better their living conditions and upgrade their material wealth. The question

therefore arises of whether this financial prosperity is really stable and able to withstand any further perturbations in the future.

8.1 From the bottom - up

My initial research questions involved bottom-up approaches and whether they were really effective. The construction of the seawall was done with the input of the government in the form of the Public Works Department (PWD) workers and the actual construction was undertaken by the villagers of Rukua themselves. In one of my interviews, the interviewee states that the government provided the people to operate the different equipment, the bulldozers, the trucks, someone to blast the dynamites and an engineer. But the extent to which the environmental effects and possible future effects were taken into consideration is questionable. Back in the 1970s it is doubtful that they would have had to produce Environmental Impact Assessments (EIAs) (www.nltb.com.fj) and the like to consider the various effects of such development on the environment. The main priority was to protect the lands of the Rukua villagers. The construction of the seawall at Rukua was initiated by the villagers themselves, and they searched for the funds themselves to construct the seawall. The manual labour for the construction was provided by the villagers themselves and so in a sense the development in the village involved a bottom-up and community-based approach. Today one of the negative impacts that have arisen is the observed foreshore erosion that is occurring at both ends of the village. Solodamu's method in dealing with storm surges also involved a bottom-up approach and as mentioned earlier, has presented a lot of hardship and distress for the villagers. This then raises questions of whether bottom-up approaches are effective. Would a top-down, centralized approach been more effective in helping alleviate the erosion problems they are facing today? However, even with the provision of the government engineer who was supposed to be knowledgeable in such aspects, the problem still arose, albeit a few years down the line. Perhaps what might actually be needed is a balance of the two; partly community-based and partly top-down in manner where each approach may be able to balance out the weaknesses of the other.

8.2 Vulnerability and Resilience in the face of global warming

Environmental and climatic processes have over time, changed the natural landscapes and the everyday lives of the individuals residing in these island communities. As shown by the two case studies, these communities have been made more vulnerable due to such processes and have had to deal with numerous problems which have arisen as a result of such change. Compounding the problem is the fact that the inevitable historical processes of development have in reality aided in increasing the vulnerabilities of these communities much more so than in actually reducing them. But despite the course that history has charted for them, the communities displayed resilience and resistance in the face of such transformative processes. Today the winds of change are blowing again and the gales and gusts of predicted climate change and associated sea level rise are once again threatening the livelihoods of these communities. Their vulnerabilities are likely to increase even more and this has important implications for their adaptive capacities and their resiliency in dealing with such change. These communities will need to demonstrate even greater tenacity in the near future if they are to continue to survive for generations to come.

8.3 Conclusion

The primary aim of this thesis was to consider the different processes that had contributed to the increasing vulnerabilities of Pacific Island communities. The first chapter outlined the main research questions and in subsequent chapters, these questions have been discussed and examined. The adaptation methods employed by the two villages illustrated the various advantages and disadvantages of such measures and this is particularly valuable given the increasing awareness of a changing climate and the need for protection and prevention of some kind to stem the adverse effects. But the changing nature of their physical environment has not been the only threat to these Pacific Island communities. The process of development itself and its continual progress in its current manifestation has contributed to increasing the vulnerabilities of these communities as well. Both these physical and social processes have led to these communities becoming more vulnerable. A natural disaster

occurring in the future could have disastrous effects on these communities if their current vulnerability is to continue increasing.

The case studies also revealed that wealth and material well-being did not necessarily reduce vulnerability. Rukua's case exposed this quite adequately because despite their relative affluence, its physical location and the adaptation method they used is likely to continue creating problems in the future. And despite their relative peace from the problems that beset them in the past, the adaptation measures that they undertook have presented them with new sets of problems. Thus the general feeling was unhappiness with their current circumstances and this has critical implications for mitigation measures to be given greater support and corroboration because if other communities are to suffer in similar ways and therefore adopt similar adaptation methods, then they are also likely to suffer accordingly.

Solodamu and Rukua are not isolated cases in point. Nor are they so distinct and unique in circumstances that one cannot learn from them and apply the knowledge elsewhere. These communities have demonstrated their resilience in the face of such social and physical change and they will continue to be resilient in the future. It is likely that a community can have both elements of vulnerability and resilience and the key to the future is to reduce vulnerability and increase resilience. While island communities in Fiji may be seen as weak and passive, this study has shown them to be resourceful and active communities adapting to a wide range of changes over the past century and a half, and likely to do so in future, though as we have seen, this has not been without cost.

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