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ECONOMIC DEVELOMENT, POLITICAL PROCESSES AND CLIMATE CHANGE ADAPTATION IN THE SOLOMON ISLANDS

by

Adam Christopher Ereth

Bachelor of Arts
San Diego State University, 2009

Master of Arts
California State University, Fullerton, 2012

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Environmental Health Sciences

Norman J. Arnold School of Public Health

University of South Carolina

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Accepted by:

Dwayne E. Porter, Major Professor

Geoffrey Scott, Committee Member

Robin “Buz” Kloot, Committee Member

Jon Taylor, Committee Member

Tracey L. Weldon, Interim Vice Provost and Dean of the Graduate School

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ABSTRACT

Climate change exacerbates existing societal inequalities, including those related to uneven adaptation developments. Often, climate change prompts societies in Oceania to implement adaptation strategies to deal directly and indirectly with related issues. The futures of island nation inhabitants have sparked as much curiosity and inquiry as it has fears of diminished futures for Small Island Developing States (SIDS). Narratives and discourse on climate change adaptation range from engineered solutions to address sea level rise and storm wave issues, to pessimistic retreat with claims that islands are sinking and little can be done but move elsewhere. These disparate realities call into question the very nature of how the topic of climate change is mediated through perception, and how climate change information is presented to those who take part in decision-making processes. It also calls into question the role of international, federal, regional and local agencies and disparate and diverging goals for how to overcome barriers for combating climate change at and between various scales of interaction. The dissertation research presented here is focused on addressing these barriers and issues by assessing how data are presented and when and how information is utilized in various outcomes ranging from incremental to systemic change.

More specifically, the research presented here focuses on several of these communication-related climate change and adaptation issues, including several broad

focuses. This includes assessing the application of climate change terminology in literature, improving methodological research approaches for adaptation planning in island states, and power and knowledge contestation in decision-making processes. Similarly, this dissertation translates the previous focuses into progressively granular veins of reality and resulting inquiry by assessing how planned relocation in the Choiseul Province of Solomon Islands can be used to offset climate change and economic vulnerability, and how migration can be opportunistically used as a form of climate change adaptation in the Taro Township in the Choiseul Province. Structurally, this work is organized into five interrelated chapters associated with climate change, migration, economic/international development, and adaptation decision-making. These themes start at a regional scale and move to focusing on the island nation of Solomon Island with a subsequent focus on an adaptation hotspot, Taro Township in Choiseul Province.

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CHAPTER 1

INTRODUCTION

BACKGROUND

The environment of planet Earth is constantly changing in response to natural or man-made events. Since the industrial revolution, we have seen a gradual increase in the atmospheric concentration of CO2, which as concentrations increase acts as a greenhouse to capture reradiated infrared radiation from the sun (IPCC, 2014; 2021). This has led to increased global temperatures, which in turn has led to more flooding due to both the thermal expansion of water, the melting of polar ice caps, sea level rise and more extreme weather events (IPCC, 1990; 1995; 2001; 2007; 2014; 2021/22). The rapidity and scale of increased coastal flooding due to sea level rise has created environmental conditions that have led to increased policy discussions about coastal retreat and community adaptations to climate change.

Thus, the Earth's environment is changing, and people are facing a range of uncertainty for continued survival across a wide set of international, national, and local scales, especially when assessing limits or barriers to adaptation to these changes (Klein et al., 2014). The changes are not only manifest in short-term perturbations such as increased and stronger storm waves, hurricanes, and heat waves, but also in predicted long-term effects such as sea level rise. As such, a variety of adaptations are necessary

to deal with short and long-term changes in the climate no matter where one is in the world, but perhaps none more apparent and at times pressing than those needed in the Pacific Islands. This is especially the case for island countries with populations and resources concentrated in low-lying areas such as the Solomon Islands.

Though climate change may be one of the most pressing issues of our time, there are several impediments between the data acquisition and analysis phases and enacting necessary changes in the social, economic, and environmental landscapes. For example, how information is analyzed, interpreted, presented and by whom in a decision-making position of power and influence have a large bearing on planning changes being enacted. The research presented here is focused on improving an understanding of those concepts as they apply to Pacific Islands and in the Solomon Islands more specifically.

CHAPTER SUMMARIES

Structurally, this work is organized into five interrelated chapters associated with climate change, migration, economic/international development, and adaptation decision-making. These themes start at a regional scale and move to focusing on the island nation of Solomon Island with a subsequent focus on an adaptation hotspot, Taro Township in Choiseul Province. In order, the chapter summaries are:

Chapter 2 - Improving Research for Adaptation Planning in Small Island Developing States (SIDS). Pacific Islands have been at the forefront of a variety of challenges in the developing world. This is especially the case with society being evermore affected by climate change. Years of research have shown that post-colonial

states in Oceania share common barriers, such as: a lack of sanitation, shortages in potable and dependable water supplies, lack of access to health and education services, and in recent years an increased exposure to short-term hazard events and projections of evermore detrimental long-term changes in the climate. In many cases, the former is exacerbated and made more difficult by the latter.

To date, most of the work performed on this topic comes from international development literature. Often, this base of literature has aimed at improving island nations through economic security; however, when combined with oft-neglected infusions of climate change adaptation and hazards planning, the future of many Small Island Developing States (SIDS) remains uncertain. As such, this chapter explores some of the current pressing challenges that SIDS face and theorizes a variety of research needs in today's context to bridge the economic development-adaptation nexus. This section ties together similar and particular needs SIDS have with other developing nations around the world and illustrate the need to improve research for adaptation planning through nuance rather than the silver bullet approach that climate change adaptation (CCA) practitioners often apply in the field.

This chapter addresses the special needs of SIDS compared to other areas, but also special needs among SIDS. It moves on with theoretical ideas on how to manage and improve adaptation planning from where it currently stands and concludes with remarks about the research frontier regarding a wide consideration of theories and approaches that can (or should) be implemented to see CCA move forward, including:

mainstreaming CCA and Disaster Risk Reduction (DRR), livelihood diversification, and improving local capacity-building.

Chapter 3 - Assessing the Theoretical Application of 'Adaptive Capacity' to Applied Climate Change Adaptation Research in Solomon Islands. This chapter discusses the concept of *adaptive capacity* as a focus of inquiry in climate change adaptation (CCA) research. Understanding exposure to risk and what options individuals, communities and societies realistically have to ameliorate the negative effects of climate change at multiple spatial and temporal scales is a rather large undertaking. However, it is a necessary component of constructing an understanding of real and perceived losses that result from climate change and how to manage them through time.

As such, this chapter focuses on adaptive capacity by exploring the concept and how it has been employed through climate change literature. This chapter also explores how adaptive capacity is used in spatial-temporal research at different scales, and the government and grassroots institutions that have an effect on economics, politics, and the environment. Moreover, this chapter explores how adaptive capacity has been used in Solomon Islands with the intent of constructing a research plan aimed at measuring adaptive capacity. Elements here may also be applied in similar settings throughout the Pacific Islands. The chapter concludes by exploring some of the challenges and limitations that exist when measuring and rescaling the construct/term from one place to another and through time.

Chapter 4 - Environmental Power and Knowledge Production - Whose View Counts in the Solomon Islands? This chapter investigates the intersections of how environmental knowledge is produced and exerted in Pacific Island settings. Context-based knowledge and power production compels us to understand environmental actions not as monolithic models, tools, and approaches that are applied without bias to the landscape, but as a highly sensitive element in local settings and culture, variable conditions, and with a range of potential outcomes.

There are competing viewpoints of what counts as legitimate action in the pursuit of understanding what constitutes the environment and how it is developed. This chapter argues that conflict exists in these spaces over legitimizing one construct of nature while diminishing others, and whoever controls the knowledge of physical nature and how it is managed in the Pacific Islands will have similar control of the social, political and economic relationships of how people operate and engage in environmentally-driven (re)development spaces.

To draw out this complex process, this chapter will discuss some theoretical ideas of what constitutes nature, as well as the contemporary environmental management approaches that have become common practice. The chapter draws on a broad literature base to illustrate context-based knowledge production of the environment where the idea of knowledge and power over the environment will be illustrated through the experiences of those living on Ontong Java. This chapter concludes with the premise that the environment – as a human construct – is subject to contention between competing groups over who and what gets to manage an area in

various contexts, and how the issue of scale has a large bearing on how environmental issues are managed in the Pacific Islands.

Chapter 5 - Planned Relocation as a Political Adaptation to Climate Change and Economic Vulnerability in Choiseul Province, Solomon Islands. Over the past several decades the issue of climate change migration has become a highly contested. Nowhere is this issue more visible and more hotly contested than the Pacific Islands, including: Kiribati, Tuvalu, Nauru, Fiji, and the Solomon Islands. Development planning in this region often takes an approach of both in-place adaptation and mitigation measures in an effort to address the negative effects of climate change.

In the case of the Taro Township in the Solomon Islands, one of the more recent challenges associated with sea-level rise and storm waves includes negotiating short-term, in-place adaptations, but with sights ultimately set on the relocation of the provincial capital to the main island of Choiseul by 2030. The assumption is that a new township will provide alternative opportunities for commerce and extension and purchasing power to acquire the necessary tools for adaptation. These local-scale actions for migration face multiple uncertainties about how a decision might benefit the migrant. This must be explored in and around Taro to help better understand the emerging literature on this topic, which practical approaches for planned relocation may be necessary in the future, and how these changes will be felt through multiple economic and social networks at varying scales.

This chapter aims to help fill gaps in the literature by way of asking *how residents, NGOs, and government agencies and their agents envision points of need and*

opportunity, and perceived advantages and disadvantages associated with the relocation plan for Taro? This chapter will draw on a variety of critical, conflict and political ecology theories and utilize the Key Interactions Framing the Politics of Adaptation Framework from Eriksen et al. (2015) to understand competing and conflicting knowledge, authority, and subjectivity feedbacks in the political landscape, as well as critiquing the presumptions of the migration plan. Further, this chapter will draw on the Weisser et al. (2014) work and their theories augmented from Callon's (1986) "distinguishable moments" to help ground power dynamics in the mobilization of adaptation actions. In effect, this chapter is a roadmap for conducting future research.

Chapter 6 - <u>Migration as an adaptation in the Solomon Islands' Taro Township– A review of planning strategies and future avenues for scholarly contributions.</u> This chapter engages with migration and development theories in climate change adaptation (CCA) projects in the Pacific Islands. The literature presented here can be used as a framework for how Small Island Developing States (SIDS) can utilize conceptual elements of migration as a form of development *and* CCA amidst uncertainty in context-based and highly localized economic, political, and social systems. Specifically, this chapter can be applied as additional consultation for the Taro Township Relocation Project in the Solomon Islands in an effort to illustrate which theories and approaches can enhance the project in its move toward a more theoretically-sound direction. This chapter discusses the contentious and divergent scholarship on migration, development and CCA in Taro Township and continues the conversation on the drivers that spur migration in the context of the Regional Assistance Mission to the Solomon Islands

(RAMSI) case. Additionally, this chapter focuses on migration as a form of development and identifying research gaps for future scholarly work.

Chapter 7 – Conclusions. This chapter will focus on summarizing the major findings of the previous chapters. This will include a broader discussion on several fronts, including climate change in Solomon Islands; migration solutions; methodological considerations; economic development; and final thoughts. Future scholarly work will be presented in an effort to bridge the gap between several elusive themes, including climate change migration; integrating and mainstreaming climate change into policy; situating research to the local level; and accounting for climate change relocation.

CHAPTER 2

IMPROVING RESEARCH FOR ADAPTATION PLANNING IN SMALL ISLAND DEVELOPING STATES (SIDS)

ABSTRACT

Pacific Islands have been at the forefront of a variety of challenges in the developing world, especially with people affected by climate change. Research has shown that post-colonial states in Oceania share common barriers, such as: a lack of sanitation, shortages in potable and dependable water supplies, lack of access to health and educational services and in recent years an increased exposure to short-term hazard events and long-term changes in the climate (Ereth, 2012). Most existing research comes from the international development literature aimed at improving island nations through economic security. However, when combined with oft-neglected infusions of climate change adaptation and hazards planning, the future of many Small Island Developing States (SIDS) remains uncertain. This chapter explores some of the current pressing challenges that SIDS face and theorizes a variety of research needs in the current context to bridge the development-adaptation nexus.

Ultimately, this chapter will help the reader to understand the particular and similar needs SIDS have with other developing nations around the world, and to illustrate the need to improve research for adaptation planning through nuance rather than the silver bullet approach that practitioners often apply. The main components of

this chapter start with the special needs of SIDS compared to other areas, but also special needs between SIDS. The chapter moves on with theoretical ideas on how to manage and improve adaptation planning from where it currently stands and concludes with remarks about the research frontier regarding a wide consideration of theories and approaches that can (or should) be implemented to see the field move forward, including: mainstreaming climate change adaptation (CCA) and disaster risk reduction (DRR), livelihood diversification, and improving local capacity-building.

WHY SIDS?

Like many developing countries, SIDS face a variety of challenges to their continued existence both traditionally and as new economic entities in a globalized world. Yet, SIDS share commonalities with other underdeveloped areas around the world, such as: a lack of sanitation, potable and dependable water supplies, lack of access to health and education services, and in recent years increasing exposure to short-term hazard events and long-term changes in the climate. Institutional entities such as the World Bank, United Nations Framework Convention on Climate Change (UNFCCC), the Intergovernmental Panel on Climate Change (IPCC), and more have tried to tackle these issues in various ways but have often treated the problem with broad strokes rather than with finely tuned policies and programs that extract nuance and specificity at the local level. This is not only the case for the way that most underdeveloped nations have been engaged by these philanthropic agencies/entities, but it is most apparent in Oceania in regard to how climate change is framed within the larger global development discourse.

Of note, climate change has the potential to undermine national sovereignty, and often underpins challenges that exist between research on climate change and the policies that are meant to be developed to deal with the issue (Barnett & Adger, 2003). For research, there are several ongoing challenges that exist in identifying critical thresholds for adaptation that, once passed, may lead to ecological collapse. These *thresholds* or tipping points can be driven by social behavior or be ecologically-driven by way of how resources are managed by a range of programmatic expectations. Though there is little agreement about the terminology of *thresholds or tipping points*, the IPCC Working Group 2 (WG2) does indicate that, "…the dynamic nature of both biophysical and socioeconomic processes that influence adaptation decision making and implementation" is a common component, as is the need to allow local actors to define those limits (Klein et al., 2014, 919). Actors here refer to SIDS and their associated local cultures within their diverse communities among SIDS member states.

In their seminal work, Barnett & Adger (2003) highlight the need for identifying these thresholds or tipping-points, but often find that adaptation entities do not engage with local-level needs. More recent work echoes that sentiment in the barriers and limits to adaptation literature (Dupuis & Knoepfel, 2013), and climate change vulnerability literature as well (Noble et al., 2014). Identifying limits or barriers requires exhibiting a range of access and use for the natural resources located in an area, yet this can be due to a lack of programmatic efficiency hindered by a large and sluggish bureaucracy and can be attributed to a range of factors that are a part of the societal norms and legal deficiencies of Oceanic nation-states. This may include issues of

traditional resource access and land holding(s), traditional power dynamics (e.g., chiefdoms), and an uneven gendering of the cultural landscape and divisions of labor (Cutter et al., 2012). As such, these limits - when unknown - pose significant issues in being able to carry out effective adaptation plans for action at any level of interaction and between donor entities with different reporting requirements.

Many of these challenges are often centered on international processes (e.g. UNFCCC) endeavoring to operationalize the much-needed institutional norms of justice, national sovereignty, human security, and participation (Barnett & Campbell, 2010). Entities such as the UNFCCC work at the highest rungs of global government, but barriers still remain to address adaptation in local contexts, especially in SIDS with populations living on atolls. As Barnett & Adger (2003) note, atoll countries are more vulnerable to economic fluctuation than other SIDS that may not be comprised partially or entirely of atolls. Countries with atolls are perhaps more sensitive to climate change, and the underlying economic vulnerability that they experience often leads some international donor organizations and recipient countries to call for large-scale, comprehensive adaptation schemes (Barnett & Adger, 2003). However, other research suggests more nuanced approaches are needed for local adaptations, especially when it involves the movement of people (Barnett & O'Neill, 2012), or the new forms of mobility taking shape as the result of climate change beyond other more general forms of environmental change (Barnett & McMichael, 2018).

Similarly, small atoll countries experience high population density. When compounded with ethnic homogeneity, SIDS often show little economic, social, and

political distance between the people and the state (Barnett & Adger, 2003). Therefore, how climate change impacts people is likely to have a direct impact on the nation-state, and by proxy may lead to increased risk to national sovereignty and human welfare. In reaching these critical, socially derived thresholds, the likely outcome may be increased international migration (Pelling, 2010), as well as dependency on remittances for the production of income (Barnett & Adger, 2003). In other words, as intranational and international movements are likely to increase with the added stress of climate change, remittances will likely increase with the effort to maintain a resource base and social structure (Barnett & Adger, 2003; Barnett & Campbell, 2010; Birk, 2014; Boland & Dollery, 2019) which are not sustainable. Forward global thinking on how to transform these SIDS into countries with sustainable industries is needed. For example, with increasing global demand for seafood and related fishery products, novel approaches to aquaculture using species endemic to each SIDS would help address a rising global demand and help sustain important cultural values.

Another recent focus in the literature concerns food security in the Pacific Islands. According to Barnett (2011) and Handmer et al. (2012), it is noted that food security is one of the major features of human existence that is affected by extreme events. Often, this is mediated and mitigated by large-scale national and international organizations such as AusAID or the Red Cross (Barnett & Campbell, 2010; Rasmussen et al., 2011). This is not only the case for developing countries, but especially with SIDS. These events not only impair the production of food, but *food logistics* as well. These impacts can be transmitted through increased food prices that translate to increased

vulnerability in developing countries, and where global food prices soar it will affect the poor in low-income countries that spend a significant portion of their income on food goods. For example, storm surges and river flooding in underdeveloped coastal areas around the world can affect the terminals that are used to ship and receive goods and can increase vulnerability for SIDS that rely on regular deliveries through intermodal supply chains (Handmer et al., 2012). A disruption in the delivery system can have cascading effects throughout the country and the region. As such, there is a clear need to find new ways to manage and improve adaptation planning, especially through unfettered, free market-type economics as a vehicle to lift nations out of poverty and their subsequent economic exposure and risk to climate change.

MANAGING ADAPTATION, IMPROVING ADAPTATION

Birk (2014) aims to reassess the predominant view that climate change and sea-level rise are the pressing challenges for atoll communities. For Birk (2014), situating climate change within a range of other internal and external factors (e.g. livelihoods, population growth, land-use practices, economic stagnation and lack of opportunity, weak infrastructure, economic marginalization and ineffective governance) needs to be the focus of how adaption is practiced. Focusing on the short-term, non-climate stressors are often greater indicators of local vulnerability than the long-term threat associated with climate change (Birk 2014). If adaptation can be framed within existing inequalities and economic deficiencies, it stands to reason that program effectiveness will be that much greater. In other words, climate change adaptation cannot be viewed as a stand-alone project; it needs to be mainstreamed within existing development

schemes (Klein et al., 2007), disaster risk reduction (DRR) activities, and national and regional policies to encourage the free movement, mobility, and/or migration of people at various scales. In fact, SIDS need to become the global experts in disaster preparedness to flooding and by developing that expertise they can develop the engineering needed to address current shortfalls in sanitation and drinking water while developing sustainable infrastructure methodologies for adapting to climate change. In developing methods for future relocation, if relocation is placed within an adaptable infrastructure framework where you will have a higher standard of living conditions this may be appealing to many residents faced with the realities of relocation.

One avenue to help lessen the effect that climate change has on free movement is to raise the standards on how uncertainty of risk and vulnerability is managed within DRR and CCA approaches. Within SIDS, this is an extremely complicated process as there will have to be a risk assessment of both the displaced community and the receiving community to which they are moving to in order to fully address risk. Education, religion, and health care systems are all important factors and determinants of the standard of living within a community and will need to merge to create a new social fabric within the receiving communities displaced residents move to due to climate change. The certainty and uncertainty around cohesion need to be explicitly stated. Moreover, risk assessments need to quantify (and qualify) uncertainty, including issues of mobility, societal norms, and movement. This may help facilitate well-crafted policies for adaptation. However, the scale at which the assessments are made and by whom may have a large bearing on program effectiveness.

Vulnerability within a group or for an individual to manage climate change impacts is also dependent upon local needs (Barnett, 2008). If those needs are not captured and articulated at a geographic scale in what the program is meant to serve, the CCA/DRR/development project may not meet its mission. Some of the determining factors of vulnerability include gender, age, health, social status, ethnicity, and class (Noble & Huq, 2014). Among these factors, climate change is expected to increase the vulnerability of people that live in poverty and persistent inequality (Noble & Huq 2014), so having a baseline that measures relative poverty will assist in measuring program effectiveness and changes that take place as the result of a climatic event.

Many vulnerable regions that are susceptible to sea level rise and extreme events show large concentrations of poverty along the coastline (Smit et al., 2001; Noble &Huq, 2014; Barbier, 2015), and many highly sought tourist destinations (Wright, 2013). Though climate change vulnerability can be felt at multiple social, geographic, temporal, and political scales, social assessments that are conducted at the local level provide a means of identifying vulnerabilities in tune with local needs. Ultimately, DRR and CCA efforts on a project have similar trajectories of lessening risk and the potential for impacts (Mercer, 2010), though it should be noted that lessening one potential impact may decrease or increase the potential of another, such as: disruptions in the economic sectors, loss of life and property, mental health effects, and more (Handmer et al., 2012). Handmer also indicates that socioeconomic status is one of the key components of exposure to risk, and population growth is one of the major drivers that changes exposure and vulnerability. If these components of an adaptive community are

not well known, or a practitioner is not versed in economic, political, environmental, and social information pertinent to the area, then a project is bound to struggle and lack transformative change.

CONCLUDING REMARKS ON THE RESEARCH FRONTIER

The future of CCA and DRR (if combined) can and should focus on local nuance in order to capture the highly dynamic nature of adaptation responses. Settlement patterns, population dynamics, and administrative difference between local areas vary greatly (Cutter et al., 2012). As mentioned previously, the World Bank, UNFCCC, the IPCC have tried to tackle the issue of climate change and hazards planning in SIDS in various ways that have shown short-comings in their local project-focused results. Often, this is the case when the problem has been treated with broad strokes rather than with finely tuned policies and programs that provide nuance for smaller adaptive communities. For example, Rasmussen et al. (2011) show that the intensity of cyclones increasing in the Western Pacific coincides with issues of food security that are felt at the local level, but are often approached and mediated by national and international organizations which fall short on delivering aid to local areas. Put simply, the field of adaptation planning is still rife with deficiencies at smaller/local scales. To that end, adaptation needs to be mediated through local input and planning in order to serve the needs of those who are adapting.

Though local input and planning is needed, changes to livelihood security as the result of climate change should be viewed within a wider context of the political economy in which adaptations take place (Rasmussen et al., 2011). The political

economy here may coincide with the capacity to help Pacific Island communities adapt or relocate and has a rather profound effect serving as the foundation on which decisions are made. As CCA moves forward there needs to be a greater awareness of sustainable development through poverty reduction (Brown, 2011). Often, climate change adaptation seeks to bridge this gap by way of enhancing livelihood security and diversification; however, in some well-meaning cases, augmenting and diversifying livelihoods exposes individuals and the systems they operate into new risks through market integration. If cases like these continue to exist, it is simply trading one risk for another, and the intended effect of taking a holistic approach to hazards and adaptive management will remain wanting.

Much like the UNFCCC and the WB making broad strokes to address the problems associated with climate change and adaptation, local, provincial, and national governments in Oceania's SIDS do as well. From Kiribati to Tuvalu, Nauru to Fiji, and Vanuatu to Solomon Islands, there is a real and apparent disconnect with how political and economic entities engage with local needs. Often, this is not a power grab – as it is often portrayed – but a lack of funding to support local capacity-building over long planning horizons. With this in mind, the pool that CCA finds itself in is one that DRR and international development agencies swim in as well: formal governments and bureaucracy. As such, overlapping missions should be incorporated into one overall project that has a framework in place to provide guidance and meaningful change at local levels, and CCA may be part of that answer. This will not only show a greater ability to serve the needs of local communities and thwart project redundancies but may also

prove to empower local peoples in a way that makes adaptation, disaster risk reduction, and general development plans their own in time. This is the true meaning of nuance, as global government must point the way forward while letting local government decide on the best course of action. This is shared empowerment – educating the local populations on a climate issue and letting them embrace this and decide the path forward. This can lead to mutually assured success.

CHAPTER 3

ASSESSING THE THEORETICAL APPLICATION OF 'ADAPTIVE CAPACITY' TO APPLIED CLIMATE CHANGE ADAPTATION RESEARCH IN SOLOMON ISLANDS

ABSTRACT

The concept of *adaptive capacity* has been a focus of inquiry in climate change adaptation (CCA) research in the last twenty years. Understanding exposure to risk and what individuals, communities and societies have within their grasp to lessen the negative effects of climate change at multiple spatial and temporal scales is a large undertaking. However, it is necessary to construct an understanding of the real and perceived losses that result from climate change and how to manage it through time. This chapter focuses on adaptive capacity by exploring the concept and how it has been deployed over time. This paper also explores how adaptive capacity is categorized by way of multiple functioning elements between spatial and temporal scalar research, and the institutions that influence economics, politics, and the environment. This chapter aims to articulate how adaptive capacity has been used in Solomon Islands with the intent of constructing a research plan aimed at measuring adaptive capacity. The chapter concludes with exploring some of the challenges and limitations that exist in how to measure and rescale the construct from one place to another and through time.

CONCEPTUALIZING ADAPTIVE CAPACITY

As Smit & Wandel (2006) indicate, adaptive capacity at the individual and household scales can be understood as a *function of social, political, and economic processes that are manifested locally but are also tied to larger scales*. This is especially the case for adaptation adjustments that are made in the context of human actions. However, on a more practical level, adaptations are a function of adaptive capacity and vulnerability reduction. In this case, exposure and vulnerability are characteristics of occupants in a particular area (e.g., livelihoods, settlement patterns, etc). These characteristics are woven into larger scale processes of social, economic, cultural, environmental, and political conditions that "drive" or "source" how adaptive capacity is determined (Smit & Wandel, 2006). In a sense, "adapting" can be viewed as an augmentation to overcome barriers within local conditions that are tied to large scale processes and broad economic-social-political structures, or *a series of adaptation actions that can transform large scale processes*.

The IPCC's 5th Assessment Report Chapter - *Adaptation Opportunities, Constraints, and Limits* – by Klein et al. (2014) echoes Smit & Wandel (2006) indicating that *adaptation responses may be constrained by a variety of factors, including those that are social, cultural, economic, and political*. These constraints, or limits, imply no time horizon to achieve one or more objectives related to the options for adaptation. Though adaptation is intended to reduce risk by deriving value from nature (e.g., economic, social, political, etc), the limits communities face often come to a point of *identifying intolerable risks that may require a transformation within the system in order*

to adapt (Klein et al., 2014). However, capacities and adaptation limits can be rather difficult to measure due to a wide range of uncertainty and variability (Shipper & Burton 2009).

In overcoming these limitations and constraints, the *concept of sustainable economic development has become a likely approach to focus adaptive responses that will seize adaptation opportunities and build capacity* (Klein et al., 2014). Economic development has generally been based on economic sustainability; however, in dealing with climate change it must be recognized that economic and environmental sustainability have to be cohesively integrated to be successful, as you cannot have one without the other. Unsustainable economics will result in financial ruin and unsustainable environmental science will result in unhealthy and unsafe environments for us to live. Both are cost prohibitive and unwholesome for people being affected. Studies have shown after natural, and human made disasters that the cumulative effects of uncertainty imposed on affected communities results in significant impacts on both physical and mental health (Sandifer et al., 2018). As such, advancing sustainable development will require deploying this approach through a larger portfolio of measures and policies, especially those related to public health and water and natural resource management where project developments are aimed at lessening risk for the poor (Klein et al., 2014). However, sustainability and economic development can be constrained or limited by a variety of economic factors, such as short-term adaptations decreasing long-term adaptive capacity (Klein et al., 2014; Donner & Webber, 2014), or economic resources, training technology, and political influence (Smit & Wandel, 2006).

Avoiding economic limits (or any limits to adaptation) may require buffering the feedbacks that encircle environmental and social resilience. Otherwise, exceeding limits may have cascading effects that polarize society and create conflict, thus leading to social disruption (Klein et al., 2014) at various scales of interaction.

The adaptive capacity debate on social disruption concerns migration and embracing the concept of increased mobility as a form of adaptation (Barnett & O'Neill, 2012; Betzold, 2015). Mobility has long been a part of life in Pacific Islands (Betzold, 2015), and labor migration often has the effect of increasing adaptive capacity by generating remittances that migrants send to support their families (Barnett & Campbell, 2010; Noble et al., 2014; Betzold, 2015). Local populations and decision-makers often have a limited understanding of climate change, especially where migration is taking place. This entry point to constructing an understanding of adaptive capacity is often understated in research. Even in cases where climate change is a familiar concept, it is not often approached as a problem to be solved at the local level; rather, it may be viewed as a global issue requiring a collective approach. These local level issues are often discounted as a future problem or a low probability event when discussing long-term extremes in the climate (Betzold, 2015). Theoretically, adaptive capacity is straight-forward in what needs to be taken into account; however, its application remains elusive in how to categorize or account for certain variables or measurements. For example, planting vegetation to take up excessive CO2 emissions is viewed as an adaptive response that can be highly successful, both environmentally and economically and is highly sustainable. The precise method and species that will be

successful will vary by region and country but provide a definable approach which can be used to galvanize both economic and ecological interests.

CATEGORIZING ADAPTIVE CAPACITY

As Dupuis & Knoepfel (2013) assert, the focus on raising adaptive capacity has led many policymakers to pursue various interpretations on how to create policies that will deal with the issue of climate change vulnerabilities. As the study asserts, several of the measures that have been used to formulate these policies have been based on macro-level indicators related to economic development (GDP, literacy rates, etc.), but *do not capture the complex nature of climate change and require a wider variety of indicators to understand what exactly can be done to raise capacity*. Though many scholars and policymakers have moved away from this approach to the problem of adaptive capacity in policymaking, new explorations are being made by examining the barriers that limit adaptation policies from moving forward (Wellstead et al., 2013).

Several of these barriers relate to the uncertainty of available scientific knowledge, the fragility of ecosystems, the un-favorability of cost-benefit ratios to measure adaptation, shortfalls in economic resources, weakness in state institutions, and social limits (Dupuis & Knoepfel, 2013). If the aim of a public policy is to achieve its stated goal, then adaptation policies that address vulnerability to climate change may be assessed by how successful the policy was implemented. Policies that have widespread appeal and application are those that will be the most successful, such as planting trees to absorb CO2. For SIDS it will be important to identify those climate adaptation practices that will have broad appeal across many cultures and regions.

However, success is often contingent upon how the problem is framed. Different framings have included Climate Change Assessments (CCAs), Climate Vulnerability Assessments (CVAs), and Vulnerability Capacity Assessments (VCAs), all of which approach the problem of adaptation differently as well as the goals that they aim to achieve. Most vulnerability assessment methods generally try to protect the most vulnerable ecosystems at the expense of those less vulnerable (Scott et al., 2013). These vulnerability assessments must include human valuations of those aspects of society and ecosystems that are most important to people. This allows prioritizations to be made to allow determinations of which approaches will allow the greatest return on investment to provide the greatest positive impact on people and the environment. This requires environmental metrics which can feed simulated physical models which can inform long term predictive models (Scott et al., 2013) needed with the temporal and spatial aspects of climate change.

CLIMATE CHANGE FRAMES AND APPROACHES

Dupuis & Knoepfel (2013) illustrate that the VCA frame in Switzerland and India have shown more traction for developing policy than CCA. The authors note a lack of adaptive capacity was not a sufficient explanation for deficiencies related to CCA during the implementation phases. Rather, the low tractability of CCA in the rural development policies for the Swiss Alps showed that adaptive capacity was high but showed wide-spread resistance between people and political institutions that focused on transforming environmental regulations that would put their economic activities at risk. Moreover, the VCA frame expanded the range of the governance structure the tourism

industry needed to expand economic opportunities where the narrower CCA framing looked at the problem as a matter of sufficient snow cover.

In a similar vein, Dupuis & Knoepfel (2013) highlight how adaptation policies may face barriers well before implementation of adaptation measures take place. Often, these barriers pronounce themselves during the agenda-setting phases where government and public administrators have a direct stake in designing policy that seeks implementation, but is also focused on non-climate related forms of development (e.g. tourism, transportation, sanitation, etc). Thus, a VCA approach to addressing climate change will be preferred in most contexts where CCA fails to recognize local stakeholder desires/needs.

Similarly, Barnett & Campbell (2010) express concerns in having to account for colonialism and the large bearing it had on environmental transformation, especially with how it corresponds with vulnerability to extreme events. Generally, colonization has reduced community resilience to extreme events by instituting the cash economy within traditional social structures. The exchange systems that preceded colonization were often founded on traditional agricultural goods that were consumed and produced locally but changed when commodity-driven exportation became the norm under colonial governments (Barnett & Campbell, 2010). With the change of colonial governance and economic systems being replaced with national independence, many Pacific Island Countries (PICs), or Small Island Developing States (SIDS) have been left with defunct systems of governance that coincide with economic systems (i.e., economies of scale) that cannot compete on the global market. This underscores the

importance of linking both global and local foci for implementation policies to be successful in SIDS.

Many Pacific Island nations have adopted various strategies over the last several decades in order to mitigate the effects of income deficiencies. These countries are founded on *migration, remittances, aid, and bureaucracy*, or MIRAB for short and all are based upon a system of subsidies, which are generally not economically sustainable. This entails mobility of individuals to secure remittances that directly feed into the aspirations for community development. The social/ecological relationships that underpin economic development are at increased risk when barriers exist to secure migratory networks that lead to greater remittances being sent. Several attempts have been made to achieve environmentally sustainable development in Pacific Islands through more general development planning, but *mainstreaming* climate change adaptation into existing disaster risk reduction frameworks has shown little success. In mentioning this, Barnett & Campbell (2010) expound the notion that in order to think of climate change adaptation through the benefits of migration and remittances to island communities, assistance programs should consider how human development should not take place solely through environmental disturbance, but through the capacity for Pacific Islanders to create space and opportunity for themselves.

Similarly, one of the most powerful framings categorizing adaptive capacity stems from the refugee narrative. The UNHCR and the International Organization for Migration (IOM) accept the "refugee" term as applied to people who are displaced due to environmental change (Barnett & Campbell, 2010). However, the term has

experienced resistance due to how it will compromise the existing regime built up around the 1951 convention that does not currently entitle people to use the term when it relates to climate change specifically (Barnett & Campbell, 2010). As such, the authors note that the environmental refugee discourse has hobbled along by what many consider to be the long tradition of labor migration that Pacific Islanders have used to increase their adaptive capacity. In other words, without a clear definition and recognition what is a climate change refugee, some may see labor migration as an adaptation that does not require further intervention.

Generally, the research community is ambivalent to the notion of environmentally-induced movements of people, as it is difficult to distinguish push-pull factors in the decision-making process of the migrant/migrant household, and what the bounds of permanency are if a choice is exercised with the intent to move or relocate. The literature that has been built up around climate change and migration has often assumed that people will be forced to move by climate change conditions. Nonetheless, it is difficult to parse out purely environmental factors that drive forced migration from more general social processes, or those that underpin part of what makes people vulnerable to environmental change.

According to Barnett & Webber (2009), the social processes that create poverty and marginality are more likely to determine migration than environmental change, and current literature ignores that much of the migration that takes place is voluntary and has positive benefits for the migrants and the recipients of their remittances. Still, migration – even as an adaptation or as a measure to increase adaptive capacity –

remains entrenched as a failure to adapt. In many instances, *migration is a form of adaptation*, but incorporating it into the context of measurement remains rather difficult. This is made even more difficult when migration is viewed by the impacts to the receiving community in terms of increasing pressures on local resources such as schools, housing, health care and other essential measures of the quality of life. Moreover, there are a range of factors that complicate effective solutions to increase adaptation efforts and decrease vulnerability. As such, *the complexity and range of variation within and between scales in the region make adaptation efforts local, but also poorly conceived* (Barnett & Campbell, 2010).

In a different vein, the implicit utilitarian notions of measuring for material and economic losses due to climate change is only part of the story, suggesting that immaterial losses are of growing importance in assessments and alternative framings (Adger et al., 2011). In essence, localized material and symbolic values have remained undervalued in the economic calculus of climate change policy (Adger et al., 2011). This creates a demand to understand and account for local and symbolic contexts in which peoples' lives derive meaning. Though not impossible, various research projects in SIDS have struggled to account for and/or deploy meaningful adaptive capacity measurements.

DEPLOYING ADAPTIVE CAPACITY IN THE SOLOMON ISLANDS

As Barnett & Campbell (2010) remark, the way that Pacific Island communities experience climate change is likely going to be highly differentiated. Not all places will experience the same change, the magnitude or timing of change, the sensitivity that

social and ecological places will experience, nor how social systems implement their adaptive capacity. As the authors indicate, nature cannot be separate from the social: the environment is social, economic, and political in the services that it provides. In this case, the environment cannot be divorced from the human world, and the adaptive capacity that humans have in response to environmental change also directly corresponds to social and economic change as well (e.g., urbanization, economic shock, etc.). However, measuring and accounting for adaptive capacity can be rather difficult under these circumstances.

The research that Birk (2014) performed in Solomon Islands illustrates this case in his aim to reassess the predominant view that climate change and sea-level rise are the pressing challenges for atoll communities. The author recasts adaptive capacity by situating climate in a range of other internal and external factors, including livelihoods, population growth, land-use practices, economic stagnation and lack of opportunity, weak infrastructure, economic marginalization, and ineffective governance. As Birk (2014) notes, short-term, non-climate stressors are often better indicators of local vulnerability than the long-term threat associated with climate change. Though climate change does not seem to be the major driver of stress in Pacific Island Countries such as Solomon Islands, it may nonetheless exacerbate other non-climate factors that the country and local-level communities contend with.

Birk (2014) also mentions that the impact of climate change is distributed unevenly, especially in heterogeneous groups in the Solomon Islands who face differences in exposure, sensitivity, and adaptive capacity at the micro-level. Because of

this, the author notes that it is often difficult to generalize findings from one place to another in regards to what the future holds between local groups within the same country. Accordingly, there is a need to solicit context-specific responses from locals during assessments to identify variable conditions of risk, how they deal with changes, and to explore local-level barriers and constraints with choices that limit their ability to adapt.

Similarly, the work of Dumaru (2010) focuses on the process and outcomes of a community-based adaptation (CBA) project in Druadra Island, Fiji to enhance adaptive capacity to climate change. Dumaru notes that CBA does not work within a vacuum, nor relies solely on issues that deal with climate change, but how climate change and adaptive capacity interact with existing risks within institutions and decision-making processes. CBA projects are a counterpoint to the top-down, model-driven assessments that often treat communities as homogenous groups and puts adaptation at a scale where climate change is going to be felt: locally. Dumaru (2010) further explains that the primary objective of a CBA project is to facilitate locally-derived adaptation strategies with the intent of increasing community-based adaptive capacity. In this case, the CBA project focuses on adaptive capacity in a way that includes engaging with vulnerability as a function of natural resource use, education, economics, and the availability of technology in an effort to actively anticipate future changes.

The discerning features of the CBA over other approaches regards local knowledge limitations concerning the causes and effects of climate change, but also *a co-learning approach to fill those gaps and to empower local communities to make their*

own decisions on how to adapt (Dumaru 2010). Naturally, this is a large departure from the development and planning initiatives that drove the field in the 1960's and 1970's where local and community-based power over the decision-making process was often forsaken for more powerful interests that drove development agencies. As Dumaru (2010) shows in her research on Fiji, CBA project applications cross disciplines dealing with development issues, especially community-based natural resource management (CBNRM) and community-based disaster risk management (CBDRM) that aim to embolden local decision-making. The thought here is that CBA can be used in conjunction with these approaches, as adaptation is not exclusively driven by climate change, but takes into consideration a wide variety of adaptive measures including resource and disaster risk management. Secondly, Dumaru's research shows that communities are sometimes at a loss for the technical expertise that makes adaptation beneficial. Much of what adaptation practitioners hope to achieve are heightened connections between communities and technology-savvy researchers to help widen the networks that communities can rely on as adaptive measures move forward.

In a similar vein, the research of Rasmussen et al. (2011) highlight some of the methodological difficulties associated with assessing the adaptive capacity in the Pacific Islands, especially issues with scale. As the authors note, climate change affects multiple levels of interaction. With island nations being heavily dependent on outside assistance programs that are tied to national and international policy, it is imperative to make adaptive assessments a multi-scale exercise. For example, the authors note that the intensity of cyclones increasing in the Western Pacific may coincide with issues of food

security that are felt at the local level but are often approached and mediated by national and international organizations. Thus, *adaptive capacity coincides with the efficiency by which the redistribution of assistance aid is given to local communities* (Rasmussen et al., 2011). It can also be said that changes to livelihood security coincide with climate change but can and should be viewed within a wider context of the political economy. The political economy here may also correspond with the capacity to help Pacific Island communities adapt or relocate (Rasmussen et al., 2011). As such, a political economy approach has a rather profound effect serving as the foundation on which decisions are made.

As for Pacific Island nations, long-term *adaptation strategies that seek integration into the wider economy may increase the adaptive capacity* of individuals yet weaken social institutions at the local level by destabilizing incomes and local costs (Rasmussen et al., 2011). On one hand, traditional social structures may be challenged or eroded with the monetization of economies in the islands being exposed to the outside world but may also diversify the economic base which may lead to increased adaptive capacity. This may result in shifts in leadership and alliances within traditional cultural norms; thus, it is important that the new economies of SIDS must include leadership programs for the new engines of the economy that attract native people from all cultures to assure a smooth transition. Developing trusted leaders will be the challenge for new industries poised at assisting SIDS in the future. However, the concept of CCA integration into existing development goals is a likely answer to the shortcomings that CCA has with stand-alone projects aimed at increasing adaptive

capacity. In other words, reorganizing adaptive capacity within existing goals – or mainstreaming – may be the key to seeing communities in Solomon Islands increase their adaptive capacity by accounting for a wider range of actions and tools.

CONSTRUCTING RESEARCH FOR ASSESSING ADAPTIVE CAPACITY

Constructing research in Solomon Islands with the intent of increasing adaptive capacity in communities affected by climate change is no small undertaking, but it is certainly not impossible. The sections above illustrate that the concept of adaptive capacity aims to account for a wide variety of interrelated factors that have temporal, spatial and context–dependent qualities that make generalization (translation) difficult from one place to another. Put simply, if the effects of climate change are felt locally but are confounded by local and large-scale processes within the context of a particular scale of inquiry (e.g., individual, household, community, state, region, and international), there are endless possibilities for how adaptive capacity is realized - and by proxy – how it can be managed.

The angle or approach of inquiry matters depending on where the power to manage adaptive capacity is focused. Top-down versus bottom-up planning often show divergent and competing outcomes beset with a range of thoughts on how the power to effect change is best realized. With that said, constructing adaptive capacity in Solomon Islands - or elsewhere - is highly sensitive to potentially competing interests to see a particular outcome. Nonetheless, competitions exist, as are a range of approaches that address the matter in CCA terms.

Wright (2013) utilizes a practical approach to the problem of stand-alone adaptation efforts, as well as thinking on how to make greater levels of impact. Wright (2013) notes that the use of disaster risk reduction can be interlaced with climate change adaptation measures to achieve multiple goals: protecting the lives of people, minimizing damage and losses, and promoting sustainable development. In this regard, most of the visible work to integrate DRR and CCA in the Pacific can be seen through Joint National Action Plans (JNAPs). These joint plans show great success at improving coordination, aligning funding opportunities, minimizing redundancies in development efforts, and reducing policy conflict.[1] However, Rasmussen et al. (2011) indicate potential issues with mainstreaming CCA into other regional and national development priorities that may cause a lack of focus on the local level and how climate change impacts areas differently. This requires precaution rather than strict adherence to funding that is specifically targeted at stand-alone adaptation projects. To adhere to adaptation-only projects closes out other developmental efforts that may incorporate CCA into their project outcomes.

CONCLUDING REMARKS – CHALLENGES AND LIMITATIONS

Huq & Reid (2004) indicate that integration of CCA funding being mainstreamed into existing development projects has gained some traction among funding agencies, though it has mostly gone unnoticed by research and NGO communities. There is a

[1] Refer to the UNISDR and UNDP (2012) "Disaster Risk Reduction and Climate Change Adaptation in the Pacific: An Institutional and Policy Analysis" as a starting point for assessing and maintaining program effectiveness.

continuous needed to examine adaptation in terms of the indicators and components that define adaptive capacity, and if agreed upon, will start the iterative process of how adaptive capacity can be strengthened. Klein et al. (2007) make similar claims highlighting an increasingly apparent connection between development and climate change as socioeconomic development patterns drive emissions. These patterns influence the level of impact and vulnerability that people experience. In turn, this influences future socioeconomic development. Development activities may be greatly enhanced by considering a wide variety of impacts that climate change presents to long-term sustainability. As such, the current framework of funding development projects through Official Development Assistance (ODA) is one potential avenue where climate change adaptation can be relevant. ODA projects and its deliverables such as food security, human health, and natural hazard mitigation are affected by risks associated with climate change (Klein et al., 2007).

Since adaptation and development are inherently tied together through adaptive capacity, the concept of mainstreaming can allow the integration of policies and adaptive measures that reduce the vulnerability between the two (Klein et al., 2007). Here, mainstreaming can contribute or achieve two things: it can add to climate-proofing existing projects both materially and immaterially, and once put into effect can ensure that future strategies are aimed at vulnerability reduction. In an effort to develop and enhance local and adaptive capacity between climate change adaptation and development, mainstreaming may play a part in creating the necessary synergies needed to fulfill Millennium Development Goals (MDGs) that focus on local needs.

These synergies may have the ability to strengthen the efficacy and efficiency of cooperative projects and greater recognition for a range of vulnerability indicators that are mediated through various knowledge bases.

Barnett & O'Neill (2012) argue that resettlement schemes are bound to fail when the people who are slated to move do not control the process of movement, especially when they do not want to leave in the first place. In this case, the claim that a resettlement is "voluntary" needs to be carefully examined. Instances where planned resettlement takes shape can significantly undermine alternative adaptation efforts and/or the sustainable use of island spaces. Put simply, if there is no future in one place, then there is no reason to treat it sustainably or in perpetuity. As such, giving Pacific Island peoples the choice to resettle must accompany the choice about how they move to secure livelihoods through various types of labor migration agreements. This will only be successful when there is a merging of both top-down global governance and bottom-up, local-specific governance approaches aimed at the highest priorities and vulnerabilities that catalyze people to action.

CHAPTER 4

ENVIRONMENTAL POWER AND KNOWLEDGE-PRODUCTION

– WHOSE VIEW COUNTS IN THE SOLOMON ISLANDS?

ABSTRACT

This chapter aims to explore the intersections of how environmental knowledge is produced and exerted in Pacific Island settings. The context-based and highly contested nature of knowledge and power production compels us to understand environmental actions not as monolithic models, tools and approaches that are applied without bias to the landscape. In the pursuit of understanding what constitutes the environment and how it is developed, there are diametric viewpoints of what counts as legitimate concerns, and often what does not. This chapter shows that conflict exists in these spaces over legitimizing one construct of nature while diminishing other contrasting or differing views of ecology. Whoever controls the knowledge of physical laws of nature and how it is applied and managed in the Pacific Islands will have similar control of the social, political, and economic relationships of how people operate and engage in environmental development spaces. To flesh out this complex process this chapter will discuss theoretical ideas nature and the contemporary management approaches protect and conserve nature that have become common practice. Other sections will draw on a broad literature base to illustrate context-based knowledge production of the environment. Ontong Java will be used to illustrate the idea of

knowledge and power over the environment. This chapter will conclude with the idea that the environment – as a human construct – is subject to contention between competing groups over who and what gets to manage an area in various contexts, and how the issue of scale may have a large bearing on how environmental issues are managed in the Pacific Islands.

WHAT IS NATURE, AND HOW IS IT PRODUCED?

Managing the environment has been the focus of much work in recent decades, especially scholarship related to how various development projects will impact the physical and human landscape and interactions. Hardin (1968) indicated over half a century ago in *Tragedy of the Commons* that there are some deep dilemmas that result from a lack of technical solutions to the problem of common space. Hardin claimed that a technical solution is often one that requires a change within the techniques that are used in the natural sciences, but often demand little to no change in human morality where the rules, values, and ideas define space and how it is constructed. Modern society applies measurement tools in this day and age, such as: Geographic Information Systems (GIS), remote sensing, core sampling, pressure testing, and impact models. These techniques and approaches are used to better understand physiographic changes at a particular site. Developed nations around the world will use the Environmental Impact Statement (EIS), or the Environmental Impact Report (EIR) and the standard package of technical tools to determine whether or not a proposed project will have adverse and irreparable effects (Glasson et al., 1999). One useful approach is the Environmental Assessment which addresses issues that a proposed change in the

environment will cause; but unlike an EIS or EIR, it does not select one approach for environmental management over another. This is left to public discourse on the issue, allowing for diversity of opinions to be discussed and debated so that a majority viewpoint can help decide an issue. Altruistically, this approach works, but often environmental and ecological “sound science approaches” are superseded by political science approaches that are not sustainable and plausible. However, well-meaning approaches to manage the environment can also purposely or inadvertently control the flow and use of “acceptable” knowledge, thusly casting a backdrop that is not plausible or sustainable. This can leave society in sea of confusion and a conundrum of what to do next.

Recent environmental initiatives have seen a global push towards sustainability. Randolph (2004) presents the evolution of five general paradigms of environmental management that are highly dependent on who controls the knowledge, including:

- frontier economics, this anthropogenic view sees resource as limitless and without boundaries where progress toward developing is inherently tied to economic growth;
- deep ecology, the perspective which sits at the opposite end of frontier economics’ ideological spectrum as a bio-centric view that often seeks human value in getting back to nature and placing nature on a pedestal at the expense of economic growth;
- environmental protection, as a recognition of environmental impacts that will ultimately be lessened, but places economic growth at the head of the line, thus

making the protection of the environment a business as usual plan that will usually only curb the most sever impacts to society, especially those connected to the economy;

- resource management, which recognizes long term environmental sustainability as a barrier and constraint to long term economic growth, but with recognition of internalizing the externalities of traditional economic development so that burdens aren't placed more widely on populations effected by business development; and
- eco-development, which places the environment at the center of the world where human society and nature co-develop, and an economic system is restructured so that economic value of environmental resources is situated in terms of the ecology.

These five paradigms are not natural management practices that emerge from universal consensus and truth but are mediated by cultural values and vary with the scale at which a practice is put into place. In this case, the utility of the environment often corresponds to the production of wealth that is distributed differently depending on the value that humans place on a commodity. The environment is based on human values, and those values are mediated through power over the knowledge of what is managed, and how.

The environment is comprised of natural/ecological systems, but when held against public policy, theories of welfare economics and economic efficiency creates a space where the environment becomes a site of utility for human well-being (Randolph,

2004; Adger et al., 2011). The effects that take place to the environment - positively or negatively - can and often do create a set of externalities where people and the environment carry the burden of certain costs; those costs are often transferred between resource-extractor and end-user (Randolph, 2004). For example, the cost of increased carbon dioxide, carbon monoxide, and sulfur dioxide emissions in the atmosphere (i.e., the global commons of the atmosphere) is not a cost that is transferred in the market when goods are made from the energy that is produced from the release of these greenhouse gases. The use of green house gases label is clearly an attempt to indirectly indict excessive energy production, but not directly confronting the powerful economic lobby of energy producing companies that combust coal, petroleum, and natural gas. With the result of these externalities and the market failing to directly confront and identify them, the common metrics (e.g., cost-benefit analyses) are constrained in their ability to measure or estimate environmental losses (Adger et al., 2011).

Almost all federal laws regulating the environment are risk based which generally include exposure and effects assessments along with risk benefits assessments, which attempt to place equity comparisons of both environmental and human well being. More specifically, the term *equity*, defined through the distribution of cost and benefits, is not easily incorporated into cost-benefit analyses, nor are the risks or uncertainties related to the effects of various externalities understood or incorporated into this common metric. Perhaps, the field of ecological economics carries the ability to valuate these costs carried outside of market interactions using option

values and insurance values; but again, there are difficulties in estimating perceptual losses in monetary terms (Randolph, 2004), especially when dealing with cultural values which are difficult to monetize and place within the context of "quality of life" valuations.

Each of the paradigms listed above is derived from a particular set of values and functions to some degree within the context of *valuation* of the environment. As information is shared with stakeholders and environmental planners become more broadly and deeply aware of issues, the rise of collaborative environmental planning becomes progressively more important (Randolph, 2004). This planning approach is participatory in design and seeks joint decision-making between groups in an effort to see the implementation of environmental projects and programs in need of coming to fruition. In reality, a planner will aim to utilize technical problem-solving tools that combine with the communities in which they serve in an effort to create a co-vision of how to make the future (Randolph, 2004). However, the history of applied technocratic-type environmental management practices has fallen short regardless of the paradigm that it operates in. As a common result, the power and knowledge dynamics that underpin the construction of the environment are constantly changing and being challenged among groups at different scales of influence. Even the most advanced procedures to ensure equity in the decision-making process show little sign of capturing the nuance that is necessary to satiate the needs of competing natural resource users. Thusly, we find spaces where power and knowledge are contested in an effort to impress a viewpoint of reality – an environmental reality.

WHOSE VIEW COUNTS? – POWER AND KNOWLEDGE

Thin Simplifications and Practical Knowledge: Metis, by Scott (1998) draws attention to the fact that formulated simplifications wrought through state power often lead to real/observed natural and social failures. Scott (1998) notes that how social order is cast by authoritarian or high-modernist viewpoints serves as a valuable point as to why some projects in forestry management (and environmental management more broadly) are destructive schemes aimed at suppressing complex activities. As the author notes, the concept of Metis is a form of knowledge that is found at the intersection between local experiences and more abstract knowledge deployed by the state. At its heart, Metis is a direct resistance to simplification due to environmental complexity that often creates issues with formal procedures that decision makers try to apply despite not having full knowledge. With a focus on the *local*, the Metis concept acknowledges successful practices derived from daily experience. It is based on practical results derived from skill, whereas technical knowledge may have practical applications that set down dimensions, numbers, weights, and measures with wide discretion in its application across environmental spaces (Scott, 1998). If universally successful, a new technical approach becomes acceptable across a broad spectrum of society and this raises our standards to better protect and conserve the environment.

A variety of cases relate to this concept throughout history, especially at the nexus of environmental management and development. Conceptually, Metis shows how and why competition arises among groups by way of environmental framing. There are few, if any, examples where there is a final solution or product that stakeholders

completely agree on. Before, during, and long after the decision-making process there are contentious struggles for power as to who gets representation and recognition of the natural environment. This drive to instill one knowledge base often comes at the expense of displacing other forms of knowledge, and in turn these displaced knowledges will put into motion and perpetuate movement(s) to augment and carve out new forms of power, knowledge and subjectivities with the environment (Scott, 1998). This concept generally applies to a variety of knowledge/power issues throughout the world but is particularly applicable to several underdeveloped sites in the Pacific Islands where collaborative and iterative environmental management practices are in want in confrontations between “local” and “authoritarian” viewpoints.

Power and knowledge contestation in the Pacific Islands

As with many underdeveloped regions, people in the Pacific Islands lack basic necessities, and have a long history of colonial repression that still casts large shadows in the ways that individuals, communities and countries exert their knowledge and power on the environments in which they live. One of the major hurdles that Pacific Islands face in the modern world is the ability to rescale environmental and developmental issues to reflect what they want to have happen as individuals and communities within the confines of their respective countries, and through the regional cooperative networks in which they take part in. As Pacific Islanders move through the difficulty of scaling environmental and developmental management to make the best of their situation, they often come into contact with outside knowledge and powers that shape the environment for economic and strategic purposes that do not reflect the best

wishes of many Pacific Island Countries (PICs), or what Neumann (2009) might call "things [regions] transformed by external forces of power" [369]. In Melanesia, conflict sits in the fields of power or *governable spaces* with a particular configuration of resources, territory and identity (Allen, 2013) that have a tendency to prompt economic development at the expense of depriving local peoples. Here, issues of regional cooperation, scale, and a lack of local voices in decision-making prompt an environmental consciousness and approach that fits with this reality.

A Call for Regional Cooperation

The forward-thinking words of Hau'ofa (2019) indicates that Pacific Islanders need to act autonomously not only within global, political, and economic systems, but do so by working together as a region. Hau'ofa – specifically his "sea of islands" theory – alludes to the necessity of tying Pacific Island people together over extensive spaces and networks to create institutions that are directly committed to shared goals. One of the recent drawbacks in research has been a lack of ontological recognition when it comes to the concept of regions and scale (Gruby & Campbell, 2013). In this case, scale – and the concept of the Pacific Region as a scale of inquiry – is directly tied to concepts of power, processes, and political agendas that are fluid, contingent, and ever changing. Like many environmental management practices discussed earlier, these concepts are framed statically and leave little room for the processes and fluidity with changes that unpin much of Pacific life today.

Scale is not just a derivative of social processes but is an instrument for reshaping the dynamics of power within a social space. To date, the UN's CoP10 is

considered a collective regional response to developmental shortcomings with these dynamics of power. However, with a focus on regional issues it has direct ties to concepts of colonialism (such as those seen in the South Pacific Commission) with interests in security as a strategy and is supported by highly developed countries with clear interest in the Pacific as a whole (Gruby & Campbell, 2013). The UN's CoP10 activities also address concepts of scale and bring to light new and ever changing active political spaces, even if those spaces may be imbued with colonial overtones. Today colonial occupation has been replaced by economic occupation and domination of Pacific island nations by global super powers with diverse political viewpoints (capitalism, socialism, etc.) and their needs for natural resources and cheap human capital. These outside political viewpoints may ultimately settle within the local social and political culture of a sea island nation to influence how sea island nations move forward and choose to determine future economic development within their country. It is the significant external wealth yielded by these outside countries which will help frame environmental issues within a given sea island nation.

Hau'ofa calls for a common heritage of peoples grounded and anchored around the Pacific Ocean, but to do so requires working at geographic scales that have limited resources in the international forums that focus on future economic development. The Pacific Ocean environment is the common cultural ground used by Pacific Island nations' residents to bring to the table when trying to plan for the future as it is both a source of culture and political power in an ever rapidly changing world, giving them a voice. As an example, the CoP10 meetings are often large and complex, and distant from delegations

in Pacific Island countries that hope to attend (Gruby & Campbell, 2013). Similar efforts can be seen with the Asia-Pacific Partnership (AP6) that has long been considered a great success for regional cooperation (Kellow, 2006). However, these cooperatives allow economies in the Pacific Region to stay open for economic development, but also expose them to trade restrictions. For example, Australia's ability to make the most out of all current resources coming from the Pacific region is partially an effort against competition from China's rapid industrialization (Kellow, 2006). Thus international competition between super powers has a great influence on future economic development within this region.

To overcome these resource barriers, several SIDS will enroll someone from their country of origin or underwrite an NGO official to participate in the regional delegation. For example, under the SPREP in Fiji in 2010, participants laid a groundwork for coordinated efforts to show physical presence at future CoP10 conferences. Participants developed a campaign called "Pacific voyage" in hopes of enhancing their visibility at forthcoming CoP10 conferences (Gruby & Campbell, 2013). This "Pacific voyage" was a collective with sights set on diplomacy with a shared vision, identity, and a commitment to conservation and a large ocean territory without boundaries, i.e. enhanced regional migration (Gruby & Campbell, 2013). As developed, their constituency started to define itself less on the concept of environmental vulnerability and refocus on conservation efforts aimed at global marine biodiversity. Small Island Developing States (SIDS) participating in the CoP10 actively rearranged the scale for political visibility. However, the unified voice to rescale the Pacific Region is perhaps idealistic in that it re-envisions

SIDS as a homogenized group which is not necessarily adopted by Hau'ofa, or other Islanders seeking greater regional cooperation.

In this regard, a homogenous vision can treat the Pacific equally when in fact the potential incongruities between different scalar priorities, as well as differences in the representation/power of varying interest groups, challenges this unity (Gruby & Campbell, 2013). This is a paradoxical situation as commonalities in their regional culture defines the region's view point on the importance of the environment, yet individual differences and self-interest between Pacific Island countries within this region results in a lack of speaking and acting with one voice. To politically rescale the region means to focus on what ends its serves and what voices may be silenced along the way, which in the end will ultimately define environmental quality and health and wellbeing within the region. The concept of a *regional voice* effectively simplifies complex problems in territories that may be partially concrete, but may often be unbounded, invisible, or ambiguous (Gruby & Campbell, 2013). It is precisely because of the divergent needs of local areas and their respective countries that make asserting a unified voice so difficult. Often, outside influences (Australia, the U.S., New Zealand, etc) have stepped in to construct and reconstruct the Pacific to serve their needs, and there is oftentimes a sad history that accompanies modern-day economic, social, political and environmental engagements in the region.

NATIONAL COHESION – THE CASE OF RAMSI IN SOLOMON ISLANDS

Politicizing nature from outside influences is not new in the Pacific Region, or specifically for Solomon Islands. As Barbara (2009) notes, the use of Constituency

Development Funds (CDFs) have served as discretionary funds awarded to MPs to support local development projects in order to foster greater levels of political support for central government officers. The use of CDFs has grown exponentially since 2007 and has since become a key mechanism for local delivery. This has essentially reinforced the position, authority, and knowledge of ministry officials as personalized agents of development and environmental management (Barbara, 2009). These MPs can then circumvent the bureaucratic delivery system of the state, and in doing so can contribute greatly to uneven patterns of development seen in the Solomon Islands today. The concept of uneven development is not new to Solomon Islands or other Pacific Island nations, but in the context of Solomon Islands it has roots that tie back to a colonial history of repression through land tenure rights and environmental access that still play out today.

For example, the Regional Assistance Mission to Solomon Islands (RAMSI) has played a large part in the way the country has developed the natural and social environments. As Monson & Foukona (2014) show, NGOs and donors have devoted large amounts of resources and attention to the impact of climate change on livelihoods in the Solomon Islands, but far less attention to the vexing issue of how customary land tenure can be used as a localized response/adaptation, to climate change. In the Solomon Islands, land scarcity is not an issue per se – as nearly 80% of the land is held under customary law – but disputes and conflicts over who lays claim to the benefits that are derived from these lands is well catalogued and still widespread (Monson & Foukona, 2014). Yet, a complex relationship with customary ownership of traditional

land abounds, and with it generally conflicting stories of whose ancestor first claimed a particular area.

Recently, these conflicts have been manifested in “the Tension(s)” or “ethnic tensions” from 1998 and 2003 between customary landowners in Guadalcanal and the nearby inhabitants of Malaita in search of greater livelihood opportunities in the capitol, Honiara, located on Guadalcanal Island. In being characterized as a failed state through these “tensions,” it gave rise to the Australian-led Regional Assistance Mission to Solomon Islands (RAMSI) aiming to curb the violence, bring economic stability to the region, and stifle any offshoot of extremism in a post-9/11 world (Monson & Foukona, 2014). The tensions have died out with RAMSI being transitioned to a long-term development agency of sorts, but the issue over land and land ownership under customary law has remained. In post-RAMSI Solomon Islands, land has been central in how the State will track and control various movements throughout the country. This is exceptionally important when considering any form of climate-induced displacements that are projected to take place from changes in seasonal patterns on agricultural activities, as well as the frequency and scale of cyclones, droughts, and high waves. Moreover, the natural hazard component of climate change is bound to have an effect on mobility as a driving force in prompting people to leave, and how the Solomon Island Government will manage migrant flows.

The Solomon Islands Government took part in the Peace Agreement in 2000 to settle disputes with Malaita after recognizing areas of uneven development and dampen internal migration pressures. The Solomon government helped the region

develop a palm oil plantation at Aulauta, but the feasibility studies showed that it was unviable, indicating that the local geographic conditions, longstanding issues over land, commercial viability, and investor interest would surely not match the hope that Malaitans had in becoming commercially relevant through new land arrangements (Barbara 2014). In this regard, little interest was given to a variety of other projects that had a greater opportunity cost towards national development projects (Barbara 2009). Put simply, while "the Tensions" came to a head the central government did not take the time to find out what the locals of Aulauta really needed. This top-down approach to development was impressed on them without regard for local knowledge that would have indicated otherwise. Again, RAMSI came about due to Australian fears over regional instability, but the conditions were ripe to intervene because of outside knowledge (Central Government) impressing ideas on local areas without their input.

It was apparent that RAMSI's interest in development was focused more on extraction and appeasement of elites than an overall growth-oriented economy, or environmental development. Elites were shown to have little interest in collaborating for nation-building activities. Despite RAMSI's interest in revamping the logging industry to be more centralized and have growth through extraction, local elites stymied the process; they saw the function of the RAMSI government as a servant to their personal needs, and as a conceptualization of the state as "development actor" much like the failed government had been in the Solomon Islands leading up to the tensions (Barbara, 2009). By forwarding logging enterprises as a panacea for shortcomings in economic development, RAMSI grew the constituent development funds that local MPs came to

abuse, but it also had the effect of prompting the State to retreat from rural areas by cutting services, and concentrating those services in the capitol, Honiara (Allen & Dinnen, 2015).

National debt in the Solomon Islands decreased from 73% to 17% under RAMSI due to intensive, extractive resource activity; however, the intervention did little to take a hybrid approach to development (Barbara, 2014). Instead, RAMSI focused on bolstering post-colonial institutions rather than local development. In 2005 the Pacific Island Forum indicated that RAMSI needed to shift into a more developmental approach with the Solomon Islands as an equal partner rather than the interventionist approach that it had taken in the past. In 2009, after an effort to strengthen the partnership between RAMSI and the government through the Partnership Framework, it was agreed that RAMSI needed to tighten the mandate to ensure a baseline for development performance and the prospects for a drawdown to hand over government function back to Solomon Islands (Barbara, 2014). However, even when RAMSI had the opportunity to assist local communities, it still functioned in much the same way as the failed government of the pre-tension years and moved forward with unsustainable and inequitable projects anyway.

What is left over now in the post-RAMSI government is not much different, and this is projected on the local places around Solomon Islands like Ontong Java where new forms of environmental knowledge and power are being created and challenged between local entities, their elected officials, and environmental managers and planners. What is clearly needed is a merged bottom-up and top-down approach which

integrates the best ideas into a cohesive long-term development plan based on principles of sustainability as a guiding principle and to resolve differences. Pre-defining what will be acceptable environmental end points of sustainable environmental quality and health/well-being needs to be agreed to, then monitoring put in place as economic development projects are implemented. This will determine if anticipated sustainability results are being achieved.

Ontong Java– An example of local knowledge and power contestation

As Barclay & Kinch (2013) note, the ability for a community to manage their resources varies from place to place, being more effective in villages where local leaders have strong social authority, and less effective in villages where there is high migration and social fragmentation. Villages in general are not socially cohesive units but are driven by various interest groups (Barclay & Kinch, 2013). NGOS and aid donors have tried to play a role through initiatives that improve conservation through funding livelihood projects (example: Coral Triangle Initiative); however, these efforts have largely failed due to ineffective institutional, systematic, long-term management (Barclay & Kinch, 2013). The work of Barclay & Kinch (2013) in Ontong Java shows these contemporary engagements with capitalism in coastal fisheries development. The authors use the concept of "social embeddedness" to analyze two fishing villages where local manifestations have shaped the social landscape. Villages there were found to engage with capitalism and had problems with commercial viability and ecological sustainability. Different capital outcomes here explain not just the concept of "local

cultures," but the "local capitalisms" that arise from different configurations of human, non-human, local and outside influences.

Pacific Island nations' fisheries are not profitable without high external inputs. Unlike high-value, easy-to-store-and-transport marine products, fresh fish that are chilled and/or frozen are low value to weight and are tricky to store and transport in good condition. The costs and difficulties involved in getting fish from rural areas without markets and getting fuel and mechanical repairs into rural coastal areas usually outweigh the profits that are fetched by the fish. Sadly, when the funding for these projects stops, the fisheries stop soon thereafter (Barclay & Kinch, 2013), such as the EU-funded Solomon Islands Rural Fishing Enterprises Project (RFEP) that took place in the 1980's. Initially, the centers owned the infrastructure for production and paid local fisherfolk who helped them to catch fish. These centers adopted a loan scheme for fishers to buy their own boats with the idea that fisherfolk would have a greater incentive to fish (Barclay & Kinch, 2013).

RFEP centers administered the buying and selling of fish, fuel supplies, undertook banking, and transport and marketing services to urban area, but showed after a while that fisherfolk did not manage to repay their loans, and the boats were subsequently repossessed (Barclay & Kinch, 2013). The explanation is simple when looking back: the development scheme was based on optimistic catch projections, and the supply chain to maintain equipment was never fully developed with the NGO. Repairs that were much needed to boat engines and refrigeration units that were tied

into that local economy never came, and the institutions built around the export fishing industry started to collapse.

Further, the RFEP boats that were sent to collect the frozen fish were few and far between, often covering a large geographic area that took too long of a time to fetch the fish from storage. Though well-meaning in its aim, the RFEP collection boats and the local fisherfolk who managed the smaller fishing boats could not compete with large commercial fishing operations in Australia and New Zealand that could manage to fish at a scale that rendered Solomon Islands' local fishing industries obsolete on the regional and global markets. Though the RFEP was meant to empower local organizations of people through its actions, it was also stifled by handing over-fishing operations to fisher groups and government agencies that had little to no track record of managing commercial ventures. In light of the previously mentioned issues with profitability, the handover was ultimately unsuccessful and floundered (Barclay & Kinch, 2013). Any hope of successfully handing over the fishing enterprise to an assortment of interests was stifled with the social upheaval that took place in 2000-2003 with the "ethnic tensions" in the country, and the entrance of RAMSI to keep peace that put development onto a different track.

A CONCLUSION FOR PACIFIC ISLANDS?

The chapter highlights how some Pacific Island nations have to reckon with a multitude of difficulties, including underdevelopment spurred on by a lack of land rights, powerful outside interests in the region that come to securitize and manage economic development through natural resources, and more. Some nations in the Pacific Islands

lack basic necessities and have a long history of colonial repression that still cast large shadows in the ways that individuals, communities and countries exert their knowledge and power on the environment and its management practices. Many Pacific Island countries face increasing pressure to adopt Western-style management practices that enhance some voices while diminishing others, which diminishes environmental projects that would otherwise improve the health and well-being of local residents, bolster national development, and enhance regional cooperation.

Many of the hurdles that Pacific Island nations face in the modern world are an inability to rescale environmental and developmental issues to reflect what they want to have happen as individuals, communities, and through the regional cooperative networks in which they take part. It seems that nearly every turn they make is one where the scale and set of choices by which they operate has already been chosen for them, and usually not to their benefit. As Pacific Islanders move through the difficulty of re-scaling environmental and developmental management to make the best of their situation, they often come into contact with outside knowledge and powers that shape the environment for economic and strategic purposes outside local realities. There is much required in order to move forward. It is yet to be seen as to whether they have the ability to manage the knowledge and power of their environment in the region, and at the national and local levels that make environmental management, knowledge and power their own.

CHAPTER 5

PLANNED RELOCATION AS A POLITICAL ADAPTATION TO CLIMATE CHANGE AND ECONOMIC VULNERABILITY IN CHOISEUL PROVINCE, SOLOMON ISLANDS

ABSTRACT

Climate change migration has become a highly contested and sensationalized topic. Nowhere is this issue more visible than the Pacific Islands, including: Kiribati, Tuvalu, Nauru, Fiji, and the Solomon Islands. Development schemes in this region of the world often take an approach of both in-place adaptation and mitigation measures in an effort to tackle climate change head-on. In the case of the Taro Township in the Solomon Islands, one of the more recent challenges associated with sea-level rise and storm waves includes negotiating short-term, in-place adaptations, but with sights ultimately set on the relocation of the provincial capital to the main island of Choiseul by 2030 (Haines & Mcguire, 2014) with soft assumptions that the new township will provide alternative opportunities for commerce. These local-scale outcomes for migration must be explored in and around Taro to help better understand the emerging literature on this topic, which practical approaches for planned relocation may be necessary in the future, and how these changes will be felt through multiple economic and social networks at varying scales (Brauch, 2014).

The IPCC notes that climate change is projected to increase displacement of people (Pachauri et al., 2014). More specifically, the IPCC 2014 Working Group II notes the importance of grasping climate resilient pathways in order to unravel negative residual impacts stemming from emerging climate stressors, changes to household income, educational opportunities, and the loss of livelihood assets which spur out-migration (Denton et al., 2014). This research will help fill initial gaps in the literature concerning these issues by way of asking *how residents, NGOs, and government agencies and their agents envision points of need and opportunity, and perceived advantages and disadvantages associated with the relocation plan for Taro*? This research will draw on a variety of critical, conflict and political ecology theories and utilize the Key Interactions Framing the Politics of Adaptation Framework from Eriksen, Nightingale & Eakin (2015) to understand competing and conflicting knowledge, authority, and subjectivity feedbacks in the political-adaptative landscape, as well as critiquing the presumptions of the migration plan. Furthermore, this research will draw on the Weisser et al. (2014) work and their theories augmented from Callon's (1986) "distinguishable moments" to help ground respondents' thoughts on power dynamics in the mobilization of adaptation actions.

BACKGROUND

The research and interview questions proposed here stem from a rather large literature gap concerning the understanding of what prompts the movement of people when climate change compounds existing social, economic, and political stressors. According to Carraro (2015), there is a need to understand not only the causes that spur

movement, but the whole migration process when movements take place. The IPCC 5th Assessment Report supports this claim, indicating that climate change is projected to increase pressure with the displacement of people, but needs to be addressed through "the complex interactions that mediate migratory decision making by individuals or households, establishment of a relation between climate change and intra-rural and rural-to-urban migration, observed or projected, [which] remains a major challenge" (Dasgupta et al., 2014, 617). The IPCC also notes that populations of people living in developing countries with low economic income (like those in Solomon Islands) often lack the resources to create fine–tuned plans for migration; as a result, the Islands may experience higher levels of exposure to extreme weather events when compared to other countries that have a greater capacity to adapt (Dasgupta et al., 2014), and that under these circumstances, climate change can indirectly lead to increased risk of violence and conflicts by way of amplifying well-documented drivers that may disrupt social cohesion such as poverty and economic shocks (Nordas & Gleiditsch, 2007; Gleiditch, 2012; Hsiang et al., 2013; Theisen et al., 2013). Moreover, changes to the environment may lead to the inability for human ingenuity and government function to keep up with varying levels of environmental stress (Homer-Dixon, 1999; 2000), especially in many least-developed countries in Oceania.

With that said, the Taro Township and Choiseul Province serve as sites to discover some of these complex socio-political issues manifest in the climate change relocation plan. However, many people in these areas feel that the relocation plan may not suit their interests. This observation is based on my preliminary interviews with five

local Taro residents and five government officials during pilot trips to Choiseul and Guadalcanal for three weeks in June 2015 and December 2019. The Integrated Climate Change Risk and Adaptation Assessment to Inform Resettlement Planning in Choiseul Bay, Solomon Islands (ICCRAA) mentions community engagement in several areas throughout the document (reference pages 20-22), and the research team seems to have adhered to a fairly rigorous framework for engaging with the communities in and around Taro to explore the viability of relocating existing infrastructure and the Taro population. In that vein, the Choiseul Bay Adaptation Plan (CBAP) mentions very pointedly that, "It will be impossible to fully mitigate risks on Taro Island in the short or long term. Only the progressive relocation to the mainland would address [Taro's] risks associated with present and future tsunami events and severe coastal storms" (Haines & McGuire, 2014, 7). However, based on the interviews that were conducted during the pilot trip, there are still members of the community that feel their voice has been left out of the decision-making process and with the amount of decision-making outcomes for imagining new and emerging economies in and around the new provincial capital.

Most of the verbiage in the ICCRAA document focuses on community empowerment in the decision-making process, but there are some areas of the document that remain questionable as to how some voices were heard, including one of the project objectives that "Stakeholders and community members have an in-depth understanding of the purpose and benefits of the project and feel their views have been incorporated into the project outputs" (21). Certainly, people who are feeling the changes on the ground are the ones who will give climate change adaptation "context-

specific meanings, and thereby mould and modify the idea of adaptation according to their own interests" (Weisser et al. 2014, 112). In this case, the voices from many Taro residents and the Choiseul people have not been fully registered in the preliminary design or the scoping process for the proposed capital on the main island of Choiseul. As such, the proposed relocation warrants further exploration to solicit the finer resolution responses residents may have to add to the planning process, especially with how formalized plans have been framed thus far with the relocation.

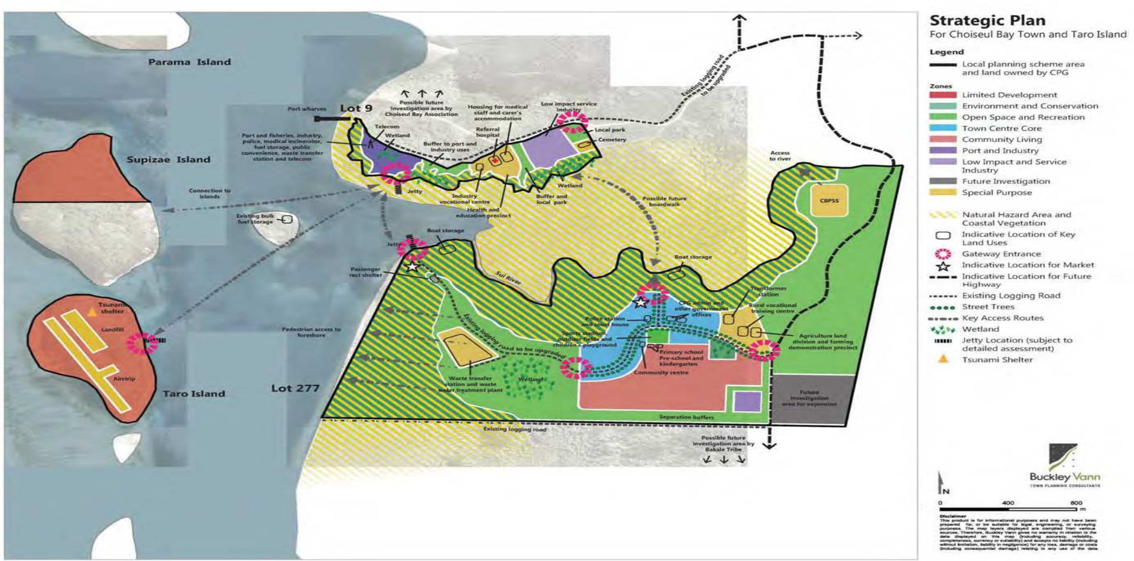

Figure 5.1 - Strategic Plan by Buckley-Vann Town Planning in Haines et al. 2014 pg. 95.

To this end, I propose the following research question to help better understand a variety of complex problems associated with the relocation.

- How do residents, NGOs, and government agencies and their agents envision points of need and opportunity, and perceive advantages and disadvantages associated with the relocation plan for Taro?[2]

REVIEW OF THE LITERATURE

The future of many atoll nations in the Pacific Ocean looks grim when addressing long-term vulnerability to sea-level rise. As Warrick & Oerlemans (1990) indicated in their seminal paper, long-term projections of sea-levels in the region may rise as much as 44cm by the year 2070. The Warrick and Oerlemans paper helped shaped modern discourse on global sea-level rise projections; however, contemporary projections of global sea levels are on par with 1.8 meters-5.9 meters (Meehl et al., 2007), 0.7-1.9 meters by the end of the 20th century (Birk & Rasmussen, 2014), or 7 mm per year adopted from the AR5's RCP 8.5 scenario (Solomon Islands National Climate Change Policy, 2012). These underpin a common belief of low-level agreement as to which scenario of sea-level rise to adopt in the planning process (Barnett & Webber, 2010). However, this uncertainty of future sea-level rise estimates leads to further questions as

[2] Previous correspondence with Dr. Jon Barnett indicates that this question helps to better understand the context of how people respond to others who move before or after one another. This question aims at understanding what propels people to move at various points in time, and to explore various tipping points of movement. The negotiation of new spaces and places of empowerment are still yet to be seen in the guiding documents for relocation, though some of the proposed sites (community center and the town center) do point toward community empowerment. Dr. Barnett's comments go as such, "This is a good question, more subtly, the extent to which some people want to move, and the extent to which people are first movers changes the calculation for others since people may wonder of those who move first (or later) will get a better deal, and others may consider that if enough people leave they will have to in order to maintain social networks, or because the viability of existing community may be compromised."

to how these changes will affect the physical and social environments in terms of their frequency and severity of effects.

Coupled with the ongoing developmental issues related to poor sanitation (Locke, 2009; Storey & Hunter, 2010), shortages in potable water (Titus, 1989; White & Falkland, 2010), unavailability of large tracts of land for agricultural production (Nunn & Mimura, 1997; Johnson, 2012), saltwater intrusion into underground aquifers (Titus, 1989; Warner et al., 2009; White & Falkland, 2010; Mataki et al., 2013), and a small Gross Domestic Product (Ware, 2005; Nichols & Tol, 2006; Lacey, 2011), adapting to physical, economic and social changes in areas facing these stressors seems like a near impossible task. As one of the Pacific nations facing these compounding threats, Solomon Islands has taken the initiative to navigate these issues in various ways, including in-place and migratory adaptations within the confines of the country, but at times throughout region as well (McLeman & Hunter, 2010; Lacey, 2011; Birk & Rasmussen, 2014). Often, Oceanic peoples' migrations occur with a lack of guidance and support on an international level to help ameliorate the effects that climate has on local communities within developing nations (Barnett, 2003; Bell, 2004; Barnett & Webber, 2010; Donner, 2015).

With a shortage of financial and natural resources in many least-developed island countries, careful planning and instruction from the academic community and development agencies have become the focal points of developing sustainably to ensure the survival of island peoples. The Solomon Islands' National Action Plan for Adaptation (NAPA) gives various theoretical approaches to tackling issues related to sea-

level rise and other environmental stressors. However, it is important to note that the NAPA highlights various options for developing the nation within the confines of its political borders. For example, the 2008 Solomon Islands NAPA acknowledges that the most effective trajectory for the country's adaptation efforts should focus initially on the strengthening of governmental and financial institutions, and the information needed to increase technical support on adaptation issues that are situated within interministerial structures (Maclellan, 2011). However, the county's NAPA is thought to be nearsighted in that it will only produce documents, and it will not translate to on-the-ground change (Maclellan, 2011) or prevent the rural poor from moving to urban centers due to land use restrictions and labor codes to control the flow of movement within the country (Johnson, 2012). Put differently, the same document that is charged with assisting Solomon peoples in adapting to climate change does not have a firm plan in place for receiving an influx of intra-regional migrants seeking economic prospects in urban areas.

While plans for on-island adaptations move forward, a variety of discourses have developed regarding migration as a path for adaptation. According to McAdam (2011), a merit-based migration policy to New Zealand and/or Australia would be preferred by many Islanders, but several barriers exist in legal definitions of migration status and the logistics of how many people might move within a given year. However, the most pressing concern with securing an alternative (be it a new homeland or as a citizen in a host country) is to lessen the general effects of poverty and conflict, as well as increasing adaptive capacity for those who remain (McAdam, 2011). Barriers to

international and regional mobility that hinder these proposed adaptations also exist, especially concerning the definitions of where climate migrants fit when they move from their points of origin (Dun & Gemenne, 2008; Martin, 2010; Adams & Adger, 2013).

Although the literature suggests that New Zealand and Australia serve as the primary targets of relocation for many Islanders across Oceania (McAdam, 2010; Kuruppu & Liverman, 2011; Lata & Nunn, 2012; Smith, 2013), other studies have indicated that some island nations, such as Kiribati, are now in the midst of entering into preliminary agreements with other less politically stringent host countries, or securing assurances from companies willing to hire to help diversify i-Kiribati livelihoods (Russell, 2009; MacLellan, 2011; McDermott, 2012). Under the tutelage of the Kiribati President, Anote Tong, several actions have been facilitated to secure lands abroad with an emphasis on land ownership and full citizenship rights (Kelley, 2011; Barden, 2011; Radio Australia, 2012), whilst maintaining the dignity of the Kiribati peoples when migration takes place (Government of Kiribati, 2010; Onorio, 2013). However, Kiribati's negotiation of alternative options falls short of what is expected by many Islanders in terms of economic and social stability and shows that further issues lurk behind every option that is currently available not only to the i-Kiribati, but throughout a variety of many Pacific Island communities as well (Ereth, 2012).

As Birk & Rasmussen (2014) indicate in their paper on current barriers and options for climate migration, Solomon Islands has been less successful in attracting support for adaptation measures and economic development from the international community because places like Tuvalu and Kiribati have taken front-stage attention.

Perhaps this is because Tuvalu and Kiribati are completely comprised of low-lying atolls, whereas Solomon Islands has mountainous terrain between several islands, but sprinkled with low lying atolls as well. However, the climate of Soloman Islands' struggles have started to gain attention in the international arena where island nations, such as Tuvalu and Kiribati, have set the stage to open a wider discourse on what resettlement experiences may be felt in the midst of environmental change (Campbell & Bedford, 2014). As such, the latter may instruct other island nations like Solomon Islands in developing workable migration policies (Campbell et al., 2007; Campbell, 2010; 2011; Birk, 2012; Ereth, 2012; Connell, 2013; McAdam, 2014; Donner, 2015).

As with many contemporary settings in the Pacific Ocean, low-lying island nations are taking proactive stances to address a variety of socio-environmental issues, especially those relating to sea-level rise. However, those islands which are mostly low-lying and have a limited range of options may be stifled in their ability to move their populations in the event that long-term sea-level rise and/or short-term disasters related to tsunamis and other storm waves make their islands completely uninhabitable (CDKN, 2014; Donner, 2015). The limited range of adaptations the international community has focused on to assuage the effects of climate change also relates to low political and economic capacity at the national, sub-national and community levels that would otherwise enact plans to increase resilience to these threats. Proactive approaches to these threats run the gamut from increasing direct funding to community development projects that spur sustainable development (Foale, 2001; Mataki, 2013; McAdam, 2014), while others aim to open new avenues of income potential by

bolstering the artisanal communities' access to finance and free markets (Hameiri, 2009). However, the highly variable project development trajectories that have been taking place in the Pacific do not always translate equally across the region, but more importantly hint at the idea of the highly context dependent nature of adaptation and the funds that support those initiatives (Morrissey & House, 2009; Oliver-Smith, 2012).

As recently as the mid-1990s, the decision to relocate the Taro Township came about as a necessary move to adapt to sea level rise and an increasing demand for alternative land uses (non-traditional, non-subsistence, enterprise-driven, etc.) on the island (MPGIS.GOV.SB Accessed Feb.20, 2015). Nearly $4m of the $10m dollars targeted for this effort have been pledged to the owners living on the mainland. As part of this purchase, the Maraghuto Consultancy Service was hired to carry out a unique set of studies to review the socio-economic status of the community, analyze implications in the findings, prospect alternative economic activities, and to determine the economic viability of the township (MPGIS.GOV.SB Accessed Feb.20, 2015). However, the broad range of factors the consultancy was tasked with analyzing has also shed light on the perceived impacts resulting from the relocation. As such, these issues constitute additional exploration and analysis regarding how and why these barriers came to exist, to question the premise of current adaptation plans that have failed to secure a comprehensive policy for many Solomon Islanders, and to identify unanticipated maladaptations before the relocation takes place.

Though the Solomon Islands has seen a sizable share of development funding in recent years geared toward nation-building activities, the translation problem of

redistributing resources in the Solomon Islands is tied primarily to the uneven distribution of wealth and development (Gegeo & Watson-Gegeo, 2002; Brown, 2007; Jeffrey, 2013; Birk & Rasmussen, 2014), often viewed by way of those who are considered deserving, and those who are not. By exploring notions of population pressures and migration, we come to recognize that the highly variable nature of many current adaptations in the Solomon Islands gets relegated to ad hoc project developments aimed at nation-building. However, a deeper look into the issue of population pressures shows a much deeper rooted and contested history in the Solomon Islands, and the multifaceted issues that the country still faces today.

Population Dynamics

As of 2014, the total population stands at approximately 572,200 (World Bank, Accessed 02/23/16), with a stable population growth rate of 2.02% (CIA.gov - World Factbook – Solomon Islands - Accessed 02/23/16). The majority of citizens live in rural settings and take part in some form of subsistence agriculture, fishing, or livestock production (Birk & Rasmussen, 2014). Although most of the land area in the Solomon Islands is mountainous, there are also several atolls that are scattered and remote, though many are close to larger islands. Many of these atolls, including the Taro Township, have received little attention with regard to sea-level rise exposure due to their proximity to a mountainous island[3] (Birk & Rasmussen, 2014). Given this unique spatial arrangement of atoll communities that are within sight of higher ground, actions

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[3] The Taro Township is separated from the main island of Choiseul by a narrow waterway, but much of the land across the water from Taro is owned by tribal chiefs, or is leased for logging purposes to one of a variety of logging companies currently operating in the Province.

taken in anticipation of future climatic risks face multiple barriers to utilize that space in the event of having to relocate (McLeman & Hunter, 2002; Johnson, 2012).

Mobility is not only an issue with low-lying areas in the Solomons but has reared itself throughout the country in its recent history of social strife among competing natural resource users trying to access and influence centers of power, such as in the capitol, Honiara (Gegeo & Watson-Gegeo, 2002; Lacey, 2011; Birk & Rasmussen, 2014). Recent ethnic killings and the collapse of the central government serve as a reminder of issues with the continued involvement of intervention and can be seen in post-Regional Assistance Mission to the Solomon Islands (RAMSI) being carried out as a form of development in the nation as the result of this tumultuous history (Wainwright, 2003; Dinnen, 2007; Hameiri, 2009; Lacey, 2011). In essence, the RAMSI initiative was Australia's effort to rebuild the collapsed government and economy of the Solomon Islands, and to facilitate private sector reforms and establish martial order before ethnic tensions crippled the islands completely (Brown, 2007). However, the RAMSI initiative has been heavily criticized not only for its casting of the conflict as a technical administration problem (Dinnen, 2007), but as a securitization measure that was meant to stifle immigration in the region out of fear that other states may fail if it were to spill over (Adger et al., 2002), as well as the fear of drug trafficking, gun running, money laundering and identity fraud (Wainwright, 2003). Further, these contestations involve a perpetual state of emergency rule and aid dependence which the country cannot seem to shake (Hameiri, 2009).

For all intents and purposes, the RAMSI initiative serves as a catalyst for many modern discourses that have taken shape in the country since it was first put into effect in 2001, and possibly reaching into the modern-day entry points that influence climate change adaptation and migration pathways within and outside of the Solomons. The RAMSI initiative might be considered a second wave of injustice to sweep over the islands, and though well-meaning in its aim to protect the Solomon Islander citizenry from itself, the redevelopment of the nation through security has shown itself to be highly problematic in terms of justice. As Brown (2007) notes, security and national development are intertwined and “cannot exist without each other” (I), though rapid and significant change in development programs often “creates new winners and losers, recasts the contexts in which communities give substance to their beliefs, and plays into dynamics of conflict already present” (I). Major conflicts in the Pacific region “have roots in historical patterns of uneven development, distribution of land tenure, or conflict around highly destructive resource extraction” (8), and do not contend with the fact that underlying inequalities between ethnicities and classes may have been present to begin with (De Haas, 2007). Nor do these issues speak to more contemporary political-economic drivers that pin modern day interests in the islands to the flag of large-scale capitalism (Allen, 2013). However, strife in the islands cannot be fully explained by way of population pressure and competition for capital gain; it is now compounded by climate change and migration as well.

Climate Change Migration

Christian Aid's radical, yet highly influential paper in 2007, "Human Tide," reported that nearly 1 billion people will be displaced by 2050 as the result of environmental change (Morrissey & House, 2009). Questions have circulated as to how one could cite such a large number without any identifiable metric, but likeminded environmental groups have taken up this figure and cause in an effort to advocate for greater environmental protections. Friends of the Earth and Greenpeace have used similar rhetoric from this perspective to further their agendas, often at the expense of rigorous science; however, the repercussions have been felt in a swath of pros and cons addressing knowledge of and aid to people having to migrate under a variety of environmental stressors. In essence, Christian Aid's narrative is but one that has taken root in the field. The school of thought on environmental migration has predominated with use of the best available data on human movement and has forwarded solutions that are more in tune with the quantitative and qualitative realities of migration as an adaptation to climate change perturbations (Morrissey & House, 2009).

However, migration is a multifaceted and highly complex relationship between many aspects of human existence that cannot be solely attributed to environmental change (McNamara, 2007; Oliver-Smith, 2012; Birk & Rasmussen, 2014). Influential authors within this school of thought assert that, "recognizing the complexity and spatial and temporal contingency of the relationship between environmental change and migration, and recognizing that social drivers are more important that environmental changes per se, environmental change is nevertheless a factor that

influences migration," while maintaining that, "changes expected because of climate change, then, there are grounds to think that climate change may contribute to increased numbers of migrants" (Barnett & Webber, 2010, Pg. 9). In this case, the major influence on migration is socially driven, but influenced by environmental change at varying breadths and depths of real and perceived risks nonetheless. The 2014 IPCC report echoes these claims, indicating that, "... heightened vulnerability is rarely due to a single cause. Rather, it is the product of intersecting social processes that result in inequalities in socio-economic status and income, as well as in exposure" (Pachauri et al., 2014, Pg. 54).

Discussions on climate-induced migration need to include an array of social dimensions that spur migration in the first place. As Birk & Rasmussen (2014) indicate, "Even when the environment comes to the fore of migration drivers, the decision to move is often less a function of immediate stress resulting from hazards than a strategy taken to ensure against such events in the future or help reduce fluctuations in livelihoods" (2), or as Adams & Adger (2013) show, migration from rural, resource-dependent areas may relocate after weighing the benefits of moving compared to staying, along with ideas of security, the maintenance of identity and the perception of well-being. As a strategy, migration helps to offset some of the common pressures experienced in climate-influenced decisions related to livelihood access and security (Adams & Adger, 2013). Environmental change contributes to deleterious conditions that undermine livelihood capital (Barnett & Weber, 2010), but migration does play a role in stabilizing communities, taking the pressure off of population growth in a given

location, helps offset the oft-cited shortage in livelihoods from exposed communities, and increases a community's adaptive capacity in the face of environmental and economic vulnerability (Birk & Rasmussen, 2014).

Some expect that "…if climate change does exacerbate population mobility in the South Pacific, much of this will be within islands and within island groups rather than between countries" (Barnett & Chamberlain, 2010, 53). As Barnett & Chamberlain (2010) suggest, temporary migration between islands has taken place as a result of people looking for better prospects in both education and employment. Also, due to a shortage in water development in the outer islands, some Islanders in these areas move in search of income or livelihood opportunities (Locke, 2009). Migration within and amongst the islands improves not only financial capital, but increases social capital, reduces economic pressure on natural resources which create knock-on effects for higher adaptive capacity; however, high transportation costs and difficulty finding gainful employment in urban settings are common barriers to carrying out these missions (Barnett, 2003; Dinnen, 2007; Birk & Rasmussen, 2014). Even so, these barriers often pale in comparison to the more widely recognized stressors associated with the movement of people who are confined to limited spaces operating under limited access of goods, services, and livelihoods. Additionally, land rights and how people access and use land for migratory and livelihood purposes shows the highly context-dependent nature of how people use various spaces shows various shades of advantage and disadvantage along the climate-induced migration route (Donner, 2015).

Movement and Land Rights

According to Lange (2012), several elements of negotiating resettlement should take place to ensure optimal outcomes of the people. As the author notes, one of the steps to ensure successful relocation is for governments to pay heed to the historical traps of past relocation efforts that have failed (Lange, 2010). Specifically, government policies need to distribute large tracts of workable land and titles to ensure that high concentrations of poverty do not occur and force people to live in the same conditions from which they might be fleeing (Lange, 2010; Birk & Rasmussen, 2014). Secondly, the physical site of relocation projects plays a pivotal role in success. To help ensure this, Lange (2010) also notes that land acquisition via market-mechanisms leads to the voluntary sale of lands, and acts as a means of reducing potential conflict. However, Lange (2010) indicates that the success of any relocation project hinges on the support and active participation of the international community. As climate change represents an unprecedented pressure on the world, international institutions need to conceptualize various threats when people are displaced and disenfranchised along the way. Countries may avoid future disagreements both internally and internationally by providing land rights to climate-induced migrants and help thwart conflict from potential disputes that may develop as a result of desperations (Lange, 2010).

In a similar vein, there are deep considerations that need to be made to ensure the indigenous peoples are not subjected to similar conflicts when land rights are being secured. As Morrissey & Oliver-Smith (2013) and Morrissey & House (2009) indicate, many indigenous peoples regard their relationship with the land in real property

ownership and their relationships with kin, but also account for the production that is necessary to carry out subsistence is a matter of possession (ownership) and belonging (social ties). However, there are myriad complaints among Solomon Islanders in this regard that have often led to ongoing disputes over accessibility (Jeffery, 2013), and as Nunn et al. (2014) have noted, Solomon Islanders see logging companies and traditional landowners as infringing on their ability to access livelihoods and ownership. Interestingly, land in the Solomon Islands is under customary land use where the ability to sell land (a money generating stream for some) is confounded by laws that keep these same landowners from selling land and increasing their livelihoods (Foale, 2001) or renegotiating the sale of kinship-owned land (Hviding, 2015). Similarly, Firth (2007) notes that a lack of lawful enforcement from the central government on logging tariffs and export duties inadvertently perpetuated disinvestment in the community level and rural areas of the country. Consequently, issues such as these come as no surprise to some given the shortcomings of some international development projects with clear agendas at reconfiguring land use purpose and accessibility for conservation purposes, even when it may be at the expense of livelihood acquisition among community members.

As Foale (2001) shows, even the most well-meaning projects from the international development community may fall short. During Foale's time in the Solomons as a developmental agent under the WWF for the Solomon Islands Community Resource Conservation and Development Project, he notes that conservation contracts with landowners undermined their ability to make traditional

use of the land, e.g. logging enterprises (Foale, 2001; Firth, 2007). The author shows that community-scale development projects that deal with land resources will only be effective once resource limitations are identified, and that part of managing these projects includes supporting the community when these changes in livelihood take place (Foale, 2001). Thus, it is imperative to keep migration as minimally complex of a process as possible as the more factors integrated into a migration policy, the greater the potential for failure as there will be too many competing driving factors. With competing interests, economics generally wins out, receiving preferential power in ultimate decision making. This may lead to distrust, particularly in terms of the perception of land ownership rights and how that tracks with promises made prior to migration by residents in terms of ownership potential for land in the area in which migration occurs as well as the land vacated after migration.

Figure 5.2 – Logging Camp

Figure 5.3 - Malaysian Logging Ship Anchored Outside of Taro

Migration Patterns

Some researchers and government officials entertain the idea of securing new land with land rights internally and abroad as an adaptive measure taken to lessen the effect of sea-level rise. This is certainly a practical solution in the view of many, but recent studies have indicated that migration among developing nations, such as the Solomon Islands, will be primarily within the confines of the state (Barnett, 2003; McLeman & Hunter, 2010; Birk & Rasmussen, 2014; Morrissey & Oliver-Smith, 2014). In theory, a new homeland may allow citizens to persist in the wake of inundation by rising seas; but again, most movements are projected to take place within the confines of a

developing country's national borders (Barnett, 2003). However, other island nations in the region have looked for migratory options that translate to permanent out-migration as a relevant adaptive strategy.

In the case of the Solomons, several policy documents seem to resonate on a similar level with the inward-looking prospect of adapting in-place seen in the Kiribati NAPA. For example, the Solomon Islands National Climate Change Policy that was in effect until 2017 shows little recognition for off-island migration or smaller scale trans-local trajectories. This is primarily due to the fact that the document focuses on climate-proofing existing infrastructure in the vein of disaster risk reduction and in-place adaptation. According to the document, long-term adaptation to climate change means "relocating communities as a last resort" (National Climate Change Policy, 2012, 20), but without any explanations as to exactly when or where that will take place when critical thresholds are met.

Similarly, MECM (2008), otherwise known as the Solomon Islands National Adaptation Plan for Action, echoes the 2012-2017 National Climate Change Policy and the Kiribati NAPA insofar that it mentions "Climate change and sea-level rise is likely to displace a number of communities and/or villages" (40) given the limited potential for in-place adaptations despite community engagement and relative cohesion regarding plans for action. However, the NAPA's focus on placing "administration of all customary land in the peoples' traditional legitimate institutions in collaboration with the provincial administrators" (40) makes the securitization of actual land the priority focus, rather than the acknowledgement of supporting migration within the islands. To be fully

successful there has to be a straightforward and transparent process for migration that has to be continually and rigorously reviewed to be fully consistent and free of corruption.

One problem-solving scheme for climate change adaptation and the shortfalls in migration as an adaptive strategy can be seen in the 2013 Choiseul Province Climate Change Vulnerability and Adaptation Assessment Report. In this assessment, the primary focus of understanding climate adaptation is seen by "how communities interact with multiple social, political, economic, and environmental factors [in that it] is paramount to understanding how they are vulnerable to adapt to these impacts" (Mataki et al., 2013, Executive Summary xi). Given the scope of what the assessment aims to understand, a basic keyword search with terms like: *migration, displacement, resettle, resettlement, relocation and relocate* yield nothing comprehensive in terms of intra-island mobility. However, the assessment does indicate that new developments may be relocating existing infrastructure as an appropriate adaptation measure, but that initial scoping of some proposed projects have been stifled by land disputes and their associated costs (Mataki et al., 2013). Even in the most ideal conditions, the literature shows a genuine concern that interventions may be maladaptive during resettlement, and may prove to be economically, culturally and socially burdensome to communities slated for these types of movements, especially if they are involuntary (Barnett & Weber, 2010; Johnson, 2012; Birk & Rasmussen, 2014; CDKN, 2014). For this reason, the Taro Township is no exception.

CONCEPTUAL/THEORETICAL PERSPECTIVES

This research on the Taro resettlement, and by extension its theories, adopts a practical outlook on adaptation following Rottenburg (2009) when he says that research on adaptation should not focus on "discursive construction of some theoretical conceptualization" for academics and epistemic communities around the globe, but that adaptation should be organized and seen in interstitial spaces in which they occur. To this end, I ground this work with conflict and critical theories embedded in a political ecology. According to Moore et al. (1996), a political ecology gaze toward socially sensitive research - such as the topic presented here - seeks to understand the social relations and livelihood production, and to make these voices come to life through the "lived experiences of production," thus emboldening categories that are otherwise subscripted to abstract analysis. Similarly, political ecology assists in understanding local politics which are often perceived as a "misleadingly monolithic model of the state" with intentional unity, consistency and automatically opposed to the local peoples in which it serves (Moore et al., 1996). This runs in the vein of change and adaptation perspectives that are most pertinent to understanding the problems that the Choiseul peoples are facing not only on environmental grounds, but the social, political, and economic distresses from the relocation scheme that may be inspired in large part by provincial and central government actors.

Certainly, other authors have applied the political ecology lens in their research, for example: understanding uneven economic development that spurs environmentally destructive outcomes such as soil loss in Cochabamba (Zimmerer et al., 1996); poverty

driven by "socially constructed scarcity" of development funding for improving seeds for agricultural outputs (Yapa, 1996); understanding female-based gender conflicts in Gambian wetlands that result from gendered changes in land use practices supported by the state (Carney, 1993); understanding the political-economic drivers of soil loss in developing countries (Blaikie, 1985); unearthing Egyptian water shortages as being driven by political power over the built infrastructure of the water delivery system and the way in which it is managed (Barnes, 2014), and more. Altogether, the practical and theoretical legs of political ecology provide a firm foundation for engaging with socially and environmentally sensitive research with respondents such as the ones in Choiseul. It is with this in mind that I find additional layers of theory particularly important to add to this research, including conflict and critical theories.

As the forefather of modern conflict theory, C. Wright Mills made a key argument for social science researchers stating that we best understand societal outcomes when we explore the connection between the small-scale personal actions and larger social structures that operate together (Mills, 2000). As Mills argued, social structures are the outcome of conflicts and various shades of negotiations between people who have different sets of resources and levels of interests (Mills, 2000a; 2000b). Similarly, Boundless (2016) explains that conflict theory views dysfunction through the stratification of society, and as such, creates deep seeded inequalities between the rich and powerful and poor where the latter is the one to bear the brunt of the burden. Simon (2016) asserts for additional action when these inequalities exist, calling for redress in the redistribution of resources and power between social groups.

For example, Gaventa (1982) showed through his use of conflict theory that Appalachian miners' discontent over low-paying jobs and powerless positions to change their working conditions resulted from the less overt manipulation of information from the mine owners filing complaints against the company. Kozol (2006) used conflict theory to examine the Hispanic and Black youths' burden in having to face less than desirable, and often substandard, educational facilities where he recommended teachers take action to demand educational equality. Similarly, Thorne (1993) used critical theory to unearth much of the same regarding educational opportunity and equality among girls and boys in primary school, finding a similar recommendation that action needed to be taken with teachers.

The operative word with "critical" is often "action," and the theory looks to unearth inequality, but with sights set on ultimately transforming the system so that equality can be achieved. With these examples in mind, conflict theory will allow me to examine the perspectives of multiple actors who may all be working for a goal of resolving issues but may be experiencing multiple points of tension along the spectrum of negotiating the relocation. I believe that this theory will be extremely beneficial given the differences in viewpoints that villagers, chiefs, and Provincial and Central Government officials may have about how to move forward with the relocation project. Under conflict theory, I can focus the research gaze of this project towards points of contention that sharpen and/or define the avenues of choice that individuals make when imagining new pathways for migration and/or certain advantages and

disadvantages of economic development when the resettlement takes place on Choiseul.

Similar to conflict theory in its effort to affect positive change in the wake of oppression or discord among competing resource users or political representations, critical theory can be used to help understand the construction and distribution of knowledge among multiple stakeholders who look to stimulate change by way of their oppression (Horkheimer, 1972; Bonefeld, 2015). Kinchelow & McLaren (2002) indicate that critical research is best understood through the empowerment of people with an angle of confronting injustice with the endeavor of transforming, “unembarrassed by the label ‘political’ and unafraid to consummate a relationship with emancipator consciousness” (164). Critical theory aims to question the *status quo* of existing social practices that often result in the uneven distribution of power and resources. Certainly, critical theory has made great contributions to the academic world. Many successes can be seen using this approach, including Gold (2016) and his unveiling of levels of disadvantage Black Americans experience with entrepreneurship due in part to systematic deficiencies to empower them with resources and knowledge to do so. Bessone’s (2015) work deconstructed race by way of questioning the ‘constructivist’ aspects of space and its limitations through time. For the purpose of this research, critical theory will this research to focus on the concept of human agency and the framing of political categories among competing views over the advantages and disadvantages of access to resources and economic vision in Taro’s resettlement scheme.

With these critical and conflict approaches, the ‘sea of islands’ perspective from Hau’ofa (1993) assists in questioning the hegemonic perspectives of atoll nations as economically weak and fatally predestined to rely on external influences and largess for sustenance. As the author notes, Pacific islands have often been perceived as “much too small, too poorly endowed with natural resources, and too isolated from centers of economic growth for their inhabitants ever to be able to rise above their present condition of dependence on…wealthy nations” (4). With this, notions of humanitarian and power perspectives are called forth to explain the superficiality of aid packages that (although well-meaning in raising standards of living and self-determination) often result in disempowerment and marginalization of island peoples. It is with this perspective where arguments can be made that call forth a co-production of knowledge through various stakeholders who may entertain notions of equality and equity in communities where climate change is felt when weighing out perceived advantages and disadvantages connected to the resettlement plan.

Similarly, the conceptual work of the 2014 Weisser et al., "Translating the ‘adaptation to climate change’ paradigm: the politics of a travelling idea in Africa" helps ground potential findings. According to the authors, their research strives to understand the highly contested multi-sited narratives of climate change adaptation by drawing on actor-network theory. The authors draw from the Callon (1986) four distinguishable moments in the adaptive landscape of translation, such as: *problematization* (“…a process by which some actors try to make themselves indispensable to others by defining a particular situation as a ‘problem’, naming those who are affected by it, and

claiming to be able to provide a solution"); *interressement ("*…assigns the previously defined actors to their designated roles"); *enrolement* ("…describe[s] the group of multilateral negotiations, trials of strength and tricks that accompany the interessement and enable translation to succeed"); and *mobilization* ("…assures that specific actors become legitimate representatives of others and therefore have the authority to control the latter") to help ground their work. Of note, these distinguishable moments can help guide this research and its understanding power of governance in climate change adaptation, the practices actors operate by, and the material outcomes of the adaptation process (Weisser et al., 2014). As such, Weisser et al. (2014) run on a platform of theories (critical, conflict and political ecology) that overlap with the main elements of what this research project aims to utilize. It is in the latter distinguishable moment of *mobilization* that this research project is most concerned with to help understand the power dynamics of representatives that have emerged in the Taro resettlement project. Mobilization, as theorized by Callon (1986), and the iterations thereof in Weisser et al. (2014) help create an additional layer of unraveling the iterative processes of climate adaptation knowledge and decision-making power that actors have along the continuum of with the resettlement project. Of the many examples of theoretical frameworks on adaptation that can be used to ground Callon's "translation moments," and Hau'ofa's "sea of islands," the work done by Eriksen, Nightingale & Eakin (2015) holds great promise to assist in moving this research forward.

As Eriksen et al. (2015) note, "…adaptation and vulnerability research suffer from an under-theorization of the political mechanisms of social change and the processes

that serve to reproduce vulnerability over time and space. We [authors] argue that adaptation is a *socio-political process* that mediates how individuals and collectives deal with multiple and concurrent environmental and social changes," and similarly explain that, "…what counts as 'adaptive' is always political and contested. What is seen as positive adaptation to one group of people may be seen as maladaptation to another, and political processes determine which view is considered more important at different scales and to different constituencies" (523). As such, the authors theorize that adaptation research requires engaging with emerging theories to explain how power is manifested and contested at multiple points along the path to adaptation which, in and of itself, can close down and open up new power dynamics aimed at transforming the adaptive landscape (Eriksen et al., 2015). In order to reframe the adaptation process from its traditional technocratic approach, the authors encourage exploring multiple knowledge and power bases stemming from the socio-political processes that mediate adaptation (Eriksen et al., 2015). To do so, the authors conclude that there are four key features in this framework that can be utilized to find socio-political and environmental response connections.

- The interventions, processes and decisions for adaptations are all arrangements of authority. These arrangements effect what decisions are made, who adapts, and which decisions are furthered when decision-making takes place by those who wield the authority.
- The self-reinforcing aspects of adaptation are *knowledge* and *authority*. They are dynamic and interact with one another such that *authority* can be

challenged, reinforced and made to be legitimate through the use of knowledge among stakeholders. In other words, *knowledge* is the conduit by which the legitimacy of *authority* is both challenged and asserted. This can often be an unlevel playing field as those in authority often have a distinct advantage in what knowledge is shared which will support their point of view.

- New kinds of stakeholders (subjectivities) continuously emerge in relation to climate change stresses. These subjectivities may carry complimentary or contradictory effects on the distribution on decision-making power and the vulnerabilities of those affected.
- The face of change within the adaptive landscape is contingent upon controlling and innovating social relationships. In other words, these *knowledge* relationships are dynamic and can challenge, reinforce and/or transform the outcomes of and *authority* to carry out an adaptation.

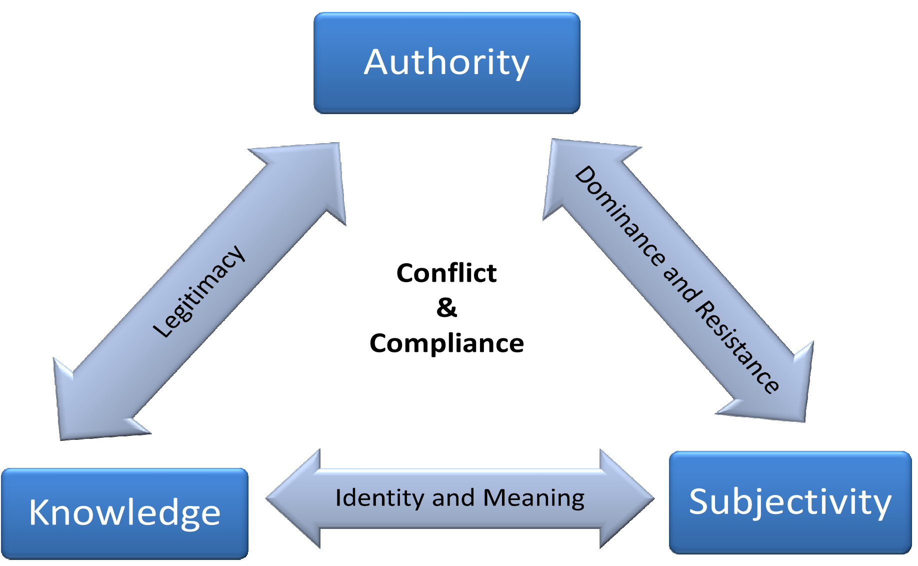

Figure 5.4 - Key Interactions Framing the Politics of Adaptation, or KIFPA

The KIFPA shows not only the fluidity of knowledge sought in the proposed research for Taro, but also the multi-directional and conflict-laden narratives of stakeholders who affect and are affected by the relocation plan. Framing the interactions of adaptation between competing narratives of dominance and resistance, legitimacy and illegitimacy, and identity and meaning will help ground how Taro residents, government agents and NGOs envision points of need and opportunity, and perceived advantages and disadvantages associated with the relocation plan for Taro. More specifically, the KIFPA will help flesh out a variety of interview questions aimed at soliciting where power resides in the decision-making processes as the relocation moves forward. This seems to be especially the case concerning interactions between authority and subjectivities that create new forms of resistance and compliance when, for

example, the question for citizens, “What type of government or NGO programs best serve your needs in the proposed Township?” is compared to the question for government officials, “How is the resettlement of Taro getting incorporated into the long-term scope of your decisions regarding nation-building?” Based on differences in responses from each group, it may be possible to analyze not only the connection between knowledge and authority, but how subjectivity and authority interact in a way that cast various shades of resistance and compliance. Further, the KIFPA will assist in identifying key themes that emerge in the sets of interview questions and help flesh out socio-political and economic processes that inform Hau’ofa’s “Sea of Islands” perspective, Callon’s “translation moments” in Weisser et al. (2014), and the ontological and epistemic elements of critical, conflict and political ecology perspectives. With these theories in mind, there are several additional methodologies and methods that will help move the research forward.

DESIGN AND METHODOLOGY

This is an interpretive, comparative, and instrumental case study geared towards understanding phenomena within the research paradigm and aims to redraw generalizations that can be made about the overlap in stakeholder involvement in the adaptation-migration, and socio-political relationships that emerge therein. The research is interpretive in the fact that I aim to learn “how individuals experience and interact with their social world, [and] the meaning it has for them” (Merriam, 2002, 4). The case study method is preferred due to “the development of a nuanced reality, including the view that human behavior cannot be meaningfully understood as simply

the rule-governed acts found at the lowest levels of the learning process" (Flyvbjerg, 2006, 219). Moreover, the case study underpins the theoretical assumption that cases are context-dependent forms of knowledge, and that the strategy of stratified sample selection is aimed at generalizing specially selected groups within the population (Flyvberg, 2006). Additionally, it will allow participation in Choiseul society with the intention of committing research to the transformation of the social and political structures that underpin marginalized and disenfranchised voices that need to participate in the discussions concerning their lives as actors in the resettlement plan.

Site Selection, criteria, and justification

The nation-state of Solomon Islands is comprised of approximately 1,000 islands that currently fall within nine provinces: Choiseul, Guadalcanal, Western, Central, Isabel, Makira-Ulawa, Rennel and Bellona, Malaita, and Temotu. At a finer resolution, the island of Taro in the Choiseul Province serves not only as the center for the provincial government, but also hosts a sizable population of +500 people among a population of 26,379 in the province as a whole (Solomon Islands Census - Citypopulation.de). Many more visit the island on weekends to access a handful of resources, such as banks, food goods, construction resources, petrol stations, so the population does trend upwards with commerce. Most of the economic and governmental services are located on Taro, and this particular island serves as the hub for many of the connections between people on other islands since the only airport in the province is located there. It is here that my research will be carried out due to accessible connections between a large sample size, and the connections to people from other islands within and outside of the province -

especially those family members who work on Honiara - who retain access the largest markets within the state. In other words, Taro is a launching point for making necessary connections which may yield a greater variety of sample populations to interact with who have knowledge of and vested interest in the relocation plan.

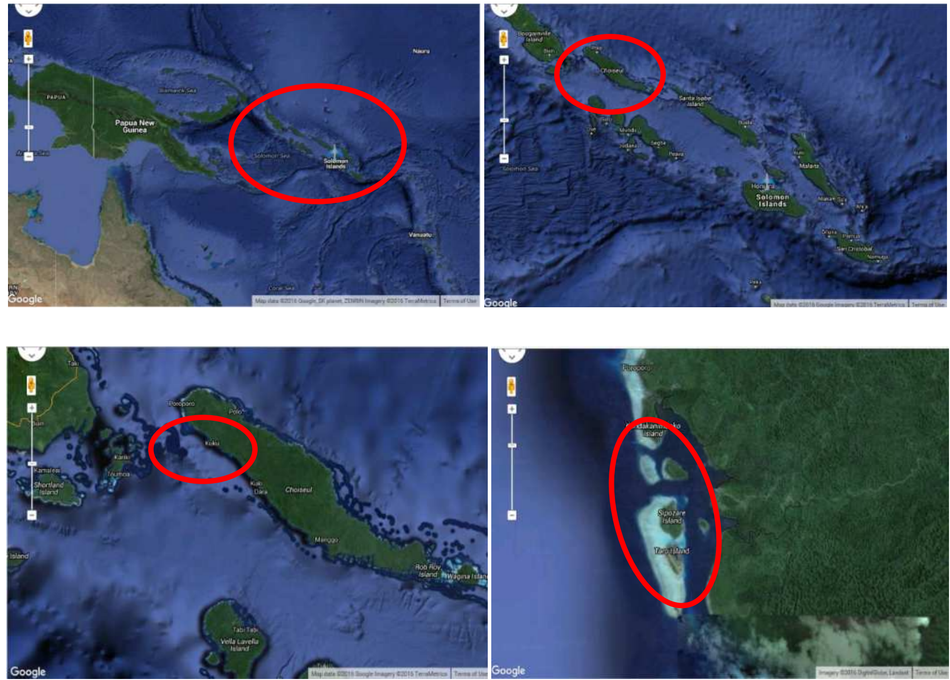

Figure 5.5 – Location of Taro Township Within Solomon Islands

Participant selection, criteria, and justification

The connections made during this project's pilot trip in June 2015 and follow-up trip in December 2019 created pivotal relationships that include NGO workers (those working on development projects throughout the Solomons), provincial and central government officials (those working to secure international funds for the completion of the Taro project, provincial ministers and other government officials working on rural development projects, etc.), and tribal chiefs and community members in and around the Township (who have additional knowledge on migration and adaptation concerning

the Taro development project). Moreover, this research afforded many opportunities to meet people who have an endowed interest in co-producing knowledge, relaying decision-making strategies, and imagining economic pathways emerging from the relocation project. Due to the fact that this study aims at bringing people together who have a vested - albeit varied - interest in developing a discourse on migration planning, the selection of participants will be based on those who have a genuine interest in participating in planning discussions. To achieve this outcome, there are several strategies for sampling and recruitment that will be employed.

Of the strategies that are most applicable to gain a variety of opinions on the subject of climate change migration and livelihood change, snowball sampling, following Patton (2005), fulfills several research requisites. Due to the nature of the research questions and an emphasis on interviews, this strategy will allow the project to explore a wider range of perspectives related to adaptation and migration strategies. This is best carried out on Taro and Honiara due to the criteria, but it is also notable that my current network in Honiara and Taro (Choiseul) is sizable enough to make quick and sustained headway in the research. Taking a networking strategy carried out through snowball sampling will allow me to make connections between citizens, NGOs, and government officials. To ameliorate research bias, this research follows the work of Heckathorn (2011) stating that the initial seeding of interviewees in the snowball sampling/chain referral sampling method does not necessarily confine the results to redundancies or data saturation because people refer people that they know. It will require wave after wave, or seeding after seeding of new contacts to achieve saturation and avoid bias.

According to the author, this method is preferred due to its ability to target the hidden populations and voices such as the ones being sought in research here. However, during the referral stage this project will ask for names of men and women from different tribes, and economic and social classes to make sure that a variety of voices are heard.

Similarly, due to Taro and Honiara being the most strategic sites to launch the project, there are several reasons to use a sampling strategy that can be employed to help flesh out good data. This includes stratified purposeful sampling as highlighted in Patton (2005). Stratified purposeful sampling is also a key strategy that allows for the recruitment for an array of perceptions that exist between people and institutions in Taro and Honiara. This sampling strategy aims to illustrate differences between groups of people and helps facilitate a variety of comparisons among different actors. Furthermore, stratified purposeful sampling will allow the identification of nested characteristics or keyword themes that affect the outcome of a particular phenomenon, or a series of interconnected phenomena. Since this research aims to understand points of need and opportunity, and perceive advantages and disadvantages associated with the relocation plan for Taro between multiple groups, there are a variety of responses between these actors that are centered on a common theme. For example, the interview question for chiefs and tribes' people, "Do you envision new livelihood opportunities resulting from the proposed relocation?" pairs with the question for government officials, "Does your perception of economic change in Taro and around Choiseul effect your involvement in the relocation of Taro?" In this sense, the stratified (or categorical) adaptation responses to livelihood changes from chiefs and tribes

people can be compared to the perceived economic involvement that local and central government will play in a variety of imagined outcomes with the relocation project. This process is where governmental visioning meets perceived realities of societal expectations for the future.

This research aims to bring a wide variety of perspectives to the table by utilizing snowball and stratified purposeful sampling methods. In terms of the actual participants, the requisites for participation in the study will go as follows:

- In the case of citizens, the requirement for their participation is predicated on their desire to share their perspectives, provided they understand their rights and give informed consent. The focus of the research is having their voices heard, so desire to share their thoughts on climate-induced migration and emerging economic pathways frames the requisite of their involvement in the project.
- In the case of government workers, the requirement for their participation is founded on their official role and involvement in various projects dealing specifically with the climate-induced migration debate. Similarly, government officials involved in ENGO and NGO programs focused on in situ adaptation on the islands may be called upon as well to reinforce notions of overlap in adaptation and migration planning trajectories.
- In the case of ENGO and NGO workers, the requirement for their involvement is based on the authority they are entrusted with to carry out the various missions from their respective organizations. ENGO and NGO project managers make the

most suitable participants in this category due to the fact that they carry potential weight with the connection they have with higher-ups in the organization, and/or they wield the power to (re)direct project funds to alternative pathways of assistance if proven viable.

METHODS

The data collection methods are proposed as such:

- Semi-structured interviews: Between government officials, citizens and members of NGOs working in Choiseul, the semi-structure interview method will help probe individual thoughts on climate change migration, as well as reveal multiple viewpoints with carrying out migration policy. The semi-structured data collection method carries with it the ability to create an interpersonal rapport with the interviewees, as well a greater chance of networking and reaching out to others through snowball sampling. In the context of interviewing government officials and NGOs, there is also a likelihood that additional documents and reports will be offered to help supplement the research project. The research will be on par with 5-10 interviews of government officials who are working on elements of migration planning, 30-40 interviews with citizens who are interested in asserting their opinions on the migration discourse, and 5-10 interviews with NGO and/or ENGO project managers working specifically on the islands of Choiseul.

Table 5.1 – Interview Questions

Citizens / Chiefs	**NGO affiliates**	**National and Provincial Government decision-makers**	**Themes in the Interview Questions that Inform the Research Question**
In your opinion, what are the potential benefits or disadvantages to you and, more broadly, the Choiseul peoples by way of migrating to the new township?	Does your NGO envision any envision and general drawbacks or opportunities as the result of the relocation?	Do you envision any drawbacks or opportunities to your job or department as the result of the relocation?	Focus on advantages and disadvantages associated with the relocation plan.
In which ways have you already adapted to issues related to sea-level rise, and more generally, climate change?	In what ways has your NGO adapted to climate change issues concerning Taro, Choiseul Province, or more broadly through Solomon Islands?	In what ways have you or your department planned for adapting to climate change in Choiseul or more broadly through the Solomon Islands?	Focus on planned adaptations associated with climate change between individuals and institutions.
Are you currently preparing for any particular changes concerning the relocation? If so, when and how?	In which ways is your NGO preparing for changes in your planning or mission due to climate change or resettlement? If so, when and how?	Are you or your department preparing for any particular changes to your mission as the result of the relocation? If so, when and how?	Focus on when and how future adaptations and/or changes will take place between individuals and institutions.
Do you envision new livelihood opportunities resulting from the proposed relocation?	Is your NGO addressing new and emerging associations with livelihood changes in Taro and throughout Choiseul Province?	Does your perception of economic change in Taro and around Choiseul effect your involvement in the relocation of Taro?	Focus on the changes in opportunity concerning economic and livelihood potential resulting from the relocation.

What type of government or NGO programs best serve your needs in the proposed Township?	In which ways do you believe your NGO will best serve the needs of people in Choiseul that face planned relocation?	How is the resettlement of Taro getting incorporated into the long-term scope of your decisions regarding nation-building?	Focus on future benefits and deficiencies through formalized exchanges between people and institutions.
Do you perceive changes between men and women, business exchanges, government agencies, or NGOs?	Do you perceive any changes to the way in which you engage with the community on Taro that face planned relocation?	Do you perceive any changes to the way in which you engage with the community on Taro that face resettlement?	Focus on changes in interaction and engagement between individuals and institutions resulting from the resettlement plan.
Do you have any concerns about the proposed relocation?	Which programs do you currently run that address migration as an alternative to on-island adaptations?	In which ways has your job and department specifically addressed and taken action in the planned relocation for Taro? What are the plans for the next 6 months?	Focus on the situated and formalized plans for relocation and how current and future plans suit particular actors.
How will you decide when to move?	At what point (if any) will you or your department make the decision to relocate to the proposed Township?	At what point (if any) will you or your department make the decision to relocate to the proposed Township?	Focus on the temporal aspect of relocation and the decision to move between actors and institutions.

Data Analysis

Bogdan & Bilken (1982) suggest that data analysis include not only the coding of information by looking for patterns and topics, but a coding of categories that serve as crucial steps involved in working with qualitative data. In this vein, this research will aim to categorize data around several strategies to extrapolate meaning. These will include:

- *Setting of Context Codes* under which general information on the setting, topic(s), and subjects can be organized (Bogdan & Bilken, 1982). This will allow me to situate the research into a much larger context, such as: general thoughts about climate change, thoughts on program effectiveness, and identification of alternative home sites.
- *Definition of the Situation Codes* geared towards placing various units of data within the context of how the respondents/subjects define the setting and particular topics (Bogdan & Bilken, 1982). Further, this reemphasizes the worldview of the respondents and how they view themselves in relation to the topics being discussed. This strategy will help code information that underpins what the respondents think are important and help reinforce the critical theory in which this research is grounded.
- *Relationship and Social Structure Codes* can be used to find regular patterns of behavior that will direct this research to the types of coalitions, cliques, enemies, and more broadly, relationships that underpin much of the focus of this study (Bogdan & Bilken, 1982). This

type of coding helps organize the data and show correlations between the positions and roles that various actors play within the climate-induced migration discourse, and to help inform the gaps where peoples' voices may not be heard.

By no means exhaustive, these are just a few of the strategies to help analyze the data after it has been gathered. Other forms of coding and coding categories may include perspectives held by subjects, subjects' way of thinking about people and objects, process codes, and activity codes.

As mentioned earlier, one of the goals in this study is to understand phenomena within the research paradigm by way of comparing providing insights into these (climate-induced migration) issues, and to redraw generalizations that can be made about the overlap in stakeholder involvement in the adaptation-migration and socio-political nexuses. In other words, these coding strategies will directly inform the questions focused on understanding the changes, adaptations and roles that stakeholders reinforce while (re)creating and (re)planning organization and understanding around the climate-induced migration policies.

Moreover, the coding strategies presented here are categorized to inform the theories and frameworks. For example, relationship and social structure codes can be used to identify positions and roles that various actors play. Their positions on changes taking place with the relocation project will show points of potential conflict and compliance, and dominance and resistance as theorized in the KIFPA by Eriksen, Nightingale & Eakin (2015). Similarly, these potential points of conflict that arise in the

legitimacy of knowledge and authority in KIFPA further illuminate features in the mobilization moment as seen in Weisser et al. (2014). It also shows the mobilization of an idea and how it moves along after roles are established and assumed by actors.

Subjectivity Statement

My subjectivity in this study can be seen through several lenses. Firstly, my interest in this topic stems from a long history of environmentalism, conservation, and justice in my personal and professional life. Throughout my academic career, I have always made it a point to conduct research that bridges the physical world with human well-being. This can be seen in my previous research on viable options to restructuring the tuna fishing industry in the Pacific Ocean, improvements to the farming practices and sustainable development of the Malagasy, ecosystem productivity and sustainability with the California coast kelp forests, non-profit work with coastal resource management in Orange County, CA, and academic work on the developmental and environmental security of out-migration on the islands of Kiribati and Tuvalu. These topics, including the one currently under investigation, have a great bearing on my long-term research interests, but have an even greater effect on me as a human being and what I aim to give back to the world. I am a firm believer that research should always be of direct benefit to my fellow human beings, and so much the better if the research can lead to long-term sustainability with the environment.

This nexus between my personal and professional interests is also framed by the array of literature that I have incorporated into the core of my research. I have come to understand that there are not only increased interests in the research community to

tackle some of these issues, but that there is also a greater need of people who aim to actively engage with people facing these problems and advocate with them on the international policy and academic stages. Given my multi-disciplinary background of holding a B.A. in Geography and History with an emphasis in cultural analysis, an M.A. in Geography with an emphasis in environmental security, and a current pursuit of working on a PhD in Environmental Health Sciences, I believe that my research interests can serve the Solomon peoples well in co-producing dialogues about what options may be available in the future.

Positionality Statement

There are several differences in the position that I hold with the project participants. My general background is one in which I am a 37-year-old male from Southern California who has bachelor's and master's degrees in hand while currently pursuing a Ph.D. I come from a mixed background with most of my ancestral customs having been subsumed into the predominant Anglo-American culture - the exception being the maintenance of conversational language competence in French and German. I am an only child with a large extended/blended family who have a fertility rate of 3.5 children per family unit versus the 2.1 (replacement population) as seen in the U.S. average. I am an active supporter of a variety of environmental causes aimed at ushering in workable, practical, and sustainable modes of resource management as well.

At the present moment, I have a suitable network connection within Taro atoll, and to a lesser degree with Choiseul and Guadalcanal (Honiara) Provinces. Given the current level of connections that I have with the communities of the Solomon Islands in

the proposed study area, there is little, if any, power that I hold over them other than through my academic publishing on matters concerning the challenges they face regarding climate change. I have established firm-founded working relationships that show great promise to carry on with this research after my piloting trip in the summer of 2015 and follow-up trip in December 2019, but there are still many elements of insider-outsider relationships that will take place when the formal study begins.

Despite the obvious positionality and subjectivity barriers, I believe that I am well suited to carry out research on this topic for several reasons. I am well read on a variety of arguments and positions that various stakeholders have surrounding this topic, and I am in a unique position - given the breadth of my understanding on these issues - to provide critical insights into why there remain several disconnections between stakeholders. It is here that I may be able to help facilitate deeper and more equitable discussions between various stakeholders.

My subjectivity and positionality as strength and as weakness

As previously mentioned, there are several fixed barriers that exist between the potential interviewees and I that may hinder the research process. The disparities include different economic backgrounds, educational backgrounds, a difference in the types of economies we are involved in, and gender[4]. Additional barriers may exist

[4] Based on my preliminary trip to Guadalcanal and Choiseul in June 2015, I had great success in achieving a long list of possible people who would be willing to participate in interviews and/or help in the interview process with others. Most of the offers were made by men in the communities I visited, but there were several women I met who were up to the task as well. However, I will note that interviewing women in these communities will require additional permissions with local chiefs, or their husbands. The likely scenario will be that I will have to

including I am U.S. citizen, a researcher, a student, a male, and an outsider to the citizenry and culture of the Solomons. However, there are powerful elements of mutual interest that can help in bringing a greater level of familiarity and cooperation between me and the people participating in the study.

The strengths of what I can bring to the research include: an international perspective with international resources, an education in hazards and adaptation research, a method of creating research that is cooperative and co-productive, and a willingness to spend my time not only conducting mutually beneficial research, but to incorporate into the society by participating in community functions. Additionally, I have a personal aim of volunteering my time on adaptation, hazard mitigation, and community building projects on Choiseul that are unrelated to my research.

Role of the Researcher – *Subjective I's*

One of my personal subjective I's that comes to mind when I consider navigating the research project takes shape in what I call the *Desirous Insider I* (Peshkin, 1988). By desirous insider, I acknowledge the fact that my desire to become a part of the community to start making connections and start regular friendships may be constrained by being overzealous when the study begins. There are pitfalls with the

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interview most women one-on-one or in groups with a female research assistant, or in the company of their husbands (if applicable). Despite these potential barriers to conduct interviews with women, I will be making all efforts to solicit their thoughts regarding all elements of this project that highlight "…the contested and multi-sited narratives and practices that bring adaptation into being" as Weisser et al. (2013) indicates in Translating the 'adaptation to climate change' paradigm: the politics of a travelling idea in Africa work used as one of the primary frameworks for this research.

Desirous Insider I in that I may be subject to being overbearing and zealous, and as a result, it may turn out that my behavior could come across too strong.[5]

Another example of my own subjective I's can be seen in what I term the *Top Down I* (Peshkin, 1988). By top down, I acknowledge the fact that I am sometimes inclined to pursue those in power/members of the quinary economy with the intention of making connections that will allow me to carry my study to the top of the community. However, my interest in top down research agendas does not reflect the critical and conflict perspectives that I plan on implementing throughout the research. This will be a pivotal subjective I that I must be aware of when coming into contact with interviewees in Choiseul who fall into the category of "decision-maker" at the provincial and national level.

Lastly, there is a subjective I akin to Peshkin's Justice-Seeking I (Peshkin, 1988), called the *Justice-Advocacy I*. Much like the Justice-Seeking I aiming to right the wrongs associated with injustices and doing so through the medium of writing, so too is the Justice-Advocacy I in that I may use writing as the medium of seeking justice, but doing so while simultaneously trying to pursue justice outside of my writing by confronting those who may not agree with my perceptions. There is a pitfall in this subjective I in that there would be less delineation between my personal and private goals with those of my intellectual goals. By disregarding the aims between these goals, it could show a personal bias towards one solution within myriad options that Solomon Islanders should

[5] This is especially true for the more traditional Solomon islanders who may not be as open to working relationships with people from outside of the islands. However, I achieved great success in maintaining dialogue among many groups during my piloting trip in June 2015.

ultimately decide for themselves when pursuing adaptive and migratory planning. After all, it is their voices that will be the cornerstone of this research project.

Trustworthiness

One of the most important strategies in this proposed research project includes the use of co-production of research with the interviewees, and subsequent member checks. When the interviews are conducted, ample time will be spent cross checking the work with interviewees and with a research assistant to make sure that what they said is confirmed as true. Another strategy that will be implemented is actively seeking out maximum variation in terms of finding respondents who fall into one or several categories of adaptation strategies, including: 1) Exclusive on-island adaptation, 2) Exclusive off-island (migration) adaptation, and 3) Those that may not fall into any adaptation strategy category, but rather default to the no-adaptations-necessary discourse. This will create the kind of narrative in the analysis section indicating the bifurcation of thoughts on the matter of environmental migration and relocation planning. Lastly, peer examinations will be sought from those who are best acquainted with the topic of forced migration and adaptation in the context of the Pacific atoll islands. By pursuing their input, new insights will be revealed within the data, as well as providing a pre-publication check to make sure that the methods and analysis of the research are commensurate with the standards in this discipline.

STUDY IMPLICATIONS

Ethical Issues

The politically and socially significant elements of this proposed research carry with it inherent risks; however, there are several ways of helping ameliorate ethical infringement(s). As Hemmings (2006) points out, there are several features of the Institutional Review Board that help maintain ethical treatment of the data and the people that they are generated from, namely, respect for persons and justice.

In the case of respect for persons, this research will actively seek to abide by the principals of confidentiality and anonymity should it become clear that the names of persons involved in the study may come to harm. In the case of marginalized peoples that take part in this study that may be drawn from as sources of inquiry, this seems to be especially the case. It will not only be important to abide by the standard IRB guidelines, but to take extra measures to protect the sources and raw data generated from interviews during the course of the study. In this regard, it will be necessary to store interview data to an external hard-drive that is password encrypted. This should be reinforced with the same level of rigor to the back-up data stored in the cloud. In the case of the external hard drive, passwords will be required to access all files, but also secondary passwords set to access individual files within the drive.

In the case of justice, this research aims to work with marginalized populations that have succumb to the burdens associated with apocalyptic visions generated from western climate change-related powers, such as: ENGOs, NGOs, International Research Programs, and various governments, just to name a few. As Hemmings (2006) indicates,

justice may be sought by way of including participants in the co-production of the research project. Since it is their voices that are being focused on bringing to the forefront of the debate, member checking will become one of the cornerstones to achieve a greater level of justice within the research. Beyond this, it is unforeseeable to determine what the ethical implications of this research will be.

Risk and Benefit

In the case of beneficence – a requirement that the risks of harm associated with research are reasonable in relation to the potential benefits – as attached to several ideas posed by Hemmings (2006), there are a couple ways in which participants in this study may become targeted with greater media attention. One can assume that this targeting may take shape by way of factions in the international community potentially deriding the nearsighted actions of NGOs and government officials who may not be perceived as putting enough energy into the voices of disenfranchised populations participating in the climate-induced migration debate.

Similarly, if not framed correctly on the international stage, extra media attention geared towards the apocalyptic and/or canary in the mineshaft perspective may perpetuate the cycle of victimization that several atoll island residents may come to expect from similar attention. Here, the risk is inherent in the subject of the research, but the potential benefits may be easily outweighed if the final product maintains constant elements of beneficence, justice, and respect for persons. Again, respondents in this study will have several opportunities to check the work that is being produced along the way and provide additional input as needed. If individual respondents come to

a point of not wanting to have their voices heard for any reason, the data will be pulled and deleted from the research as well as the data repositories.

Limitations and Considerations

There are several limitations to the research, even under ideal conditions. One such limitation can be seen in the fact that this research is not meant to create migration policy, but rather inform the debate in which the potential policy is created. Even with innumerable interviews inclusive of all major stakeholder types, there are still voices that will not be heard. There will be gaps in the perspectives of those who are affected by changes in the climate and its associated risks with displacement.

Similarly, the applied nature of the research project will not capture the nuances and intimate accounts of various stakeholder perspectives. Though narratives would make a fine bedfellow with interviews, the timeframe of the study will not likely allow for enough time to incorporate this type of data collection method. This will perhaps be a consideration for further research.

Significance / Contributions

Though this research is not specifically geared towards policy change, the deeper and more equitable expansion of the discourse around the climate-induced migration debate shows great possibilities of informing political decisions. Very little qualitative and quantitative research has been performed on the islands around Choiseul Province, and as such, few research projects have tackled the issue of increasing stakeholder involvement in the climate-induced migration debate in the region. This vacuum has left innumerable spaces of opportunity for exchanging ideas regarding climate-induced

migration and relocation, as well as unknown opportunities for investment into the changing social landscape.

Overall, the research performed here creates space(s) that can be used in the future to help redeliver messages that need to be communicated by residents vested in the migration debate. The research reinforces notions of empowerment and equity and contributes to the practice of increasing lines of communication between people who are currently working along-side, but not often in conjunction with each other due to social, economic, structural and political barriers. In other words, there are many precedents that can be set in this research based on the limited amount of any research performed in Choiseul and the surrounding provinces.

CHAPTER 6

MIGRATION AS AN ADAPTATION IN THE SOLOMON ISLANDS' TARO TOWNSHIP – A REVIEW OF PLANNING STRATEGIES AND FUTURE AVENUES FOR SCHOLARLY CONTRIBUTIONS

ABSTRACT

This chapter engages with migration and development theories in climate change adaptation (CCA) projects in the Pacific Islands. The literature presented here may be used as a framework for how Small Island Developing States (SIDS) can utilize conceptual elements of migration as a form of development *and* climate change adaptation (CCA) amidst uncertainty in context-based and highly localized economic, political, and social systems. Specifically, this chapter is geared toward providing additional consultation for the Taro Township Relocation Project in the Solomon Islands in an effort to illustrate which theories and approaches can enhance the project in its movement toward a more realistic and theoretically-sound direction. This chapter discusses the contentious and divergent scholarship on migration, development and CCA in Taro Township and conversations regarding the drivers that spur migration in the context of the Regional Assistance Mission to the Solomon Islands (RAMSI) case. Additionally, this chapter focuses on migration as development and identifying research gaps for future scholarly work.

INTRODUCTION

Migration is not simply the act of moving; it is replete with meaning in a multitude of contexts across multiple scales in the Pacific. When population movement takes place, it is the migrant who moves for a reason, but also moves with connections and linkages to other people between origin and destination, or as a form of development of a more robust future (Faist, 2008). However, the benefits that Pacific Island migrants and their networks receive are contingent upon various customs, laws, regulations, and approaches in the legal and extralegal flow of migration and how it is framed by institutional and cultural norms at various scales.

In the case of Taro, and the Solomon Islands more broadly, migration within the region has been a long-standing tradition of maintaining social connections and capital, as well as a general livelihood strategy when local economies cannot support local needs. More recently, this may include an attempt to diversify livelihoods amidst uncertainty regarding climate-driven economic insecurity (Noble et al., 2014), and fluctuations in livelihoods (Birk & Rasmussen, 2014). The rise of globalization in the region and new economic push-pull factors prompt Islanders to migrate in quasi-predictable patterns of rural to urban flows (Barnett & Campbell, 2010; Barnett, 2012). However, much like other developing nations in the world that see rural migrants moving to urban centers to access goods, services, and livelihood security, migrants within the Solomon Islands have faced a series of impediments in their short history as a sovereign nation that have prompted outside intervention. In this case, the outcome has been quelling the flow of people to its capitol, Honiara.

A stagnant regional economy toward the end of the Bougainville Crisis in 1998 saw the Solomon Islands in upheaval over uneven resource distribution (Monson & Foukona, 2014). This set the conditions for the provinces of Malaita and Guadalcanal to enter into what is called the “Ethnic Tensions” (or Tensions) between 1998 – 2003 where Malaitans migrated to nearby Guadalcanal seeking better economic prospects and access in a shrinking economy (Donner, 2015). Malaitans squatted on lands traditionally owned by Guadalcanalians over a period of several years, and when tensions grew to a head, the two ethnic groups clashed and started a conflict that saw hundreds dead on both sides, and the collapse of institutional governance and the fledgling economy (Monson & Foukona, 2014). With security issues surrounding the 9/11 attacks, the fear of extremism taking root in the region, and the tensions surrounding the Bougainville Crisis, Australia intervened with the Regional Assistance Mission to the Solomon Islands (RAMSI). So began the era of stagnated mobility in the islands.

As Australia securitized the nation of approximately 500,000 people through RAMSI, it purposefully set limits on the movement of people and the goods and services provided within and outside of the country. People from all of the Solomon provinces were kept at bay and forcibly subscripted to their locales for months. In exchange for their compliance during this securitization phase, various groups were given AID packages to offset economic losses; however, these funds were distributed through channels of government (both central and provincial) that were still out of touch with the needs of local communities in which it was meant to serve. Barnett & Campbell

(2010) put forward the idea that interventions like this can perpetuate the long-standing tradition of framing Pacific Islands as sites of insularity, fragility, and weakness with the effort to legitimize new forms of colonial intervention. If this is the case, RAMSI was not only an intervention to securitize the region against extremism, but to induce constituent development funds through predictable economic channels that could be tracked more easily when addressing the creation of a tax base through resource extraction (Allen & Dinnen, 2015). However, RAMSI ended in June 2017 (Moore 2018), thusly opening the country to the possibility of moving and securing livelihoods more freely throughout the islands.

The result of RAMSI's operations on wealth distribution through trade liberalization augmented previous patterns of movement in and out of the region and is very much a part of the cultural/human landscape today. Put simply, people are still struggling to move freely within the island nation, and there are few signs that exist to dispute the fact that the government has its sights set on developing provinces with the intention of keeping people where they are currently located. To do otherwise would mean a potential influx of people from far-flung provinces that would drain limited resources the capitol has to support itself and in adjacent areas around Guadalcanal. However, bilateral and multilateral donor programs have emerged in RAMSI's stead (Barbara, 2014), and a retooling of how to support local development projects under a post-RAMSI developing state where mobility may still be an issue for many.

KEEPING THEM IN THEIR PLACE THROUGH DEVELOPMENT

Recent developments in the Pacific landscape in the last several decades have seen international development funding aimed at bolstering local economies through regional integration and trade agreements (Chasek, 2005; Firth, 2007; Barbara, 2014). However, little of the verbiage in these agreements concerns the free movement of people to access livelihoods abroad, especially in the regional economic powerhouse countries of Australia and New Zealand. Rather, economic agreements crafted from these countries focus on supporting local and provincial projects that create the incentive for local populations to stay in place to sustain ongoing economic development projects. To do otherwise would mean losing on potential economic benefits that arise from development funds. This is the case for the Taro Township as well, but in a more circuitous manner.

The stay-in-place development that Taro has received from AusAID in recent years is best evidenced by rural development funds. Like other local areas in the island chain, Taro is underdeveloped to the point of having no comprehensive road or transportation networks in the whole Province. AusAID's development for the Province has a primary focus of spurring economic development through enhanced infrastructure, and an element in the assistance they provide with the relocation of the provincial capitol of the Taro Township. In that vein, the verbiage between the rural development program and the 2014 guiding document, *Integrated Climate Change Risk and Adaptation to Inform Resettlement Planning in Choiseul Bay, Solomon Islands (ICCRAA),* mentions the primary objective of economic development, but does little to

nothing to address the movement of people outside of the province. However, one of the most interesting features of the ICCRAA and its supporters is the framing of climate change and how it may preclude traditional economic development in rural areas.

The ICCRAA and its supporting documents[6] use climate change and the science that underpins the field to legitimize (or politicize) a major change such as relocation[7]. For example, where it is still widely debated in the adaptation literature as to whether or not a socially-disruptive relocation of people is legitimate (Klein et al., 2014), the ICCRAA and the 2014 Choiseul Bay Adaptation Plan acknowledge social-disruption, but say little to nothing in regards to how disruption is measured or minimized, or how the researchers engaged with the Taro (and Sipozae) community to resolve potential relocation disputes. A handful of sections in these documents glance over or make brief mention of who in the community they talked to and why; but again, there is no mention of how many people were consulted in the scoping process, how representative they were of major key constituencies or what questions they were asked. Put simply, Taro, Sipozae, and the surrounding areas have been given little recognition for community level input in the relocation plans, coastal management practices, economic and livelihood security, and gender equality, or so it seems.

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[6] See also Solomon Islands National Climate Change Policy (SINCCP), Choiseul Province Climate Change Vulnerability and Adaptation Assessment (CPCCVAAR), Solomon Islands National Adaptation Programme for Adaptation (S.I. NAPA), and the Solomon Islands National Report on Sustainable Development (SINRSD).
[7] Similar cases have been seen with the Australia-funded South Pacific Sea Level and Climate Monitoring (SPSLCM) Project politicizing the science to say that some areas are not vulnerable and less worthy of long-term monitoring and funding. See also Chapter 7 in Barnett & Campbell (2010).

What is apparent are the claims that the Buckley-Vann Planning + Development firm makes to frame environmental significance of the science of sea-level rise and storm wave exposure to legitimize the relocation of Taro and its inhabitants with the effect of keeping Lauru peoples in place within the Province. If this is the case, there will need to be a wider range of possibilities considered regarding the movement of people before the relocation moves forward. This is not only for full livelihood security of people who live within the township, but throughout the Province as well. This is exceptionally important when considering road building that will bring people to the new capitol of Taro Township.

WHAT IS CCA PROJECT SUCCESS WITHOUT MIGRATION?

Despite many efforts, few examples of successful adaptation projects exist in the Solomon Islands, or more broadly in the Pacific basin. This is especially the case when taking into account the sustainable adaptation measures that include local communities in the decision-making process (Nunn, 2010). This is due in part to longstanding issues with how to integrate the quantitative and qualitative elements of adaptation successes and failures with climate model outputs. If migration can be considered a form of adaptation, the concept can be used in malleable ways to justify decisions such as the ones policymakers have forwarded in Taro and throughout the Pacific. However, the lack of an agreed-upon approach to measure project success does not preclude looking at the problem of climate change and the movement of people from multiple angles to see if various outcomes overlap.

A Lack of Focus and Guidance

Potential flaws stem from an underdeveloped literature base that has yet to provide appropriate or comprehensive guidance. The IPCC, UN, the World Bank and more have made a series of robust claims in regard to the environmental risk and exposure from climate change (IPCC WG I&II, 2012; PROVIA, 2013; Hallegatte et al., 2015). Most of the information that comes from these institutions appear as commonly-held truths in the realm of practicing adaptation. However, the neoliberal commoditization of developing the adaptive landscape (Bayliss-Smith et al., 2010; McKinnon et al., 2016) makes ongoing efforts to solicit strong adaptive practices questionable if the field is to move out of theory and put into practice.

The way in which climate change problems are framed, measured, and mitigated is still wildly debated due to the fact that there is little agreement on a common approach or standard (Donner et al., 2016). The literature-generating powerhouses will often tout a variety of ideas related to exposure and risk through a variety of metrics but show little guidance as to how SIDS can tackle adaptation problems, or how to treat various forms of migration that are influenced by climate change. The closest effort to articulate a variety of risks posed by involuntary migration resides with the work highlighted in the IPCC.

Most chapters in the IPCC's 5th Assessment (especially Chapters 4, 5, 7, 14, 15, 16 and17) still approach the problem of climate change generally and have as of yet to provide a nuanced metric or approach on how SIDS can engage with climate change in the context of localized needs for mitigation, adaptation, migration, and non-ad hoc

relocation. These IPCC chapters endeavor to start the conversation of how climate change is manifest in a variety of circumstances. However, these chapters show little application to much-needed local scales where local scales are the sites where climate change is felt most and from where migration decisions typically stem. In other words, the most widely cited material that adaption practitioners use is simply too broad or unspecific in most cases to apply. An even bigger issue is the lack of what constitutes weight of evidence validation of predicted cause and effect associated with climate change (Kapo & Burton, 2006).

Similarly, much of the same can be said for the closest example to applied adaptation planning: PROVIA's 2013 guidance. This tome articulates a wide range of approaches, tools, methods and theories that can be used to plan for adaptation (e.g., impact analysis; capacity analysis; scenario analysis; behavioral analysis; institutional analysis; cost-effectiveness analysis; multi-criteria analysis; robust decision-making; and multi-shot appraisal). However, PROVIA is not comprehensive, nor often explicit, in which scenarios, methods, tools and appraisals should be best applied in a variety of local contexts. PROVIA is a valuable tool for prediction of a wide range of important environmental factors that may be affected by change (especially when community engagement is needed), but the need for application and structure in this field can leave adaptation practitioners in want long after reading PROVIA and its supplemental documents.

When applied to the Taro Township Relocation Plan, it makes sense that the highly variable, context-dependant and largely guideless information in most climate

change adaptation and climate change migration literature has a tendency to leave those who make decisions in a position to choose ad hoc means to fill a wide gap of uncertainty. Put simply, the literature is going in the right direction in helping fill these gaps, but is still highly disjointed in terms of how much weight to put on various elements of the adaptive landscape and what the thresholds are that can make similar projects a success or failure. There is a disconnect in how issues are framed, especially when it is mainstreamed with other development projects (Mimura, 2014), and there is a need to find new approaches to incorporate migration into more of the conversation on adaptation, especially at local scales (Barnett, 2012).

The intent of migration is to prevent significant exposure to climate change impacts, especially coastal flooding and sea level rise. Sandifer & Scott (2021) state that a high degree of uncertainty exists in mitigating climate change exposure and “the most effective ways to scale up possible climate interventions [includes the use] of natural (Sutton-Grier et al., 2018; Silver et al. 2019 in Sandifer & Scott 2021) and built infrastructure, elevation of housing, ground- and surface-water protective barriers, flood walls, enhancement of “blue carbon” storage in coastal wetlands (Sutton-Grier & Moore, 2016), and others.” The authors also question which “interventions might work best in developed versus developing countries, large versus small cities, islands, deltaic versus other coastal environments?” (Sandifer & Scott, 2021). Thus, what is clear is uncertainty abounds in responding to climate change regardless of the location in terms of migration or retreat.

HOW TO IMPROVE THE SCHOLARSHIP ON CLIMATE CHANGE MIGRATION

The evolving literature base is moving in the direction of providing more comprehensive guidance, but still leaves adaptation practitioners in want. This can be felt with the handful of climate change migration and relocation scholars who exist in the world today. Migration as a form of development and/or adaptation is still being examined but shows great promise to move several related fields forward. The same can be said about climate change migration as an attempt to recast movement as a form of success rather than its oft-noted shades of failure.

In a broad sense, the work of Betzold (2015) lays out a strong case for migration in the climate change discourse, highlighting the fact that a limited understanding or unfamiliarity with the concept of climate change that local populations and decision-makers have stems from the scale at which migration is treated, especially when addressing labor migration. Even when climate change is a familiar concept it is not often approached at the local level and is similarly discounted at different scales as a future problem or a low probability event (Betzold, 2015). In this case, the author argues that climate change and its effect on migration patterns needs to be analyzed at the local level in SIDS. However, few examples exist today that illustrate the power of researching the topic at that scale of analysis, or how findings scale-up. What is particularly lacking is development of sound science approaches to migration and how they might be incentivized and implemented in socially equitable and environmentally sustainable manners? Also of note, what are the potential human health impacts—

psychological, physical, and cultural—of migration from coastal communities critically endangered by climate change and how might these be prevented or mitigated?

Rarities in the Literature That Overlap with the Taro Relocation Project

Few examples suffice as strong indicators of migration-focused climate change in the Pacific region, but past research in Solomon Islands has been a proving ground for several pieces of impactful research. For example, the work of Birk (2014) focuses on the Reef Islands and Lata in Solomon Islands on the topic of migration as a livelihood strategy. In the author's research, the communities of these islands were assessed for (1) subsistence production, (2) part time work and export-oriented activities for cash incomes, and (3) migration with the intent of providing remittances. The author found through a series of interviews that the main driver for out-migration from these areas was based on a lack of economic opportunity as well as an increased demand for cash to support daily consumptions needs (Birk, 2014). However, as noted, barriers exist in achieving remittances as a livelihood strategy through migration due to high transportation costs, poor housing in the destination area (mainly in Honiara), and the economic and government services that are provided to migrants. Similarly, improving local conditions for populations living in Reef Islands (and perhaps several other island communities in Solomon Islands) through adaptation planning may foster greater forms of anticipation for climate and non-climate stressors. However, these indicators are still not well understood (Birk, 2014). Long-term studies in similar cases are needed to assess a baseline and track changes through time at local scales.

Similar to Birk (2014), Birk & Rasmussen (2014) indicate that there are a series of lessons to be learned current migration practices related to the push-pull factors exhibited in the Reef Islands and Ontong Java communities. The economic factors (indicators) that were most important to the sample they surveyed from these communities centered on the concept of escaping rural poverty, or to take advantage of job opportunities elsewhere. Additionally, the authors note that economic opportunities often coincide with cyclical migration when the migrant can provide remittances to supplement their kin for the lack of opportunities that exist in their local economies. In short, their findings suggest that migration can play a role in stabilizing local economies faced with natural resource depletion stemming from population growth.

Remittances have the positive effect of propping up the local economy which directly and indirectly affected the communities' coping abilities to weather the effects of short-term natural hazard events and economic shocks in these contexts (Birk & Rasmussen, 2014). The authors suggest that improving these communities' abilities also requires appropriate policies that ensure migrants' rights and access to resources and land in the event that entire communities (or islands) are uprooted and relocated due to climate change impacts (Birk & Rasmussen, 2014). However, their research was not clear as to which policies would need to be amended (or created) at various political scales of influence to ensure these outcomes. As such, more research is needed on the topic of policy gaps and institutional analysis. Without a comprehensive study on the various scales at which institutional regulations are made and enforced, it will remain unclear as to how they influence mobility decisions.

How the Taro Resettlement Plan can be Improved

The Governing Council for the Taro Resettlement Plan may consider a wide variety of approaches to migration as a form of climate change adaptation, but none is more important than reaching out to the local community. The proposed relocation of Choiseul's capitol is a time where the decision-making process is still evolving, and there are current signs that the community is not involved in the day-to-day on-going process. There are few data points in the academic or gray literature to suggest that local peoples in Choiseul have been asked for their knowledge and perspective in the relocation, nor what their responses will be in the event of various changes that may take place as the initial phases move forward. There is not only little involvement from a wider variety of stakeholders in the city planning phases, but in many of the other features that come with the project as well, including: coastal zone management, sustainable livelihoods, climate change education, and a fisheries management approach that many Islanders can rely on (Barclay & Kinch, 2013). In other words, local people need to be included with the Provincial ministry's decisions, as well as Buckley-Vann Planning + Development city planning exercises as the relocation takes shape.

There is no lack for depth of knowledge that the local community has on a range of issues in the Taro area. Local involvement in the planning phases will likely show a greater level of buy-in as more local people understand the features of the relocation that will affect their lives. It is because of this and many other reasons related to the disjoined nature of Lauru voices at the decision-making table that make their

involvement pivotal, especially with mobility decisions they make in the face of uncertainty.

CHAPTER 7

CONCLUSIONS

INTRODUCTION

Climate change is multifaceted and complex, especially when translating quantitative data into qualitative approaches, theories, and outcomes. Even when translation occurs, no silver-bullet approach exists to uniformly decrease vulnerability to climate change. As such, practitioners, decision-makers, and actors are required to extract nuance in pursuit of creating, implementing, and bringing to term a successful project. This can be – and often is – a large undertaking. In a broad sense, intergovernmental, regional, national, and sub-national plans for climate change adaptation and development abound in the Pacific Islands. These plans for action communicate a broad set of issues that need to be addressed, and with them often accompany a large set of potential approaches to orchestrate change. However, the rules for how climate change issues are addressed, and which set of approaches are implemented is subject to a range of highly variable factors. This is especially the case if/when locals are involved and their input is taken into consideration in decision-making processes.

The research presented in this dissertation is an attempt to address some of the oft-neglected themes in climate change research that relate to several important areas, including assessing the application of climate change terminology, improving

methodological approaches for local adaptation planning in island settings, and decision power and knowledge contestation. Moreover, these focuses are used to help ground the research with how planned relocation in the Choiseul Province of Solomon Islands can be used to offset climate change and economic vulnerability, and more specifically how migration can be used as a form of adaptation in the Taro Township. As this research has shown, planning for climate change is not simply the act of checking boxes and/or enumerating what does or does not exist within a discrete area; it is very much an interaction with philosophy, science, culture and lived realities on a level where it is felt the most: with people and their environment.

CLIMATE CHANGE IN SOLOMON ISLANDS

Every island has different requirements in terms of their economic, political, developmental, environmental, and climate change needs. As such, no blanket climate change adaptation plan can be applied to islands throughout the region; climate change manifests itself with a different set of cultures, barriers, and opportunities from one place to another and across scales. In the case of Solomon Islands, climate change is underpinned by seasonal changes in the intensity and duration of rainfall and storm waves, frequency of seismic events which may trigger tsunamis and long-term increases in sea level. Many of these changes affect the coast where many resources and people are located, especially on the remote, low-lying islands throughout the archipelago. Developing the country sustainably *and* accounting for climate change is rather difficult, and all sectors of the economy are likely to be affected. This is further complicated by the high cost of adaptation relative to the country's GDP. These restrictions are

exacerbated by an underlying deficiency in resources and uncertainty in the existing quantitative climate change projections and their corresponding adaptation strategies. Moreover, the rural setting of the Solomon Islands' developmental landscape makes resource allocation difficult to achieve, not to mention generally inefficient. These shortcomings may leave the nation in a state of not knowing how to implement programs, though some approaches have been developed to help overcome these impediments.

Risk-reduction strategies address some negative effects associated with climate change. This can be seen in the Solomon Islands National Adaptation Plan of Action (S.I. NAPA). Currently, each province has - or will have - a more fine-tuned plan specific to provincial needs. Often, these plans are updated every few years to capture new information that has been accumulated since the last iteration. However, these plans for action from the national to provincial level often paint with broad brush strokes when evidencing what can or should occur. With that approach, there is a lack of how and when to prioritize adaptation projects and strategies, and how they correspond to other national priority areas. Additionally, NAPA documents have less tangible examples on how to achieve specific risk-reduction goals before and during program implementation. Often, large intergovernmental entities drive regional and national plans for action. However, since climate change is felt locally, it is how adaptation is mediated and implemented at smaller scales and mainstreamed into other development-related projects that need to be studied with additional rigor.

In some cases, Joint National Action Plans (JNAPs) mainstream these programs with the intent of achieving multiple goals from different streams and approaches to protect the lives of people, minimize damage and losses, promote sustainable development, and account for integrated coastal zone management strategies. However, these plans can fall short on several fronts, especially those related to incorporating local disaster risk reduction, development, and climate change adaptation. Moreover, large scale policies and plans may promote standalone projects where funding is earmarked for specific project goals that may not align with local needs. Local residents may feel that effect as they are the ones that often have the most to gain and lose. As such, adaptation needs to be driven at the local level, and input needs to be sought from a large sample of the population to achieve mutual goals up and down the decision-making ladder. Again, this is not usually the case when large donors or government agencies intervene in the development process and guide the direction of projects.

As previously mentioned, large disaster risk-reduction and international/national development funds get earmarked for various projects without incorporating climate change adaptation into the calculations. There is much overlap between these program areas, but various actions to integrate them remain in want. For example, the concept of climate change adaptation where migration is present is still not well understood, especially as it relates to increasing adaptive capacity within various scales of interaction. In this case, manifestations of climate-related migration may be tied into

national development and risk-reduction concerns but may be similarly discounted in the scope of a project.

In the Solomons' case, Islanders will travel from far and wide thorough the island chain to settle in the capital, Honiara, in an effort to find gainful employment and subsequently remit their earnings back home. This not only creates a population density hotspot in Honiara, but logistical issues for how to distribute limited national development funds and account for additional risks when natural disasters occur. In this case, it is difficult to account for a non-permanent population of intra-national labor migrants who remit funds to less developed areas in the island chain. In turn, this poses several planning-related issues that cross project boundaries. This is true throughout the islands, and in Taro Township.

In Taro's case, seemingly fruitful plans have moved forward to relocate people and resources from an existing location to another at higher elevation due to pressures that include but are not limited to climate change. At present, the land that will be used for the new township is located directly across the water from its current location. The site is not only at a higher elevation out of the coastal flood zone but attached to the mainland of Choiseul Island where new rural development projects are planned to better connect villages across the Province. In theory, this move will allow businesses, government services, and townspeople the ability to thrive outside of an area that would otherwise require intensive adaptation in order to stay in place. However, comprehensive research needs to continue taking shape to better understand what

those current and long-term needs may be in Taro and in similar settings throughout the Pacific.

Buckley-Vann Town Planning, central and provincial governments, and NGOs are charged with overseeing the development process with Taro's locals and their officials. Several rounds of meetings have taken place during the ever-evolving planning phases, but some of the research presented so far highlights the idea that there is still data to collect regarding economic viability and livelihood change, gender equality and access, transportation shifts, and who and what will be moved and when. At present, the relocation of Taro Township is still theoretical, and there is room for vested interests to dive deeper into local responses about capacity-building, locally-driven adaptation strategies, project ownership, and how site and situation may stifle or propel the health and well-being of people after this small-scale exodus takes place. Additionally, the general willingness and ability for various groups to change and adapt to the proposed project is still a question that remains elusive.

MIGRATION SOLUTIONS AND IN-PLACE ADAPTATIONS

Migration is a proposed solution to climate change adaptation needed throughout the Pacific Islands, but not the stand-alone solution as claimed at times, nor is it the narrative of adapting in place. Often, it is a combination of both. As previously discussed, no two islands are the same, and each island and its inhabitants require different solutions to meet local needs. Some islands experience more or less pressure from climate change, and as such, response to climate change differs in terms of adapting through risk reduction activities or migrating. Migration is but one of a range of

potential solutions to the risks associated with climate change and short-term weather-related events.

Migration is common in islands settings where climate change adaptation is taking place. Often, migrating throughout the islands is meant to supplement the income of families at the point of origin. Those funds are often used to pay for school fees, acquiring goods and services, etc. However, remittances are being used progressively more to offset current and future, and real and perceived losses associated with climate change. It is here that research needs to be enacted (i.e. in spaces where anticipated loss at the local-level is taken into the calculation of climate change adaptation). In that vein, additional research is needed to understand what that means in the decision processes where people are either compelled or choose to move in advance of a set of specific risks that define the common tipping points for migration.

Circular and/or cyclical migration has been a part of the Pacific experience in modern times, and in the many generations that came before when Islanders would voyage from one island to the next to establish new areas of existence. In many ways, migration is one of the main features of the Pacific Island culture. However, much has changed in the modern era as people have become more sedentary and globalization prompted markets to grow in areas that attract people to core spaces. Cultural and economic hubs attract people from different places seeking to capitalize on resources. In the case of many island nations in the Pacific, these centers can also lead to a variety of issues, such as: uneven national development, unsustainable and high population

density, and even violence as was seen during the “Tensions” in the late 1990s and subsequent securitization efforts through RAMSI in the years that followed.

In the case of Taro Township - and Choiseul Province more broadly – migration has not only been a mechanism to offset the pressure of the island’s remoteness and lack of connectivity to global markets, but a way to generate capital and labor for investment and growth and promote change. Conversely, recent developments through the “Tensions” prompted government agents, NGOs, and various provincial and local actors to seek the means to develop Choiseul Province, and to keep people from having to migrate in order to produce livelihoods. The rural development programs that operate in Choiseul and other outlying areas are one of the mechanisms that have been instituted to see this come to fruition. This approach to developing outer areas in the archipelago is meant to sustain populations during this transition phase, and to release pressure on Honiara from having to produce one of the only large-scale economic hubs across the island chain.

There is still much to be seen as to how and when these rural development projects will spring forward a new era of a decentralized economy where each Province has the ability to self-generate and add to the coffers of the central government on Guadalcanal. Similarly, how these and other related programs foster strong local economies, and how those economies will be tied into or augment supply chains across the region without first having to use the capitol as broker for import or export services is similarly elusive. More than likely, the current state of affairs suggests that adapting

to climate change will be mediated through migration as a form of economic development until these programs take hold and become comprehensive.

ECONOMIC DEVELOPMENT

In recent years, the story of developing economies in the Pacific Islands is one of general exploitation, past shackles from colonialism, and present-day forms of being subjugated under various forms of globalization. Further, a lack of access to goods and services, and shortfalls of not being able to keep pace with globalization hinder many Island nation economies from establishing reciprocal and balanced trade. These trade deficits, shaky government representation, and income and gender inequality bring many Pacific economies to heel. These underlying deficiencies and inequalities are exacerbated by climate change. As such, the Solomon Islands faces a reality where the ability to accumulate capital is underpinned by economic factors that augment/narrow the range options they have to adapt to climate change.

These underlying economic disparities often take precedent over other concerns such as climate change, especially uneven trade and economies of scale that cannot compete on the global market. In other words, the short-term needs for economic growth and reducing poverty put climate change and adaptation planning in a subordinate role when incorporated into national policy frameworks aimed at nation-building. In the case of Solomon Islands, the level economic inequality demands action, yet it takes the focus from longer-term planning necessities such as climate change and disaster risk reduction, and devalues the environment in exchange for liquidity of natural resources (i.e., vast mining, logging and fishing/harvesting operations). Often,

this comes at the cost of implementing expensive national policies that make the country rely on aid from countries with more well-developed and diverse economies. In other words, the preconditions for uneven and unsustainable economic development exist in the Solomons. As such, the range of options to incorporate adaptation planning into overall development is challenging. Moreover, these preconditions are manifested in local spaces, such as Taro Township, where the threat of sea level rise, storm waves, and loss of land is an urgent issue in the coming years.

METHODOLOGICAL CONSIDERATIONS

As these chapters have shown, there are several methodological considerations that need to take place when working in the field of climate change adaptation. The research presented here was not only an applied exercise in information gathering and categorizing themes across disparate bases of literature but evolved into a synthesis of how and why different veins of thought on climate change might approach common issues in Solomon Islands and throughout the Pacific. There are several methodological considerations that need to be made when gathering literature with a focus on developing a similar project. As such, there are more nuanced recommendations on how this vein of research can be carried out and categorized with ease.

LITERATURE-BASED CONSIDERATIONS

Literature on this topic can and should continue to be seen as an applied exercise in inter-disciplinary/cross-disciplinary research. As where macro-level engagement in climate change might fit more cleanly into quantitative outputs, public policy, and the international development bases, the local-level focus presented here

requires a different set of research skills. This is especially the case where interviews are conducted at multiple levels of involvement in the adaptation project (i.e., central and provincial government, local government, NGOs, chiefs, and locals). The translation of need between various entities is diverse, as are the ideas for adaptation that spring forth from different stakeholders. As such, one may need to cast a wide net around examining tangential literature to better understand the scope and scale of intersecting and diverging policies, and to find points of friction that may exist between them. On that note, joint national and regional action plans, transnational and international forums, and interdisciplinary journals are good sources of information to understand when and where issues take place. Sourcing from these resources will help the researcher better understand how various entities may be approaching common issues.

The categorization of literature-based materials is important as well. Since the topic of climate change is broad, it requires a practitioner to scour vast sums of qualitative and quantitative data to understand how the topic is presented across various scales of interaction. It is beneficial to keep detailed records of all pertinent literature by creating general themes and categorizing those themes by way of an alpha-numeric coding system that coincides with a sub-topic. For example, an article on climate change in Choiseul Province may fit into several themes, such as: national development, sustainability, rural development, in-place adaptation, labor migration, international migration, and so on. An alpha-numeric coding system – or something similar - that captures these sub-themes and a short parenthetical quote with corresponding page numbers helps for cross-referencing purposes. This system can be

time consuming, but it may help the researcher better understand what several authors are arguing for or against in a similar topic and helps establish common ground for dialogue across regions. This synthesis of information is key when weighing the arguments with ease, and the system is infinitely malleable to the needs of what the researcher wants to position within their own literature reviews.

SOCIOLOGICAL CONSIDERATIONS

Working and performing research in the Solomon Islands requires a keen eye for social differences between the researcher and respondents. A researcher's positionality and subjectivity need to be well established before entering the field. A researcher should also account for these differences through the use of secondary data (i.e., online statistics, articles, etc.) as well as through conversations with connections in the islands that were willing to discuss the faux-pas and intricacies of social interaction.

There is no doubt that performing research is going to be laborious, especially when entering into a foreign space with little reference for social norms. Spare no expense or amount of time trying to better understand these differences, and how one's presence or word choices might have a bearing on the potential to collect data. The research and interview process will be much better for it. Also, consider find a trusted local guide to help better understand what could be asked and with whom. Custom, or "kastom" prevails in the Solomons, and respondents are shy at times to answer direct questions if they feel that answering goes against their existing beliefs. This is compounded by having an outsider ask direct questions about climate change, economics, and development that they are unaccustomed to answering or may perceive

as inappropriate. Aware of this pitfall, be prompted to send questions off for review to make sure what is being asked might have less of a chance of offending respondents while maintaining the pertinent questions that would get to the heart of the climate change debate on the topics.

In a similar vein, standard rules surrounding the IRB and associated CITI research and ethics certifications may not capture the required level of rigor when conducting projects in the Solomons, even when the national research board approves an application. This is not because of short-sightedness in the level of thoroughness with the national board, nor is it because of small-scale interactions per se. Rather, signals in responses may give away the identity of someone living in a small township in a way that may be different than conducting research in other interview settings. For example, the type of questions queued up in Chapter 5 are partially meant to solicit responses that would show points of friction between respondents in terms of viewpoints on migration, livelihoods, resource access, and more. It may not be satisfactory to have the raw data, waivers, and coded responses under lock and key/password encrypted; a researcher in this setting may have to treat the raw responses with additional caution and be mindful of additional identifiers to protect the identity of survey respondents. This level of caution should be seamless from beginning to end and made iterative if/when member checking is implemented.

PHYSICAL/ENVIRONMENTAL CONSIDERATIONS

Working in the field of climate change can be a challenging undertaking, especially when considering the interdisciplinary and cross-disciplinary aspects of the

topic. Climate change is rarely if ever a stand-alone issue; it intersects with national and international development planning, disaster risk reduction, poverty reduction, ecology, sustainability, political science, macro and microeconomics, public health, and more. The multifaceted aspects of the topic require a climate change practitioner to understand the science behind large-scale, data-driven outputs from models, and how those data translate on the ground and intersect with other fields and the stories respondents share. In short, engaging with climate change requires a broad understanding of how environmental topics relate temporally and spatially, culturally and personally, and between people and institutions if on-the-ground, people-focused research is to move forward.

Of the many things to consider then practicing climate change, it is the physical and environmental spaces that lay the groundwork for thinking through possible outcomes if/when adaptations take place. For example, the island nations of Tuvalu and Kiribati are comprised entirely of low-lying atolls that face a limited range of options adapting to sea-level rise and storm waves. However, other Pacific islands such as Solomon Islands are comprised mostly of low-lying atolls that have larger provincial islands scattered across the island chain. On might look at the latter and posit an easy solution to move those who live in flood zones to new areas at higher elevation, but this cannot be done with ease given land ownership constraints. In Solomon Islands, the government owns very little of the total land area, and most of the land holdings belong in traditional systems of kin/tribal groups. Often, any move to a new area requires negotiation with a Chief whose responsibility is to oversee use, allocation, sale, etc.

Though Solomon Islands may have mountainous areas out of the coastal hazards zone, there are impediments as to how those potential moves will take place. Until those negotiations occur, coastal dwellers on low-lying atolls in the Solomons have a limited range of options on where to go as climate change continues to make many low-lying areas less habitable.

FINAL THOUGHTS

This dissertation author's life has been tremendously enriched having taken part in this topic and working in the Pacific Islands. I traveled throughout the basin, practiced adaptation when the opportunity presented itself, and was able to live my passion for research in far-flung places. The more applied components of what I had hoped to achieve were stifled by the global SARS CoV-2 pandemic in 2020, but despite these formidable challenges I was able to pivot onto a theoretical path and continue to make headway while the world came to a halt. Nonetheless, I will continue to pursue international climate change research for many years to come because how we adapt to long-term perturbations in the climate is the frontier not only for scholarly contributions, but global survival as well.

We can and should support research that identifies and enacts solutions to these common barriers. There is no shortage of dim narratives around this topic, especially when one looks at the problem as a whole. However, glimmers of light do shine through, and research veins such as the one presented in this dissertation can leave one hopeful with the work of today, and the promise of tomorrow. This research was not and is not easy, nor will it be for those who add to this body of knowledge in the years

to come. For those who ventured to turn these pages and would like to take part in this field, this research requires one to make mental and intellectual preparations for a topic that will test one personally and professionally, and to account for and adapt to the unknown. More than likely there will be many.

However, walking this path is worth the investment, and this author came out of the research process never having regretted the decision despite many setbacks along the way. One hopes that others find a similar level of wonderment, appreciation, and humility in the process of conducting their own research in this field and engaging with adaptive communities. Whether you find yourself in a research lab or in a far flung hut on a remote atoll, just remember: a smooth sea never made a skilled sailor.

REFERENCES

Adams, H. & Adger, W. N. (2013). "Changing places: migration and adaptation to climate change." Routledge-Earthscan.

Adger, W. N., Barnett, J., Chapin, F. S., & Ellemor, H. (2011). "This Must Be the Place: Underrepresentation of Identity and Meaning in Climate Change Decision-Making." *Global Environmental Politics*, 11(2).

Adger, W. N., Kelly, P. M., Winkels, A., Huy, L. Q., & Locke, C. (2002). "Migration, remittances, livelihood trajectories, and social resilience." *AMBIO: A Journal of the Human Environment*, *31*(4), 358-366.

Allen, Matthew G. "Melanesia's violent environments: Towards a political ecology of conflict in the western Pacific." *Geoforum* 44 (2013): 152-161.

Allen, M. G., & Dinnen, S. (2015). "Solomon Islands in Transition?" *The Journal of Pacific History*, *50*(4), 381-397.

Barbara, J. (2014). "From Intervention to Partnership—Prospects for Development Partnership in Solomon Islands after the RAMSI." *Asia & the Pacific Policy Studies*, *1*(2), 395-408.

Barbier, E. B. (2015). "*Climate change impacts on rural poverty in low-elevation coastal zones*." The World Bank.

Barclay, K. & Kinch, J. (2013). "Local capitalisms and sustainability in coastal fisheries: Cases from Papua New Guinea and Solomon Islands." In Engaging with Capitalism: Cases from Oceania (pp. 107-138). Emerald Group Publishing Limited.

Barden, Kenneth E. "Land's End: Can an Island Nation Survive Without Its Islands?" *World Policy Journal* 28.2 (2011): 49-55.

Barnett, J. (2012). "On the risks of engineering mobility to reduce vulnerability to climate change: insights from a small island state." *Climate Change and Human Mobility: Global Challenges to the Social Sciences*, 169-189.

Barnett, J. (2011). “Dangerous climate change in the Pacific Islands: food production and food security.” *Regional Environmental Change*, *11*(1), 229-237.

Barnett, J. (2008). “*The Effect of Aid on Capacity to Adapt to Climate Change: Insights From Niue*.” *Political Science*, 60(1), 31-45.

Barnett, J. (2003). “Security and climate change.” *Global Environmental Change*,*13*(1), 7-17.

Barnett, J., & Adger, W. (2003). “Climate dangers and atoll countries.” *Climatic Change*, 61(3), 321-337.

Barnett, J. & Campbell, J. (2010). “Climate Change and Small Island States: Power, Knowledge and the South Pacific.” Routledge.

Barnett, Jon & Chamberlain, Natasha. (2010). "Migration as Climate Change Adaptation: Implications for the Pacific." *Climate Change and Migration* (51).

Barnett, J. & McMichael, C. (2018). “The effects of climate change on the geography and timing of human mobility.” *Population and Environment*, *39*(4), 339-356.

Barnett, J. & O'Neill, S. J. (2012). “Commentary: Islands, resettlement and adaptation.” *Nature Climate Change*, 2(1), 8-10.

Barnett, J. R. & Webber, M. (2010). “Accommodating migration to promote adaptation to climate change.” *World Bank policy research working paper*, (5270).

Bayliss-Smith, T., Gough, K. V., Christensen, A. E. & Kristensen, S. P. (2010). “Managing Ontong Java: Social institutions for production and governance of atoll resources in Solomon Islands.” *Singapore Journal of Tropical Geography*, *31*(1), 55-69.

Bell, D. R. (2004). “Environmental refugees: What rights? Which duties?” *Res Publica*, *10*(2), 135-152.

Bettini, G. (2013). “Climate Barbarians at the Gate? A Critique of Apocalyptic Narratives on ‘Climate Refugees’” *Geoforum, 45, 63-72.*

Betzold, C. (2015). “Adapting to climate change in small island developing states.” *Climatic Change*, 133(3), 481-489.

Bhat, Neha. (2012). “To Be or Not to Be: The 'Environmental Refugee'”. *Social Science Research Network.*

Birk, T. (2014). “Assessing vulnerability to climate change and socioeconomic stressors in the Reef Islands group, Solomon Islands.” *Geografisk Tidsskrift-Danish Journal of Geography*, 114(1), 59-75.

Birk, T. (2012). “Relocation of reef and atoll island communities as an adaptation to climate change? Learning from experience in Solomon Islands.” In: Hastrup, K., Olwig, K. (Eds.), Climate Change and Human Mobility: Global Challenges to the Social Sciences. Cambridge University Press, Cambridge, pp. 81-109.

Birk, T. & Rasmussen, K. (2014, February). “Migration from atolls as climate change adaptation: Current practices, barriers and options in Solomon Islands.” *Natural Resources Forum* (Vol. 38, No. 1, pp. 1-13).

Blaikie, P. (1985). “The political economy of soil erosion in developing countries.” Longman.

Bogdan, R. C., & Biklen, S. K. (1982). “Qualitative research for education.” Boston: Allyn and Bacon.

Boland, S., & Dollery, B. (2019). “The economic significance of migration and remittances in Tuvalu.” *Pacific Economic Bulletin,* 22(1), Asia Pacific Press.

Bonefeld, W. (2015). “Bringing critical theory back in at a time of misery: Three beginnings without conclusion.” *Capital & Class*, 0309816815603157.

Boundless. “The Conflict Perspective.” *Boundless Sociology*. Boundless, 26 May 2016. Retrieved 11 Aug. 2016 from https://www.boundless.com/sociology/textbooks/boundless-sociology-textbook/sociology-1/theoretical-perspectives-in-sociology-24/the-conflict-perspective-156-974/

Brauch, H. G. (2014). “Global Change, Natural & Environmental Disaster: Migration, Conflicts and Policy Response.” (Doctoral dissertation, Chulalongkorn University).

Brown, K. (2011). “Sustainable adaptation: An oxymoron?” *Climate and Development*, 3(1), 21-31.

Brown, M. A. (Ed.). (2007). “Security and development in the Pacific Islands: Social resilience in emerging states.” Boulder, CO and London: Lynne Rienner.

Buzby, A. (2015). “From Factory Floor to Killing Floor: Marx, Critical Theory and the Status of the Animal.” *Theory in Action*, *8*(3), 27.

Byravan, S. & Rajan, S. (2010). “The Ethical Implications of Sea-Level Rise Due To Climate Change.” *Ethics & International Affairs* 24(3): 239-260.

Campbell, J.R., (2010). “Climate change and population movement in Pacific Island Countries.” In: Burson, B. (Ed.), Climate change and migration in the South Pacific Region: Policy perspectives. Institute for Policy Studies, Wellington, NZ. pp. 29-50.

Campbell, J.R., (2011). “Climate change and population displacement.” In: Narsey, E., Robertson, A.S., Prasad, B.C., Seniloli, K., Jongstra, E. et al. (Eds.), Population and development in the Pacific Islands. UNFPA and USP, Suva, Fiji. pp. 320-341.

Campbell, John, and Richard Bedford. (2014). "Migration and climate change in oceania." *People on the Move in a Changing Climate*. Springer Netherlands. 177-204.

Campbell, J.R., Goldsmith, M., Koshy, K., (2007). “Community relocation as an option for adaptation to the effects of climate change and climate variability in Pacific Island Countries.” Final report for APN project 2005-14-NSY-Campbell. Tokyo: Asia Pacific Network for Global Change Research.

Campbell, J., & Warrick, O. (2014). “Pacific Climate Change Migration Project: Enhancing the capacity of Pacific Island Countries to address the impacts of climate change on migration.” United Nations Economic and Social Commission for Asia and the Pacific, Fiji.

Carney, J. (1993). “Converting the wetlands, engendering the environment: The intersection of gender with agrarian change in the Gambia.” *Economic Geography*, *69*(4), 329-348.

Carraro, C. (2015). “Climate change and migrations.” *Review of Environment, Energy and Economics (Re3)*.

CDKN. (2014). “The IPCC’s Fifth Assessment Report: What’s in it for Small Island Developing States?” Retrieved from https://cdkn.org/story/report-ipccs-fifth-assessment-report-whats-in-it-for-small-island-developing-states. Accessed 03/16/16/

Chasek P S. (2005). “Margins of power: coalition building and coalition maintenance of the South Pacific Island States and the Alliance of Small Island States.” *Review of European Community and International Environmental Law* 14(2) 125–138

CIA. (2016). “World Factbook – Solomon Islands.” Retrieved from https://www.cia.gov/library/publications/ the-world-factbook/fields/2002.html. Accessed 02/16/2016

City Population. (2016). “Solomon Islands Census.” Retrieved from http://www.citypopulation.de/Solomon.html. Accessed 02/13/16

Connell, J. (2013). “Soothing Breezes? Island perspectives on climate change and Migration.” *Australian Geographer*, 44(4): 465-480.

Cutter, S., B. Osman-Elasha, J. Campbell, S.-M. Cheong, S. McCormick, R. Pulwarty, S. Supratid, and G. Ziervogel, 2012: “Managing the risks from climate extremes at the local level. In: Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation” [Field, C.B., V. Barros, T.F. Stocker, D. Qin, D.J. Dokken, K.L. Ebi, M.D. Mastrandrea, K.J. Mach, G.-K. Plattner, S.K. Allen, M. Tignor, and P.M. Midgley (eds.)]. A Special Report of Working Groups I and II of the Intergovernmental Panel on Climate Change (IPCC). Cambridge University Press, Cambridge, UK, and New York, NY, USA, pp. 291-338.

Dasgupta, P ., J.F . Morton, D. Dodman, B. Karapinar, F . Meza, M.G. Rivera-Ferre, A.Toure Sarr, and K.E. Vincent (2014). “Rural areas.” In: Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part A: Global and Sectoral Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Field, C.B., V.R. Barros, D.J. Dokken, K.J. Mach, M.D. Mastrandrea, T.E. Bilir, M. Chatterjee, K.L. Ebi, Y .O. Estrada, R.C. Genova, B. Girma, E.S. Kissel, A.N. Levy, S. MacCracken, P .R. Mastrandrea, and L.L. White (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA, pp. 616-657.

De Haas, H. (2007). “Remittances, migration and social development: A conceptual review of the literature.” Geneva: United Nations Research Institute for Social Development.

Denton, F, et al. (2014). "Climate-Resilient Pathways: Adaptation, Mitigation, and Sustainable Development - Chapter 20." *Contribution of Working Group II to the fifth assessment report of the Intergovernmental Panel on Climate Change*. Cambridge University Press, 2014.

Dinnen, S. (2007). "A comment on state-building in Solomon Islands." *Journal of Pacific History*, 42:2, 255-263.

Donner, S. D. (2015). "The legacy of migration in response to climate stress: learning from the Gilbertese resettlement in the Solomon Islands." *Natural Resources Forum* Vol. 39, No. 3-4, pp. 191-201.

Donner, S. D., Kandlikar, M. & Webber, S. (2016). "Measuring and tracking the flow of climate change adaptation aid to the developing world." *Environmental Research Letters*, *11*(5), 054006.

Donner, S. D. & Webber, S. (2014). "Obstacles to climate change adaptation decisions: a case study of sea-level rise and coastal protection measures in Kiribati." *Sustainability Science*, 9(3), 331-345.

Dumaru, P. (2010). "Community-based adaptation: enhancing community adaptive capacity in Druadrua Island, Fiji." Wiley Interdisciplinary Reviews - *Climate Change*, 1(5), 751-763.

Dun, O. and Gemenne, F. (2010). "Defining environmental migration." *Forced Migration Review*, 31: 10–11.

Dupuis, J. & Knoepfel, P. (2013). "The Adaptation Policy Paradox: The Implementation Deficit of Policies Framed as Climate Change Adaptation*." Ecology and Society*, 18(4).

Elliott, M. and Fagan, D. (2010). "From Community to Copenhagen: Civil Society Action on Climate Change in the Pacific." *Climate Change and Migration*: 61.

Ereth, AC. (2012). "Pacific Island Atoll Vulnerability to Sea-level Rise, and the Adaption Strategies to Regional Climate Change." Diss. Geography Department, California State University, Fullerton, 2012.

Eriksen, S. H., Nightingale, A. J., & Eakin, H. (2015). "Reframing adaptation: the political nature of climate change adaptation. *Global Environmental Change*, *35*, 523-533.

Faist, T. (2008). “Migrants as transnational development agents: An inquiry into the newest round of the migration-development nexus.” *Population, Space and Place*, 14(1): 21-42.

Farbotko, C. (2010). “Wishful Sinking: Disappearing Islands, Climate Refugees and Cosmopolitan Experimentation. ” Asia Pacific Viewpoint, 51 (1), 47-60.

Farbotko, C. & Lazrus, H. (2012). "The First Climate Refugees ? Contesting Global Narratives of Climate Change in Tuvalu." *Global Environmental Change,* 22(2), 382-390.

Firth, S. (2007). “Pacific islands trade, labor, and security in an era of globalization.” *The Contemporary Pacific*, *19*(1), 111-134.

Flyvbjerg, B. (2006). “Five misunderstandings about case-study research.” *Qualitative Inquiry*. *12*(2), 219-245.

Foale, S. (2001). “‘Where's our development?’ Landowner aspirations and environmentalist agendas in Western Solomon Islands.” *The Asia Pacific Journal of Anthropology*, *2*(2), 44-67.

Gaventa, J. (1982). “*Power and powerlessness: Quiescence and rebellion in an Appalachian valley*.” University of Illinois Press.

Gegeo, D. W., & Watson-Gegeo, K. A. (2002). “Whose knowledge?: Epistemological collisions in Solomon Islands community development.” *The Contemporary Pacific*, *14*(2), 377-409.

Glasson, J., R., Therivel, and A. Chadwick. (1999). “Introduction and Principles.” In Introduction to environmental impact assessment: principles and procedures, process, practice and prospects, UCL Press London, (pp. 3-25).

Gleditsch, N.P. (2012). "Whither the weather? Climate change and conflict." *Journal of Peace Research* 49.1: 3-9.

Gold, S. J. (2016). “A critical race theory approach to black American entrepreneurship.” *Ethnic and Racial Studies*, 1-22.

Government of Kiribati. (2010). “Relocating from climate change.” *Climate Change inKiribati: The Climate Change Portal of the Office of the President of Kiribati.* http://climate.gov.ki/Kiribati_climate_change_strategies.html#apm1_3

Gruby, R. L., & Campbell, L. M. (2013). "Scalar politics and the region: strategies for transcending Pacific Island smallness on a global environmental governance stage." *Environment and Planning A*, *45*(9), 2046-2063.

Haines, P. (2016). "Choiseul Bay Township Adaptation and Relocation Program, Choiseul Province, Solomon Islands." Case Study for CoastAdapt, National Climate Change Adaptation Research Facility, Gold Coast.

Haines, P. and McGuire, S. (2014). "Climate Change Adaptation Plan: Choiseul Bay Township – Solomon Islands." BMT WBM Pty Ltd, Spring Hill, Queensland.

Haines, P. et al. (2014). "Integrated Climate Change Risk and Adaptation Assessment to Inform Settlement Planning in Choiseul Bay, Solomon Islands." BMT WBM Pty Ltd, Spring Hill, Queensland.

Hallegatte, S., Bangalore, M., Bonzanigo, L., Fay, M., Kane, T., Narloch, U. & Vogt-Schilb, A. (2015). "Shock waves: managing the impacts of climate change on poverty." The World Bank.

Hameiri, S. (2009). "State Building or Crisis Management? A critical analysis of the social and political implications of the Regional Assistance Mission to Solomon Islands." *Third World Quarterly*, *30*(1), 35-52.

Handmer, J., Y. Honda, Z.W. Kundzewicz, N. Arnell, G. Benito, J. Hatfield, I.F. Mohamed, P. Peduzzi, S. Wu, B. Sherstyukov, K. Takahashi, and Z. Yan, 2012: "Changes in impacts of climate extremes: human systems and ecosystems. In: Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation." [Field, C.B., V. Barros, T.F. Stocker, D. Qin, D.J. Dokken, K.L. Ebi, M.D. Mastrandrea, K.J. Mach, G.-K. Plattner, S.K. Allen, M. Tignor, and P.M. Midgley (eds.)]. A Special Report of Working Groups I and II of the Intergovernmental Panel on Climate Change (IPCC). Cambridge University Press, Cambridge, UK, and New York, NY, USA, pp. 231-290.

Hardin, G. (1968). "The tragedy of the commons." *Science*, *162*(3859), 1243-1248.

Hau'ofa, Epeli. "The ocean in us." Edited by Stewart Firth (2019): 341.

Hau'Ofa, E. (1995). "Our sea of islands." *Asia/Pacific as space of cultural production*, 86-98.

Hemmings, A. (2006). “Great ethical divides: Bridging the gap between institutional review boards and researchers.” *Educational researcher*, *35*(4), 12-18.

Homer-Dixon, T. (1999). “Environment, Scarcity and Violence.” Princeton, NJ: Princeton University Press

Homer-Dixon, T. (2000). “The ingenuity Gap: Facing the Economic, Environmental and Other Challenges of an Increasingly Complex and Unpredictable Future.” New York: Vintage.

Horkheimer, M. (1972). “Critical theory: Selected Essays.” (Vol. 1). A&C Black

Hsiang, S. M., Burke, M., & Miguel, E. (2013). “Quantifying the influence of climate on human conflict.” *Science*, *341*(6151), 1235367.

Huq, S. & Reid, H. (2004). “Mainstreaming adaptation in development.” *Ids Bulletin-Institute of Development Studies*, 35(3), 15-+.

Hviding, E. (2015.) “Big Money in the Rural: Wealth and Dispossession in Western Solomons Political Economy.” *Journal of Pacific History*, 50:4, 473-485.

IPCC (2012). “Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation.” A Special Report of Working Groups I and II of the Intergovernmental Panel on Climate Change [Field, C.B., V. Barros, T.F. Stocker, D. Qin, D.J. Dokken, K.L. Ebi, M.D. Mastrandrea, K.J. Mach, G.-K. Plattner, S.K. Allen, M. Tignor, and P.M. Midgley (eds.)]. Cambridge University Press, Cambridge, UK, and New York, NY, USA, 582 pp.

Jeffery, R. (2013). “Enduring tensions: transitional justice in the Solomon Islands.” *The Pacific Review*, *26*(2), 153-175.

Johnson, C. A. (2012). “Governing climate displacement: the ethics and politics of human resettlement.” *Environmental Politics*, *21*(2), 308-328.

Kapo, K.E. & G. A. Burton, Jr. (2006). “A Geographic Information Systems-Based, Weights-Of-Evidence Approach for Diagnosing Aquatic Ecosystem Impairment.” *Environmental Toxicology and Chemistry*, Vol. 25, No. 8, pp. 229-241.

Kelley, J. (2011). “Climate Change and Small Island States: Adrift in a Raising Sea of Legal Uncertainty.”*Climate Law Reporter* Vol. 11, Iss. 2, Art. 17: 55-57.

Kellow, A. (2006). “A new process for negotiating multilateral environmental agreements?” The Asia–Pacific climate partnership beyond Kyoto. *Australian Journal of International Affairs*, *60*(2), 287-303.

Kemmis, S. & McTaggart, R. (2005). “Communicative action and the public sphere.” *Denzin, NK & Lincoln, YS (red.), The Sage Handbook of Qualitative Research*, *3*,559-603.

Kincheloe, J. L. & McLaren, P. (2002). “Rethinking critical theory and qualitative research.” *Ethnography and schools: Qualitative approaches to the study of education*, 87-138.

Kiribati Climate Change Study Team & Global Environment Facility & United Nations Development Programme & United Nations Framework Convention on Climate Change (Organization). (2007). “*National Adaptation Program of Action (NAPA)*.” Tarawa, Kiribati: Environment and Conservation Division, Ministry of Environment, Land and Agricultural Development.

Klein, R. J. T., Eriksen, S. E. H., Naess, L. O., Hammill, A., Tanner, T. M., Robledo, C., et al. (2007). “Portfolio screening to support the mainstreaming of adaptation to climate change into development assistance.” *Climatic Change*, 84(1), 23-44.

Klein, R. J. T., Eriksen, S. E. H., Naess, L. O., Hammill, A., Tanner, T. M., Robledo, C., et al. (2007). “Portfolio screening to support the mainstreaming of adaptation to climate change into development assistance.” *Climatic Change*, 84(1), 23-44.

Klein, R.J.T., G.F. Midgley, B.L. Preston, M. Alam, F.G.H. Berkhout, K. Dow and M.R. Shaw, 2014: “Adaptation opportunities, constraints, and limits.” In: Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part A: Global and Sectoral Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Field, C.B., V.R. Barros, D.J. Dokken, K.J. Mach, M.D. Mastrandrea, T.E. Bilir, M. Chatterjee, K.L. Ebi, Y.O. Estrada, R.C. Genova, B. Girma, E.S. Kissel, A.N. Levy, S. MacCracken, P.R. Mastrandrea, and L.L.White (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA, pp. 899-943.

Kozol, J. (2006). “Shame of the Nation: The Restoration of Apartheid Schooling in America.” New York: Broadway Paperbacks.

Kuruppu, N. & Liverman, D. (2011). "Mental preparation for climate adaptation: The role of cognition and culture in enhancing adaptive capacity of water management in Kiribati." *Global Environmental Change* 21.2: 657-669.

Lacey, A. (2011). “Honiara, Solomon Islands: new urbanization challenges, a new development imagination?. *CDS*, 14.

Lange, Holly D. (2010). "Climate Refugees Require Relocation Assistance: Guaranteeing Adequate Land Assets Through Treaties Based on the National Adaptation Programmes of Action." *Pac. Rim L. & Pol'y J.* 19 : 613.

Lata, Shalini & Patrick Nunn (2012). "Misperceptions of climate-change risk as barriers to climate-change adaptation: a case study from the Rewa Delta, Fiji." *Climatic change* 110. 1-2: 169-186.

Locke, Justin T. (2009). "Climate change-induced migration in the Pacific Region: sudden crisis and long-term developments." *The Geographical Journal* 175.3 : 171-180.

MacLellan, Nic. (2011). “Turning the Tide: Improving Access to Climate Financing in the Pacific Islands.” *Lowry Institute Policy Briefs*: 1-14.

Marks, Kathy & Asia-Pacific Correspondent. (2008). "Paradise Lost: Climate Change Forces South Sea Islanders to Seek Sanctuary Abroad." *The Independent* 6.

Martin, S. (2010). “Climate change, migration and governance.” *Global Governance*, 16: 397–414.

Mataki, M. et al. (2013). “Choiseul Province Climate Change Vulnerability and Adaptation Assessment Report – Securing the Future of Lauru now.”

Mataki, M. (2013). *“*Solomon Islands National Report for Third International Small Island developing States Conference on Sustainable Development*.”*

McAdam, Jane. (2014). “Creating New Norms on Climate Change, Natural Disasters and Displacement: International Developments 2010–2013.” *Refuge: Canada's Journal on Refugees*, *29*(2).

McAdam, J., (2014). “Historical cross-border relocations in the Pacific: Lessons for planned relocations in the context of climate change.” *Journal of Pacific History* 49(3): 301-327.

McAdam, Jane. (2014). "Conceptualizing Climate Change-Related Movement." *ASIL Annual Meeting Proceedings*. Vol. 106. American Society for International Law.

McAdam, Jane. (2011). "Swimming against the tide: Why a climate change displacement treaty is not the answer." *International Journal of Refugee Law* 23.1 (2011): 2-27.

McAdam, J. (2010). “Refusing 'refuge' in the Pacific:(de) constructing climate-induced displacement in international law” in *International Law* in E Piguet, A Pécoud and P de Guchteneire (eds) Migration and Climate Change (Cambridge University Press, 2011), UNSW *Law Research Paper*, (2010-27).

McDermott, Mat. (2013). “Kiribati Moving Entire Population to Avoid Rising Seas.” http://www.treehugger.com/climate-change/kiribati-moving-entire-population-avoid-sea-level-rise.html. Accessed 11/01/13.

McLeman, R. A. & Hunter, L. M. (2010). “Migration in the context of vulnerability and adaptation to climate change: insights from analogues.” *Wiley Interdisciplinary Reviews: Climate Change*, *1*(3), 450-461.

McKinnon, K., Carnegie, M., Gibson, K. & Rowland, C. (2016). “Gender equality and economic empowerment in the Solomon Islands and Fiji: a place-based approach.” *Gender, Place & Culture*, 1-16.

McNamara, K. E. (2007). “Conceptualizing discourses on environmental refugees at the United Nations.” *Population and Environment*, *29*(1), 12-24.

MECM (Ministry of Environment, Conservation and Meteorology). (2008). “Solomon Islands National Adaptation Plan for Action (NAPA).” Honiara

Meehl, G et al. (2007). “Global Climate Change Projections.” In S. Solomon, D. Qin, M. Manning, Z. Chen, M. Marquis, K.B. Avert, M. Tignor and H.L. Miller (eds.), Climate Change 2007: The Physical Science Basis. Contribution of the Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change, Cambridge University Press, Cambridge and New York: 747-846.

Mercer, J. (2010). “Disaster risk reduction or climate change adaptation: are we reinventing the wheel?” *Journal of International Development: The Journal of the Development Studies Association*, *22*(2), 247-264.

Merriam S.B. (2002) “Introduction to Qualitative Research in Qualitative research in practice: examples for discussion and analysis.” (1st Ed). San Francisco, CA: Jossey-Bass

Mills, C. W. (2000a). “The power elite.” Oxford University Press.

Mills, C. W. (2000b). “The sociological imagination.” Oxford University Press.

Mimura, N., R.S. Pulwarty, D.M. Duc, I. Elshinnawy, M.H. Redsteer, H.Q. Huang, J.N. Nkem, & R.A. Sanchez Rodriguez. (2014). “Adaptation planning and implementation.” In: Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part A: Global and Sectoral Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Field, C.B., V.R. Barros, D.J. Dokken, K.J. Mach, M.D. Mastrandrea, T.E. Bilir, M. Chatterjee, K.L. Ebi, Y.O. Estrada, R.C. Genova, B. Girma, E.S. Kissel, A.N. Levy, S. MacCracken, P.R. Mastrandrea, and L.L.White (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA, pp. 869-898.

Monson, S. I. R., & Foukona, J. D. (2014). “Climate-related displacement and options for resettlement in Solomon Islands.” *Land solutions for climate displacement* (pp. 311-336). Routledge.

Moore, C. (2018). “The End of Regional Assistance Mission to Solomon Islands (2003–17).” *The Journal of Pacific History*, *53*(2), 164-179.

Moore, D. S., Peet, R. & Watts, M. (1996). “Marxism, culture, and political ecology. Environmental struggles in Zimbabwe's Eastern Highlands.” *Liberation ecologies: environment, development, social movements.* 125-147.

Morrissey, J. & House, Q. E. (2009). “Environmental change and forced migration.” Refugee Studies Center, Oxford Department of International Development.

Morrissey, J. & Oliver-Smith, A. (2013). “Understanding values at risk from climate change.” United Nations University Loss and Damage Vulnerable Country Initiative. 1-19.

Moser, S. & Ekstrom, J. (2010). "A framework to diagnose barriers to climate change adaptation." *Proceedings of the National Academy of Sciences* 107.51

Mpgis.gov.sb. Ministry of Provincial Government and Institutional Strengthening Solomon Islands Government. (Jan. 2013). “Taro Township Extension Project pumped with a $10M land purchase.” Accessed from http://www.mpgis.gov.sb/index.php/provinces/choiseul/latest-news/128-taro-township-extension-project-pumped-with-a-10m-land-purchase on 02/20/2015.

National Climate Change Policy. (2012). "Solomon Islands National Climate Change Policy – 2012-2017." Ministry of Environment, Climate Change, Management and Meteorology [MECDM]

Neumann, R. P. (2009). "Political ecology II: theorizing region." *Progress in Human Geography*.

Nicholls, R. & Tol, R. (2006). "Impacts and Responses To Sea-Level Rise: A Global Analysis of the SRES Scenarios Over The Twenty-First Century." *Philosophical Transactions of The Royal Society (A)* 364: 1073-1095.

Noble, I.R., S. Huq, Y.A. Anokhin, J. Carmin, D. Goudou, F.P. Lansigan, B. Osman-Elasha, & A. Villamizar. (2014). "Adaptation needs and options." In: Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part A: Global and Sectoral Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Field, C.B., V.R. Barros, D.J. Dokken, K.J. Mach, M.D. Mastrandrea, T.E. Bilir, M. Chatterjee, K.L. Ebi, Y.O. Estrada, R.C. Genova, B. Girma, E.S. Kissel, A.N. Levy, S. MacCracken, P.R. Mastrandrea, and L.L.White (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA, pp. 833-868.

Nordås, R. & Gleditsch, N. P. (2007). "Climate change and conflict." *Political Geography*, *26*(6), 627-638.

Nunn, P. D. (2010). "Bridging the gulf between science and society: imperatives for minimizing societal disruption from climate change in the Pacific." *Adaptation and mitigation strategies for climate change* (pp. 233-248). Springer, Tokyo.

Nunn, P. D., Aalbersberg, W., Lata, S. & Gwilliam, M. (2014). "Beyond the core: community governance for climate-change adaptation in peripheral parts of Pacific Island Countries." *Regional Environmental Change*, *14*(1), 221-235.

Nunn, P. & Mimura N. (1997). "Vulnerability Of South Pacific Island Nations To Sea-Level Rise." *Journal of Coastal Research* 24: 133-151.

Oliver-Smith, A. (2012). "Debating environmental migration: society, nature and population displacement in climate change." *Journal of International Development*, *24*(8), 1058-1070.

Onorio, T. (2013). "Key note address by Hon. Vice President Teima Onorio on the occasion of the Nansen Initiative Pacific Regional Consultations." Edgewater Resort, Rarotonga, May 21–25, 2013. http://www.nanseninitiative.org/

Pachauri, R. K., Allen, M. R., Barros, V. R., Broome, J., Cramer, W., Christ, R. & Dubash, N.K. (2014). “Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change.”

Patton, M. Q. (2005). “Qualitative research.” John Wiley & Sons, Ltd.

Pelling, M. (2010). “Adaptation to Climate Change: From Resilience to Transformation.” Routledge, Abingdon, UK and New York, NY, USA, 224 pp.

Peshkin, A. (1988). “In search of subjectivity—one's own.” *Educational Researcher*, *17*(7), 17-21.

PROVIA. (2013). “PROVIA guidance on assessing vulnerability, impacts and adaptation to climate change.” Consultation Document. UNEP, Nairobi, Kenya.

Radio Australia News. (2012). “Kiribati ‘Not Contemplating Moving People’ To Fiji Land Purchase: Tong. 16 April.” Retrieved from Storey, D. & Hunter, S. "Kiribati: an environmental ‘perfect storm’." *Australian Geographer* 41.2 (2010): 167-181.

Randolph, J. (2004). “Environmental land use planning and management.” Island Press. (pp 3-35)

Rasmussen, K., May, W., Birk, T., Mataki, M., & Mertz, O. (2011). “Prospects for climate change on three Polynesian outliers in Solomon Islands: Exposure, sensitivity and adaptive capacity.” Geografisk Tidsskrift-Danish Journal of Geography, 111(1), 43-57

Reed, Brian. (2011). "Preparing for sea level rise, islanders leave home." *National Public Radio,* 17.

Rottenburg, R. (2009). “Far-fetched facts. A parable of development aid.” MIT Press, Cambridge.

Russell, Cristine. (2009). "First wave: The presidents of two island nations draft escape plans, anticipating sea level rise." *Science News* 175.5 : 24-29.

Sandifer, P. A. L. C. Knapp, T. K. Collier, A. L. Jones, R.-P. Juster, C. R. Kelble, R. K. Kwok, J. V. Miglarese, L. A. Palinkas, D. E. Porter, G. I. Scott, L. M. Smith, W. C. Sullivan, and A. E. Sutton-Grier. 2017. “A Conceptual Model to Assess Stress-Associated Health Effects of Multiple Ecosystem Services Degraded by Disaster Events in the Gulf of Mexico and Elsewhere.” *GeoHealth*: doi: 10.1002/2016GH000038.

Sandifer, P.A. & Scott, G.I. (2021). “Coastlines, Coastal Cities, and Climate Change: A Perspective on Urgent Research Needs in the United States.” *Frontiers in Marine Science 8*, Article 631986: 8pp doi: 10.3389/fmars.2021.631986.

Schipper, E. L. F. & Burton, I. (2009). “Understanding adaptation: origins, concepts, practice and policy.” *The Earthscan reader on adaptation to climate change. Stockholm: Earthscan Publishers*.

Scott, G. I., Fulton, M. H., DeLorenzo, M. E., Wirth, E. F., Key, P. B., Pennington, P. L. & Ferry, J. L. (2013). “The environmental sensitivity index and oil and hazardous materials impact assessments: linking pre-spill contingency planning and ecological risk assessment.” *Journal of Coastal Research*, (69 (10069)), 100-113.

Scott, J. C. (1998). “Ch 1 – Nature and Space.” In Seeing like a state: How certain schemes to improve the human condition have failed. Yale University Press.

Scott, J. C. (1998). “Ch. 9 – Metis.” In Seeing like a state: How certain schemes to improve the human condition have failed. Yale University Press.

Silver, J. M., Arkema, K. K., Griffin, R. M., Lashley, B., Lemay, M., Maldonado, S., et al. (2019). “Advancing coastal risk reduction science and implementation by accounting for climate, ecosystems, and people.” *Front. Mar. Sci.* 6:556. doi:10.3389/fmars.2019.00556

Simon, R. M. (2016). “The Conflict Paradigm in Sociology and the Study of Social Inequality: Paradox and Possibility.” *Theory in Action*, *9*(1), 1.

Smit, Barry & Johanna Wandel. (2006). "Adaptation, adaptive capacity and vulnerability." *Global Environmental Change*, 16.3 (Pgs. 282-292).

Smit, B., O. Pilifosova, I. Burton, B. Challenger, S. Huq, R.J.T. Klein, and G. Yohe, (2001). "Adaptation to climate change in the context of sustainable development and equity." In: Climate Change 2001: Impacts, Adaptation, and Vulnerability. Contribution of Working Group II to the Third Assessment Report of the Intergovernmental Panel on Climate Change [McCarthy, J.J., O.F. Canziani, N.A. Leary, D.J. Dokken, and K.S. White (eds.)]. Cambridge University Press, Cambridge, UK and New York, NY, USA, pp. 877-912.

Smith, Roy. (2013). "Should they stay or should they go? A discourse analysis of factors influencing relocation decisions among the outer islands of Tuvalu and Kiribati." *Journal of New Zealand & Pacific Studies* (Apr. 2013): Vol. 1, Num. 1, pp. 23-39 (17).

Solomon Islands National Climate Change Policy 2012 - 2017, Solomon Islands Ministry of Environment, Climate Change, Disaster Management and Meteorology (MECDM),2012. http://www.gcca.eu/sites/default/files/catherine.paul/si_climate_change_policy.pdf

Storey, D. & Hunter, S. (2010). "Kiribati: an environmental 'perfect storm'." *Australian Geographer* 41.2 (2010): 167-181.

Sutton-Grier, A. E. & Moore, A. (2016). "Leveraging carbon services of coastal ecosystems for habitat protection and restoration." *Coast. Manag*. 43,259–277.

Sutton-Grier, A. E., Gittman, R. K., Arkema, K. K., Bennett, R. O., Benoit, J.,Blitch, S., et al. (2018). "Investing in natural and nature-based infrastructure: building better along our coasts." *Sustainability* 10:523. doi: 10.3390/su10020253

Theisen, O. M., Gleditsch, N. P. & Buhaug, H. (2013). "Is climate change a driver of armed conflict?" *Climatic Change*, *117*(3), 613-625.

Thorne, B. (1993). "Gender Play: Girls and Boys in School." Oxfordshire: Rutgers University Press.

Titus, J. G. (1989). "Sea level rise. Potential Effects of Global Climate Change on the United States." Edited by J. Smith and D. Tirpak. Washington, DC: Environmental Protection Agency.

Usher, R. (1996). "A critique of the neglected epistemological assumptions of educational research." In D. Scott and R. Usher (eds.), *Understanding Educational Research* (pp. 9-32). NewYork: Routledge.

Wainwright, E. (2003). “Responding to state failure—the case of Australia and Solomon Islands.” *Australian Journal of International Affairs*, *57*(3), 485-498.

Ware, Helen. (2005). "Demography, migration and conflict in the Pacific." *Journal of Peace Research* 42.4 (2005): 435-454.

Warner, K., Ehrhart, C., Sherbinin, A. D., Adamo, S. & Chai-Onn, T. (2009). “In search of shelter: Mapping the effects of climate change on human migration and displacement.” United Nations University, Institute for Environment and Human Security.

Warrick, R.A. & Oerlemans, J. (1990). “Sea Level Rise.” Pp. 257-281 in *Climate Change – The IPCC Scientific Assessment 1990.* Editor unknown. Cambridge: Cambridge University Press.

Weisser, F. et al. (2014). "Translating the ‘adaptation to climate change’ paradigm: the politics of a travelling idea in Africa." *The Geographical Journal* 180.2: 111-119.

Wellstead, A. M., M. Howlett, M., and J. Rayner. (2013). “The neglect of governance in forest sector vulnerability assessments: structural-functionalism and "black box" problems in climate change adaptation planning.” *Ecology and Society*, 18(3): 23.

White, I. & Falkland, T. (2010). “Management of Freshwater Lenses On Small Pacific Islands.” *Hydrology Journal* 18: 227-246.

World Bank (2016). “Solomon Islands.” Retrieved from http://data.worldbank.org/country/solomon- Islands. Accessed 02/13/16

Wright, N. (2013). “Small Island Developing States, disaster risk management, disaster risk reduction, climate change adaptation and tourism.” A Background Paper Contributing to the Global Assessment Report on Disaster Risk Reduction (GAR). Geneva: UNISDR.

Yapa, L. (1996). “Improved seeds and constructed scarcity.” *Liberation Ecologies: Environment, Development, and Social Movements*, 69-85.

Zimmerer, K. S., Peet, R. & Watts, M. (1996). “Discourses on soil loss in Bolivia. Sustainability and the search for socioenvironmental middle ground". *Liberation Ecologies: Environment, Development, Social Movements.*, 110-124.

APPENDIX A: RESEARCH APPLICATION

Form: RA
Date received

Approved Yes / No
Date of decision
Research permit no

SOLOMON ISLANDS
RESEARCH APPLICATION

1. **Applicant details**

First Name	Last Name
Adam Christopher	Ereth

Gender M/ F	Nationality	Contact email
M	US. Citizen	aereth@email.sc.edu

Home Address	Contact Home Phone
303 S. Saluda Columbia, SC 29205	(714)423-0578

2. **Research Details**

Home Institution associated with research (University or organisation)	Faculty Name
University of South Carolina Arnold School of Pubic Health Environmental Health Science	Dissertation Chair: Dr. Dwayne Porter
Supervisor/ Faculty contact name	Supervisor contact email
Dr. Dwayne Porter	porter@sc.edu

3. **Proposed Research Details**

Field of Study	Research Title
Climate Change Adaptation/ Hazard Vulnerability	Relocation as a Political Adaptation to Climate change and Economic Vulnerability in Choiseul Province, Solomon Islands

Research Funding Source	Amount of funding	Will this research be associated with business or profit?
Self-funded	N/A	No

Host University / Institution /Organisation (in Solomon Islands)	Contact details of Solomon Islands Host University/ Institution /Organisation
SINU	Dr. Hugo Bugoro / hugo.bugoro@sinu.edu.sb

Length of project	Proposed start date	Proposed finished date
8-12 weeks	Jan. 10th, 2019	May 24th, 2019

Intended location/s in Solomon Islands to conduct research Province/s, town/s, villages, ocean etc (attach details if insufficient space)
1) Honiara government offices, 2) Choiseul Province government offices 3) Taro Township 4) Sipozae Island 5) Surrounding villages around Taro Township as permitted/if needed

Overview of Research Synopsis (summary only, less than 50 words) (please attach full proposal)
• Main points only This research is aimed toward a better understanding of how people (including their government) navigate the process of relocating due to climate change. Moreover, this research focuses on how decisions are made and when a move takes place in this context.

4. Additional Researchers

How many people will be conducting this research?

Please include list of name of any additional research personnel who will be conducting this research (attach list if needed)

First Name	Last Name	Gender M/F	Nationality
←	NA	→	
	↓		

Methodology of Research
This research is focused on semi-structured interviews with central and provincial goverment officials, residents in and around Taro Township, and NGOs cooperating in the relocation. Interview data that are collected will be situated in theory to help the Solomons and the world better understand climate change decision-making.

5. Ethics Issues

Has ethical approval from appropriate body in Solomon Islands been gain (☐ Yes) Pending ☐ No — As of 30 October, the Ministry of Health is processing my application. The application may be approved in the coming days. Please inquire with Freda Pitakaka at Freda.Pitakaka@moh.gov.sb

Is this research likely to result in sensitive information? ☐ Yes ☒ No ☐ Unsure

This research be accessing children or vulnerable person/s ☐ Yes ☒ No ☐ Unsure

This research will be accessing plant or animal life ☐ Yes ☒ No ☐ Unsure

If yes, to any of the above please attach details of all protection measures to be applied

Indicate if this research will use ☒ Filming ☒ recording ☒ Photography Others: ← Per Consent form: Filming, recording and/or Photography not for Publication

☐ Collecting samples If samples tick ☐ live ☐ dead

Note that all person/s who may be directly involved with vulnerable persons must include have a police clearance from home country

6. Logistics in Solomon Islands

Details of accommodation and travel arrangements in Solomon Islands (Detailed logistics can be attached)
My lodgings in the Solomons will likely be at the Royal Tanuli Plains Hotel in Honiara, and the ES Lodge in Taro Township during this research. Travel arrangements will be made upon acceptance.

Please send all correspondence relating to research in the Solomon Islands to research@mehrd.gov.sb

7. **Research Results**

Detail how, when and with whom the research results be used and results/data shared?

Research results and data will be used primarily for writing my PhD dissertation and publication(s) in the international journals. During that course of development, I will be in contact with my PhD chair, Dwayne Porter, who may take part in developing the research. I forsee this research concluding approximately 6-8 months after I return from the Solomons.

List the benefits of this research to the Solomon Islands

- Developing a better understanding of climate change outcomes as it relates to adaptation and decision-making.
- How government and society interact to produce solutions to common problems, and to identify areas of contention that may hinder decisions.
- To better understand economic opportunities that may emerge as the result of intra/interregional migration/opportunity, and more.

Detail how, when and with whom the research results be shared directly with relevant people in the Solomon Islands prior to leaving the country.

- This research follows the highest standard of ethics from the University. Interviewees will be made well-aware of the purpose, scope, benefits and potential risks as set forth in the attached Informed Consent Form. Interviewees will be given the option to review their comments at any point during the research and to provide corrections if necessary via in-person or by email after the notes are transcribed. As the research develops post-fieldwork, I will be contacting interviewees with progress updates. Additionally, I will adhere to the MEHRM standards and communication protocols at this time and through the duration of research until completion.

*Note: A copy of the final report, paper and results must be submitted to research@mehrd.gov.sb

Please attach Curriculum Vitae ☑ Research Proposal ☑

I understand the Principles and Values of Academic Integrity in Research and am obliged to comply with the Research Act 1982 during the entirety of this research.

I agree to provide a final draft report for approval prior to publication.

I am aware that any approval for the research activity will be immediately be withdrawn and the activity terminated if I engage in any misconduct while undertaking this research.

I am aware that if my action contravenes the law, I may also be liable for prosecution.

Applicant's Signature [signature] Date 29 October 2018

Supervisor's Signature Dwayne E Porter Date 9 October 2018

Please send all correspondence relating to research in the Solomon Islands to research@mehrd.gov.sb

APPENDIX B: SINU SUPPORT LETTER

Solomon Islands National University
Office of Research and Post graduate Studies
Kukum Campus
P O Box R113, Honiara, Solomon Islands

Phone: (677) 20101/30111 Email: researchoffice@sinu.edu.sb

29th October, 2018

To whom it may concern

Dear Sir / Madam,

I have read the research documents that pertain to Adam Christopher Ereth, PhD Candidate in the Arnold School of Public Health at the University of South Carolina, USA. His research project entitled, “Relocation as a Political Adaptation to Climate Change and Economic Vulnerability in Choiseul Province, Solomon Islands,” is not only timely in terms of what the research aims to uncover with human response to climate change stressors, but is crafted in such as way so as to uphold the highest form of ethics and morals that accompany doctoral research. As you will see in his application, he is familiar with high-quality research undertakings, and is eager to have Solomon peoples participate in the next step in climate change research. I believe his presence in the Solomons will be of great benefit to us as well as many of our island neighbors.

I support Mr. Ereth’s research without reservation and recommend him to you with the full support of SINU. I wish you well in your decision with his application, and to him for the level of important work he aims to do. Please let me know if you have any questions and I will be more than happy to answer them.

Very respectfully,

Dr. Hugo Bugoro
Acting Director of Research
Solomon Islands National University
Honiara.

APPENDIX C: STUDY DESCRIPTION/JUSTIFICATION

Study Title: **Relocation as a Political Adaptation to Climate Change and Economic Vulnerability in Choiseul Province, Solomon Islands**

Principal Investigator Name: Adam Christopher Ereth

Faculty Mentor Name (if applicable): Dwayne Porter, PhD

A. SPECIFIC AIMS

In this relocation, businesses, families, and government are slated to leave the low-lying island across the waterway where the government has bought land to reconstruct their capitol. Here, planning firms from Australia and New Zealand have done the preliminary work drafting GIS maps and have scoped for various locations for economic activity. In my opinion, the existing data are deficient, and the documents leave more questions than answers as to how this migration/displacement will take place and what the long-term effects will be.
Moreover, this move sits at the crux of political governance/political ecology, migration planning, climate change adaptation, hazards mitigation, and natural resource conservation.

What makes this research novel (per personal communication from IPCC chapter writer, Jon Barnett, at the Univ. of Melbourne) is its aim to fill a rather large research gap related to *when* people move, and under what conditions at various scales. I am of the belief that even moderate findings here will greatly enhance the IPCC's understanding of this issue, and may be more broadly applied throughout the South Pacific, and beyond. Additionally, there is still fuzziness about what types of migration pathways emerge in different areas that face climate change, and the Taro Township is no exception. What makes Taro a more-than-formidable site is it being the capitol for the Province, and it is the first time in human history that a capitol is being formally relocated in advance of perceived changes in the climate, and (to a lesser degree) short-term weather-related hazards. To this degree, I am focused on answering, "*How do residents, NGOs, and government agencies and their agents envision points of need and opportunity, and perceive advantages and disadvantages associated with the relocation plan for Taro?*"

B. BACKGROUND AND SIGNIFICANCE

The research and interview questions that I propose here stem from a rather large literature gap concerning the world's understanding of what prompts the movement of people when climate stressors of varying degrees compound existing social, economic

and political presures. According to climate change and sustainable development program coordinator, Carlo Carraro, there is a need to understand not only the causes that spur movement, but the whole migration process when movements take place (Carraro 2015). The IPCC 5th Assessment Report supports this claim, indicating that climate change is projected to increase pressure with the displacement of people, but needs to be addressed through "the complex interactions that mediate migratory decision making by individuals or households, establishment of a relation between climate change and intra-rural and rural-to-urban migration, observed or projected, [which] remains a major challenge" (Dasgupta et al. 2014, 617)

The IPCC also notes that populations of people living in developing countries with low economic income (like those in the Solomon Islands) often lack the resources to create fine–tuned plans for migration, and as a result, may experience higher levels of exposure to extreme weather events when compared to other countries that have a greater capacity to adapt (Dasgupta et al. 2014). Under these circumstances, climate change can indirectly lead to increased risk of violence and conflicts by way of amplifying well-documented drivers such as poverty and economic shocks (Nordas and Gleiditsch 2007; Gleiditch 2012; Hsiang, Burke & Miguel 2013; Theisen, Gleditsch & Buhaug 2013). Moreover, changes to the environment may lead to the inability for human ingenuity and government function to keep up with varying levels of environmental stress (Homer-Dixon 1999, 2000), especially in many least-developed countries in Oceania.

With that said, the Taro Township, its residents, and more broadly throughout Choiseul Province serve as sites to help discover some of these complex socio-political issues manifest in the climate change relocation plan. However, many people in and around the Taro Township (and a wide variety of communities around Choiseul) feel that the relocation plan may not suit their interests. This observation is based on my preliminary interviews with 5 local Taro residents and 5 government officials during a pilot trip to Choiseul and Guadalcanal for three weeks in June 2015. The Integrated Climate Change Risk and Adaptation Assessment to Inform Resettlement Planning in Choiseul Bay, Solomon Islands (ICCRAA) mentions community engagement in several areas throughout the document (reference pages 20-22), and the research team seems to have adhered to a fairly rigorous framework for engaging with the communities in and around Taro to explore the viability of relocating existing infrastructure and population.

In that vein, the Choiseul Bay Adaptation Plan mentions very pointedly that, "It will be impossible to fully mitigate risks on Taro Island in the short or long term. Only the progressive relocation to the mainland would address [Taro's] risks associated with present and future tsunami events and severe coastal storms" (Haines and McGuire, 2014, 7). However, based on the interviews that I conducted during my pilot trip, there are still elements to address concerning some members of the community that feel their voice has been left out of the decision-making process, and with the amount of decision-making outcomes for imagining new and emerging economies in and around the new provincial capital as the resettlement moves forward.

Most of the verbiage in the ICCRAA document focuses on community empowerment in the decision-making process, but there are some areas of the document that remain questionable as to how some voices were heard, including one of the project objectives that “Stakeholders and community members have an *in-depth understanding of the purpose and benefits* of the project and feel their views have been incorporated into the project outputs” (21). Certainly, people who are feeling the changes on the ground are the ones who will give climate change adaptation “context-specific meanings, and thereby mould and modify the idea of adaptation according to their own interests" (Weisser et al. 2014, 112). In this case, the voices from many Taro residents -and the Choiseul people more broadly- have not been fully registered in the preliminary design or the scoping process for the proposed capital on the main island of Choiseul. If so, the proposed relocation warrants further exploration to solicit the finer resolution of responses residents may have to add to the planning process, especially with how plans have been framed thus far with the formalized plans for the relocation.

C. PRELIMINARY STUDIES

My fitness for performing this research stems from a long history of environmentalism, conservation, and justice-based research in my profession. Throughout my academic career, I have always made it a point to conduct research that bridges the physical world with human well-being. This can be seen in my previous research on viable options to restructuring the tuna fishing industry in the Pacific Ocean, improvements to the farming practices and sustainable development of the Malagasy, ecosystem productivity and sustainability with the California coast kelp forests, non-profit work with coastal resource management in Orange County, CA, and academic work on the developmental and environmental security of out-migration on the islands of Kiribati and Tuvalu. These topics, including the one currently under investigation, have a great bearing on my long-term research interests, but have an even greater effect on me as a human being and what I aim to give back to the world. I am a firm believer that research should always be of direct benefit to my fellow human, and so much the better if the research can lead to long-term sustainability with the environment.

This nexus between my personal and professional interests is also framed by the array of literature that I have incorporated into my research. I have come to understand that there are not only increased interests in the research community to tackle some of these issues, but there is also a greater need of people who aim to actively engage with people facing these problems and advocate with them on the international policy and academic stages. Given my multi-disciplinary background of holding a B.A. in Geography and History with an emphasis in cultural analysis, an M.A. in Geography with an emphasis in environmental security, and a current pursuit of working on a PhD in Environmental Health Science, I believe that my research interests can serve the Solomon peoples well in co-producing dialogues about what options may be available in the future.

At the present moment, I have a suitable network connections within Choiseul and Guadalcanal (Honiara) Provinces. Given the current level of connections that I have with the communities of the Solomon Islands in the proposed study area, there is little, if any,

power that I hold over them other than through my academic publishing on matters concerning the challenges they face regarding climate change. Moreover, I have established firm-founded working relationships that show great promise to carry on with this research after my piloting trip in the summer of 2015.

D. RESEARCH DESIGN AND METHODS AND DATA ANALYSIS

Location: See Below

Data Collection: Semi-structured interviews: Between government officials, citizens and members of NGOs working in Choiseul, the semi-structure interview method will help probe individual thoughts on climate change migration, as well as reveal multiple viewpoints with carrying out migration policy. The semi-structured data collection method carries with it the ability to create an interpersonal rapport with the interviewees, as well a greater chance of networking and reaching out to others through snowball sampling. In the context of interviewing government officials and NGOs, there is also a likelihood that additional documents and reports will be offered to help supplement the research project.

As previously mentioned, the research I would perform will be on par with 5-10 interviews of government officials who are working on elements of migration planning on Taro or remotely in Honiara, 30-40 interviews with citizens who are interested in asserting their opinions on the migration discourse, and 5-10 interviews with NGO and/or ENGO project managers working specifically on the islands of Choiseul.

Data Analysis: Bogdan and Bilken (1982) suggest that data analysis include not only the coding of information by looking for patterns and topics, but a coding of categories that serve as crucial steps involved in working with qualitative data. In this vein, I aim to categorize my data around several strategies to extrapolate meaning. These will include:

- *Setting of Context Codes* under which general information on the setting, topic(s), and subjects can be organized (Bogdan and Bilken 1982). This will allow me to situate the research into a much larger context, such as: general thoughts about climate change, thoughts on program effectiveness, and identification of alternative home sites.

- *Definition of the Situation Codes* geared towards placing various units of data within the context of how the respondents/subjects define the setting and particular topics (Bogdan and Bilken 1982). Further, this reemphasizes the worldview of the respondents and how they view themselves in relation to the topics being discussed. Essentially, this strategy will help code information that underpins what the respondents think are important, and help reinforce the critical theory in which this research is grounded.

- *Relationship and Social Structure Codes* can be used to find regular patterns of behavior that will direct me to the types of coalitions, cliques, enemies, and more broadly, relationships that underpin much of the focus of this study (Bogdan and Bilken 1982). This type of coding helps organize the data such that it may show correlations between the positions and roles that various actors play within the climate-induced migration discourse, and to help inform the gaps where peoples' voices may not be heard.

By no means exhaustive, these are just a few of the strategies to help analyze the data after it has been gathered. Other forms of coding categories may include perspectives held by subjects, subjects' way of thinking about people and objects, process codes, and activity codes. While using these codes, I believe this will inform several areas of my methodological approach. One of the goals in this study is to understand phenomena within the research paradigm by way of comparing providing insights into these (climate-induced migration) issues, and to redraw generalizations that can be made about the overlap in stakeholder involvement in the adaptation-migration and socio-political nexuses. In other words, I believe these coding strategies will directly inform the questions that I am asking within this research that are focused on understanding the changes, adaptations and roles that stakeholders reinforce while (re)creating and (re)planning organization and understanding around the climate-induced migration policies.

Moreover, the coding strategies presented here are categorized to inform a variety of theories and frameworks I will be using to couch this research. For example, relationship and social structure codes can be used to identify positions and roles that various actors play. Their positions on changes taking place with the relocation project will show points of potential conflict and compliance, and dominance and resistance as theorized in the KIFPA by Eriksen, Nightingale and Eakin (2015). Similarly, these potential points of conflict that arise in the legitimacy of knowledge and authority in KIFPA further illuminate features in the mobilization moment as seen in Weisser et al. (2014). It also shows the flow of how the mobilization of an idea after the roles are assumed through interressement of actor legitimacy is established.

E. PROTECTION OF HUMAN SUBJECTS

1. TARGET POPULATION:

Between government officials, citizens and members of NGOs working in Choiseul or remotely in Honiara, the semi-structure interview method will help probe individual thoughts on climate change migration, as well as reveal multiple viewpoints with carrying out migration policy. The semi-structured data collection method carries with it the ability to create an interpersonal rapport with the interviewees, as well a greater chance of networking and reaching out to others through snowball sampling.

In the context of interviewing government officials and NGOs, there is also a likelihood that additional documents and reports will be offered to help supplement the research project. As previously mentioned, the research I would perform will be on par with 5-10 interviews of government officials who are working on elements of migration planning, 30-40 interviews with citizens who are interested in asserting their opinions on the migration discourse, and 5-10 interviews with NGO and/or ENGO project managers working specifically on the islands of Choiseul.

Of note, I also believe it is suitable to interview citizens on Taro ages 18+. Often, adult-type labor and living starts early on the islands, and this demographic will likely be a part of the narrative of how and when the relocation should take place in the context of my interview questions. Moreover, I will be going to great lengths to interview an equal proportion of men and women on the islands so as to capture gendered responses concerning reactions to migration and the economic benefits and drawbacks from leaving Taro for the new capitol.

2. RECRUITMENT PLANS:

Potential subjects will be recruited through a network of people in Honiara and on Taro with whom I have a current professional relationship. These 10+ primary contacts include, but aren't limited to: provincial ministers, central government ministers, local businessman, chiefs, NGO workers, and villagers both male and female. Initially, I will conduct interviews with all of my primary contacts. From those interviews I will ask each of my primary contacts for the names of several people whom I might benefit from their involvement in the interview process. I will select a sub-set of those referrals to interview from that composite list of names. This will 1) expand the network of people away from the primary contact with the effort of reaching diverging viewpoints, and 2) to have additional back-up names in the event of respondents falling out of interest.

Please note in section E.1 that I will be *conducting 5-10 interviews of government officials who are working on elements of migration planning, 30-40 interviews with citizens who are interested in asserting their opinions on the migration discourse, and 5-10 interviews with NGO and/or ENGO project managers working specifically on the islands of Choiseul*. Because of this divergence in number of respondents per category (see Appendix A – Interview Questions), I will pay close attention the names that are given. In other words, I may need to conduct interviews within a range in an effort to 1) crystallize the findings per category, and 2) gather enough data to inform the research theories discussed briefly at the end of Section D.

In a similar vein, this research aims to bring a wide variety of perspectives to the table by utilizing snowball and stratified purposeful sampling methods. In terms of the actual participants, the requisites for participation in the study will go as follows once recruitment begins:

- In the case of chiefs and citizens 18+ years of age, the requirement for their participation is predicated on their desire to share their perspectives, and

understanding their rights and giving informed consent. The focus of the research is having their voices heard, so desire to share their thoughts on climate-induced migration and emerging economic pathways frames the requisite of their involvement in the project beyond the aforementioned age restrictions.

- In the case of government workers/leaders, the requirement for their participation is founded on their official role and involvement in various projects dealing specifically with the climate-induced migration debate in addition to giving informed consent. Similarly, government officials involved in ENGO and NGO programs focused on in situ adaptation on the islands may be called upon as well to reinforce notions of overlap in adaptation, migration and development planning trajectories.

- In the case of ENGO and NGO workers, the requirement for their involvement is based on the authority they are entrusted with to carry out the various missions from their respective organizations in addition to giving informed consent. ENGO and NGO project managers make the most suitable participants in this category due to the fact that they carry potential weight with the connection they have with higher-ups in the organization, and/or they wield the power to (re)direct project funds to alternative pathways of assistance if proven viable.

3. EXISTING DATA/SAMPLES:

Not Applicable

4. CONSENT/ASSENT:

Consent for participation centers on explaining the purpose of the research and how the data will be used. I will ask on a recording device whether or not the interviewee agrees with this information, as well as how I will be 1) masking their name in the research, and 2) how I will be handling the data in a secured and pass coded external drive and/or multi-step authentication cloud server. If the potential interviewee agrees, I will mention that we can proceed, but that they do not have to answer any sub-questions they feel uncomfortable answering, and that the interview can stop at any time for any reason.

5. POTENTIAL RISKS:

In the case of ***beneficence*** – a requirement that the risks of harm associated with research are reasonable in relation to the potential benefits – attached to several ideas posed by Hemmings (2006), there are a couple ways in which participants in this study may become targeted with greater media attention. One can assume that this targeting may take shape by way of factions in the international community potentially deriding the nearsighted actions of NGOs and government officials who may not be perceived as putting enough energy into the voices of disenfranchised populations participating in the climate-induced migration debate. However, I will be masking the names of the interviewees in this research, so it will be nearly impossible to know one person from

another in the final documents other than government officials who are charged with speaking on behalf of their respective departments. However, government officials will be given the option of anonymity should they so choose.

Similarly, if not framed correctly on the international stage, extra media attention geared towards the apocalyptic and/or canary in the mineshaft perspective may perpetuate the cycle of victimization that several atoll island residents may come to expect from similar attention. Here, the risk is inherent in the subject of the research, but the potential benefits may be easily outweighed if the final product maintains constant elements of beneficence, justice, and respect for persons. Again, respondents in this study will have several opportunities to provide additional input as needed.

6. POTENTIAL BENEFITS:

Though this research is not specifically geared towards policy change, the deeper and more equitable expansion of the discourse around the climate-induced migration debate shows great possibilities of informing political decisions. Very little qualitative and quantitative research has been performed on the islands around Choiseul Province, and as such, few research projects have tackled the issue of increasing stakeholder involvement in the climate-induced migration debate in the region. This vacuum has left innumerable spaces of opportunity for exchanging ideas regarding climate-induced migration and relocation, as well as unknown opportunities for investment into the changing cultural landscape.

Overall, the research that I will perform creates the aforementioned space(s) that can be used in the future to help redeliver messages that need to be communicated by residents vested in the migration debate. The research reinforces notions of empowerment and equity, and contributes to the practice of increasing lines of communication between people who are currently working along-side, but not often in conjunction with each other due to social, economic, structural and political barriers. In other words, I believe that there are many precedents that can be set in this research based on the *limited amount of research* that has been performed in Choiseul.

7. CONFIDENTIALITY

I will actively seek to abide by the principals of confidentiality and anonymity. It will not only be important to abide by the standard IRB guidelines, but to take extra measures to protect the sources and raw data generated from interviews during the course of the study. In this regard, I propose storing interview data to an external hard-drive that is password encrypted and/or multi-authentication cloud server. In the case of the external hard-drive and cloud server, I will have passwords required to access all files, but also secondary passwords set to access individual files within the drive. Interview information will remain confidential, but will still allow me to maintain the ability to follow up with interviewees if needed.

8. COMPENSATION:

I will be compensating all non-government workers $10 USD (approx $75 Solomon Island Dollar/SID) per interview upon completion of the interview session. This sum is a modest cost for me considering the number of non-government interviewees I will be working with. However, given the conversion rate from SID to USD, this is worth approximately 1.6 days worth of PPP as a function of GNI per annum in Solomon Islands. In other words, it gives the current equivalent of 1.6 days worth of purchasing power after the SID to USD conversion. I do not believe this sum will be large enough to unduly influence people to participate in this study, but may attract attention in the village(s) so that interviews are easier to conduct with increased interest in the project.

9. WITHDRAWAL:

In the event that a respondent wants/needs to withdraw from the interview, there will be no compensation. Additionally, those who start the interview but do not finish will be entitled to have their data struck from the record. In the event that an interviewee wants to complete the interview but cannot for some reason, I will allow them to finish the interview at a time that is mutually agreeable. From there, they will be paid the aforementioned sum.

**For additional explanation, please refer to the INFORMED CONSENT FORM in the Appendix*

Seen below are the interview questions and interviewee sectors. Rows correspond to interview questions, and Columns 1-3 indicate the sector I will be interviewing. Column 4 is the research theme that will emerge once columns 1-3 are answered.

APPENDIX D: IRB HUMAN RESEARCH EXEMPTION

Office of Research compliance

INSTITUTIONAL REVIEW BOARD FOR HUMAN RESEARCH

APPROVAL LETTER for EXEMPT REVIEW

Adam Ereth

303 S. Saluda

Columbia, SC 29205 USA

Re: Pro00082214

Dear Mr. AdamEreth:

This is to certify that the research study ***Relocation as*** **a Political Adaptation to Climate Change and Economic Vulnerability in Choiseul Province, Solomon Islands** was reviewed in accordance with 45 CFR 46.101(b)(2), the study received an exemption from Human Research Subject Regulations on **10/4/2018**. No further action or Institutional Review Board (IRB) oversight is required, as long as the study remains the same. However, the Principal Investigator must inform the Office of Research Compliance of any changes in procedures involving human subjects. Changes to the current research study could result in a reclassification of the study and further review by the IRB.

Because this study was determined to be exempt from further IRB oversight, consent document(s), if applicable, are not stamped with an expiration date.

All research related records are to be retained for at least three (3) years after termination of the study.

The Office of Research Compliance is an administrative office that supports the University of South Carolina Institutional Review Board (USC IRB). If you have questions, contact Lisa Johnson at lisaj@mailbox.sc.edu or (803) 777-6670.

Sincerely,

Lisa M. Johnson
ORC Assistant Director and IRB Manager

APPENDIX E: INTERVIEWEE CONSENT FORM

UNIVERSITY OF SOUTH CAROLINA

CONSENT TO BE A RESEARCH SUBJECT

"Relocation as a Political Adaptation to Climate Change and Economic Vulnerability in Choiseul Province, Solomon Islands"

KEY INFORMATION ABOUT THIS RESEARCH STUDY:

You are invited to volunteer for a research study conducted by Adam Christopher Ereth. I am a doctoral candidate in the Arnold School of Public Health's *Environmental Health Science Program* at the University of South Carolina. The University of South Carolina, Department of Public Health is sponsoring this research study. The purpose and main principal of this study is to better understand the Choiseul Bay Relocation Plan, how people make the decision to move to the new township, how climate change adaptation takes place in Choiseul, and to learn which economic opportunities result from a potential move. You are being asked to participate in this study because you are affiliated as a resident of Taro Township and its surrounding area, as an ENGO/NGO worker, and/or as a government official involved in Choiseul Province. This study is being conducted at government offices in Honiara, and at various locations in Taro Township and its surrounding islands and villages. This research will involve approximately 50 volunteers.

- The purpose of this research is to better understand the Choiseul Bay Relocation Plan and how stakeholders interpret the advantages and disadvantages associated with potentially relocating to the new township.

- Potential risks associated with participating in this research include revealing information related to economic, political, social and educational advantages and disadvantages associated with the relocation plan. In answering these questions, stakeholders may highlight their views on vulnerabilities associated with the relocation plan.

- There are several potential advantages subjects can expect from participating in this study. Firstly, this information can be used to better inform the decisions that are made in advance of construction for the new township. Secondly, the information collected from this study may help international

development managers better understand how and when adaptation takes place in similar contexts across the Pacific Islands. Lastly, the responses interviewees give during the course of this research will help scholars better understand the specific needs of Lauru peoples in the context of using the township for sustainable development as stated in recent reports from the Provincial and Central Government(s).

- This research is focused on face-to-face interviews, and as such, there are no alternative procedures or courses of treatment beyond collecting interview data. However, should you participate, you may have the option to choose between video recording or voice recording, accompanied by hand-written notes by the researcher.

This form explains what you will be asked to do, if you decide to participate in this study. Please read it carefully and feel free to ask questions before you make a decision about participating.

PROCEDURES:
The chronological order of this research should you choose to participate in this study goes as follows:

- Familiarizing you with the goals of this research.
- What this research aims to achieve.
- Which themes will be of interest to the researcher during the interview.
- What the benefits and potential risks are for participating in the study.
- Compensation and the length of time the interview should take place.
- How data will be treated before and after the conclusion of the interview (e.g. anonymity and data security).
- Availability for follow up questions and data checks after the interview.
- A request for the names of people you know who might take part in the study.
- When you can expect a forwarded copy of the research findings.

If you agree to participate in this study, you will do the following:

- Complete an interview about how you imagine the new township may or may not serve the needs of the Choiseul Province in the context of climate change adaptation, hazard mitigation, economic benefit, and vulnerability. During the course of this interview, you may be asked about how your process of decision-making may or may not have changed with news of the relocation as you understand it.
- Have your discussion/interview recorded in order to ensure the details that you provide are accurately captured. This may include video recording, or by voice recorder in addition to notes the researcher takes during the course of the interview.

DURATION:
Participation in the study involves (1) visit over a period of (1) day in most cases. Each study visit will last about (1) hour. Subsequent interviews may be necessary in some instances at a time that is mutually agreed upon. In this case, follow-up interviews will be planned in advance and treated as (1) interview in the notes, but may entail additional compensation for your time that is on par with the regular compensation rate.

RISKS/DISCOMFORTS:

Interviews:
It is possible that other people taking part in this research may hear what you say, and it is possible that they could tell someone. The researcher cannot guarantee what you say will remain completely private, but the researcher will ask that you, and all other members taking part in this research, respect the privacy of everyone who is involved. Please note that anyone who takes part in this research signs a copy of this consent form, including translators that may accompany the principal researcher at certain times. Signed forms are kept by the researcher, and the information that is collected from this study is kept private and in good faith.

Loss of Confidentiality:
There is the risk of a breach of confidentiality, despite the steps that will be taken to protect your identity. Specific safeguards to protect confidentiality are described in a separate section of this document. Please see COLLECTION OF IDENTIFIABLE PRIVATE INFORMATION and CONFIDENTIALITY OF RECORDS section below for a thorough review of how your interview data are treated.

BENEFITS:
Taking part in this study is not likely to benefit you personally. However, this research may help to better understand the context of adaptation decision-making when facing a potential relocation, and how those decisions shape the economic, political and cultural landscape. (insert brief explanation, being careful not to inflate the importance of the study).

COSTS:
There will be no costs to you for participating in this study other than your time. In most cases, the researcher will come to you to conduct interviews, and will bear the cost of transportation if it necessary.

PAYMENT TO PARTICIPANTS:
Each non-governmental interviewee who is 18 years of age and older will be paid for participating in this study. Compensation for an approximate (1) hour interview will be paid in cash with $75 SID (approximately $10 US) for participating in this study. Payment for your time is based upon spending approximately (1) hour of time answering the interview questions. If you opt-out during the interview before its conclusion, there will be no payment made. However, you are welcome to finish the interview should you choose to continue at a later time to receive the full amount listed above.

INCIDENTAL FINDINGS: There are no incidental findings expected from this research. The questions that are asked in interviews are meant to inform the main goals listed above.

COLLECTION OF IDENTIFIABLE PRIVATE INFORMATION:
Private information such as name, location, occupation, gender and age will be collected during the course of this research. Additionally, your responses during the interview(s) will be recorded and kept by the researcher. In managing this information, the researcher will keep the private information listed above in separate repositories and under password protection on multiple devices. For example, the personal information listed above will be kept separate from the interview data so that interviewees are unidentifiable to outside eyes.

COMMERCIAL PROFIT:

There is no commercial profit derived from this research.

CONFIDENTIALITY OF RECORDS:
Unless required by law, information that is obtained in connection with this research study will remain confidential. Any information disclosed would be with your express written permission. Study information will be securely stored in locked files and on password-protected computers, external drives, or multi-authenticated password protected cloud storage. Results of this research study may be published or presented at seminars; however, the report(s) or presentation(s) will not include your name or other identifying information about you unless you are a government agent speaking on behalf of your agency. Alternatively, government agents will be allowed confidentiality should they so choose.

RESEARCH RELATED INJURY:
Not applicable.

VOLUNTARY PARTICIPATION:
Participation in this research study is voluntary. You are free not to participate, or to stop participating at any time, for any reason without negative consequences. In the event that you do withdraw from this study, the information you have already provided will be kept in a confidential manner. If you wish to withdraw from the study, please call or email the principal investigator listed on this form.

I have been given a chance to ask questions about this research study. These questions have been answered to my satisfaction. If I have any more questions about my participation in this study, or a study related injury, I am to contact Adam Christopher Ereth at +001 (714) 423-0578, or email aereth@email.sc.edu.

Questions about your rights as a research subject are to be directed to, Lisa Johnson, Assistant Director, Office of Research Compliance, University of South Carolina, 1600 Hampton Street, Suite 414D, Columbia, SC 29208, phone: +001 (803) 777-6670 or email: LisaJ@mailbox.sc.edu.

I agree to participate in this study. I have been given a copy of this form for my own records.

If you wish to participate, you should sign below.

______________________________ ______________________
Signature of Subject / Participant Date

____ ______________________
Signature of Qualified Person Obtaining Consent Date

APPENDIX F: MEHRD RESEARCH PERMIT

Solomon Islands Government
Ministry of Education and Human Resources Development
P O Box G 28
Honiara, Solomon Islands

Ph: (677) 24664
Fax: (677) 22042

Our Ref: 19/19

Date: 4th July 2019

In Accordance to the Research Act 1982 (No. 9 of 1982) RESEARCH PERMIT:

Permission is hereby given to:

1. Name (s): Adam Christopher Ereth
2. Country: United States
3. Research Subject Areas: Climate Change Adaptation/ Hazard Vulnerability – Relocation as a Political Adaptation to Climate Change and Economic Vulnerability in Choiseul Province, Solomon Islands
4. Ward (s): Honiara, Taro, Zupizae Island and surrounding villages around Taro Township
5. Provinces: Guadalcanal and Choiseul
6. Conditions:

   a. To undertake research only in subject areas specified in 3 above.
   b. T undertake research only in the ward (s) and Province (s) specified in 4 and 5 above.
   c. To observe with respect at all times local customs and the way of life of people in the area in which the research is carried out.
   d. Not to take part at any time in any political or missionary activities or local disputes.
   e. To leave (4) copies of your final research report in English with the Solomon Islands Government Ministry responsible for research at your own expense.
   f. A research fee of SBD500.00 must be paid in full or the Research Permit will be cancelled (See sec. 3 subject 7 of the Research Act).
   g. This permit is valid until **30th September 2020** provided all conditions are adhered to.
   h. No live species of plants and animals to be taken out of the country without approval from relevant authorities
   i. A failure to observe the above conditions will result in automatic cancellation of this permit and the forfeit of your deposit.

MINISTER
MINISTRY OF EDUCATION, HUMAN RESOURCES & DEVELOPMENT

Signed: ………………………………………………………………………
Minister of Education and Human Resources Development

Date: 5/7/19

APPENDIX G: CITI HUMAN RESEARCH CERTIFICATION

CITI PROGRAM

Completion Date 03-Sep-2018
Expiration Date 02-Sep-2021
Record ID 21335672

This is to certify that:

Adam Ereth

Has completed the following CITI Program course:

Human Research (Curriculum Group)
Social & Behavioral Researchers (Course Learner Group)
2 - Refresher Course (Stage)

Under requirements set by:

University of South Carolina

CITI
Collaborative Institutional Training Initiative

Verify at www.citiprogram.org/verify/?wb2888376-d9e4-40c8-b444-9e817e773a8f-21335672