

## Lincoln University Digital Thesis

### Copyright Statement

The digital copy of this thesis is protected by the Copyright Act 1994 (New Zealand).

This thesis may be consulted by you, provided you comply with the provisions of the Act and the following conditions of use:

- you will use the copy only for the purposes of research or private study
- you will recognise the author's right to be identified as the author of the thesis and due acknowledgement will be made to the author where appropriate
- you will obtain the author's permission before publishing any material from the thesis.

**Assessing the value of approaches for Community Based Marine  
Resource Management (CBMRM) in Solomon Islands**

---

A thesis  
submitted in partial fulfilment  
of the requirements for the Degree of  
Master of Applied Science

at  
Lincoln University  
by  
Janet Naimalefo'o Saeni-Oeta

---

Lincoln University

2017

Abstract of a thesis submitted in partial fulfilment of the requirements for the Degree of Master of Applied Science.

Assessing the value of approaches for Community Based Marine Resource Management (CBMRM) in Solomon Islands

by

Janet Saeni-Oeta

In the field of environmental management, considerable attention has been given to developing tools to harness people and their skills and capacity to effectively govern natural resources. Because of the importance of people's capacity to influence the natural state of the environment and resources therein, researchers and practitioners have been trying to identify which mechanism could offer sound resource management at various levels. This research primarily investigated cases of successful and unsuccessful Community Based Marine Resource Management (CBMRM), particularly the 'ways of working' used by external partners that may influence the social behaviour of people in the community. Hence the approach was to particularly explore the ways in which community empowerment may be effective in the process of marine resource management. This has been achieved through studying three CBMRM communities in the Lau Lagoon, North Malaita, Solomon Islands. The study was centred around the CBMRM programmes focusing on three aspects: social constraints that rural Solomon Islands communities faced; intervention pathways that supported fisheries; and characteristics of places and interventions that appear to influence the probability of successful CBMRM engagements.

**Keywords:** Governance, Community Based Resources Management, Marine resources, Co-management, Collaborative management, Sustainability, Community, Lau Lagoon, Malaita Province, Solomon Islands.

## Acknowledgements

I wish to express my heartfelt thanks to all the people who have supported me during the course of this thesis. First of all, my sincere thanks to my supervisors, Dr. Hamish Rennie and Dr. Michael Shone, for guiding me throughout this challenging journey. I really appreciated all the comments, suggestions and the impartation of both your knowledge and expertise towards the completion of this thesis. Special thank you to both of you for understanding my family situations and giving me confidence to discuss freely about my research during our fortnightly and eventually weekly supervisory meetings.

I also extend my gratitude to my external advisor, Dr. Anne-Maree Schwarz, of the MSSIF program in the Solomon Islands Ministry of Fisheries and Marine Resources (MFMR) for her advice and guidance during the early stages of my research as well as prior to the data collection period.

I acknowledge the contribution of associated students at the Department of Environmental Management (Lincoln University) and my former colleagues at WorldFish Solomon Islands who have provided constructive comments and words of encouragement. I also extend my thanks to the Faculty of Environment, Society and Design at Lincoln University for funding a large portion of my research expenditures. Had it not been for their financial support, my research would not be carried out successfully.

My sponsor, New Zealand Aid (NZ Aid), gave me a scholarship and provided funds for my fieldwork. I will always be grateful for you giving me the opportunity to pursue my dream. Also a big thank you to Ms. Sue Bowie from the Lincoln University Scholarships Office, you have been so kind to me since I arrived in 2015. Thank you so much.

Many thanks to the community leaders in the three case study communities in Malaita Province for allowing me to carry out my research in your communities. I also thank those community members who have assisted me in one way or the other when I was out in the community to collect data. Above all, I give my greatest appreciation to those research participants who agreed to be interviewed. Without you, this research would not have taken place.

Lastly, I am very grateful to my family especially my husband, my mum and dad, my mother-in-law, and my two cousins sisters, Rose and Tina, for all their support, in looking after my young children in my country while I was away from them. I am also grateful to my late brother who made me believe in the usefulness of education. Their prayers and faith have been the essence of my strength and inspiration.

# Table of Contents

<b>Abstract</b> .....	<b>ii</b>
<b>Acknowledgements</b> .....	<b>iii</b>
<b>Table of Contents</b> .....	<b>iv</b>
<b>List of Tables</b> .....	<b>vii</b>
<b>List of Figures</b> .....	<b>viii</b>
<b>Chapter 1 Introduction</b> .....	<b>1</b>
1.1 Research aims and questions.....	1
1.2 Problems, issues and justification for the study .....	2
1.3 Researcher’s interest .....	3
1.4 Structure of thesis.....	3
<b>Chapter 2 Research Theory</b> .....	<b>5</b>
2.1 Introduction .....	5
2.2 Governance .....	6
2.2.1 Definition.....	6
2.2.2 Concept .....	6
2.2.3 Forms of governance .....	7
2.3 Regimes in marine resource management.....	7
2.3.1 State property regime.....	7
2.3.2 Private property regime.....	8
2.3.3 Common property regimes.....	8
2.3.4 Non-property regimes (open access).....	9
2.3.5 Hybrid regimes.....	9
2.4 Community Based Resource Management (CBMRM).....	9
2.4.1 Definition.....	9
2.4.2 Concept .....	10
2.4.3 Why CBMRM is used and or promoted?.....	11
2.4.4 Features of CBMRM .....	12
2.4.5 Strengths of CBRM .....	12
2.4.6 Weaknesses of CBRM.....	13
2.5 Co-management governance.....	14
2.5.1 Definition.....	14
2.5.2 Concept .....	15
2.5.3 Why is co-management governance used and or adopted? .....	16
2.5.4 Features of co-management governance .....	17
2.5.5 Strengths of co-management governance.....	17
2.5.6 Weaknesses of co-management governance .....	18
2.6 Solomon Islands Resource Management, Past and Present .....	19
2.6.1 CBRM social issues .....	19
2.6.2 Changing phase - past and present.....	20
2.6.3 Where is CBMRM now in the Solomons? .....	22
2.7 Summary chapter.....	23
<b>Chapter 3 The Study Background: Human and Physical</b> .....	<b>25</b>

3.1	The human setting .....	25
3.1.1	Socio-demographic features .....	25
3.1.2	The social background.....	25
3.1.3	Political background.....	28
3.1.4	Economic background.....	29
3.2	The physical setting.....	29
3.2.1	Location, topography and climate .....	30
3.2.2	The case study community setting .....	34
3.3	Chapter summary .....	39
<b>Chapter 4 Research Methodology .....</b>		<b>41</b>
4.1	Introduction .....	41
4.2	Research questions elaborated .....	41
4.3	Research strategy.....	42
4.3.1	Qualitative research .....	42
4.3.2	Case study approach .....	43
4.3.3	Case study design.....	44
4.4	Data collection .....	45
4.4.1	Semi-structured interviews.....	46
4.4.2	Focus group discussions and interviews .....	47
4.4.3	Personal observation .....	47
4.5	Field research procedures.....	47
4.6	Sampling strategies.....	47
4.6.1	Data triangulation .....	49
4.7	Ethical considerations .....	49
4.8	Data analysis and interpretation .....	50
4.9	Constraints and limitations .....	51
4.10	Chapter summary .....	52
<b>Chapter 5 Results: Constraints and facilitators of sustainable marine resource management....</b>		<b>53</b>
5.1	Introduction .....	53
5.2	Constraints that rural Solomon Islands has faced in facilitating sustainable marine resource management.....	53
5.2.1	Cultural norms: Gendered roles.....	53
5.2.2	Cultural change .....	56
5.2.3	Community disconnectedness .....	58
5.2.4	Structural constraints and restrictions.....	62
5.3	Successful factors that facilitate sustainable marine resource management in rural Solomon Islands .....	66
5.3.1	Multiple forms of livelihoods .....	66
5.3.2	Behavioural and mentality changes.....	67
5.3.3	Social cohesion and community cooperation .....	68
5.3.4	Genuine community leadership.....	69
5.4	Features that failed to facilitate or achieve successful marine CBNRM interventions .....	70
5.4.1	Issues related to resource ownership .....	70
5.4.2	Selective participation approach .....	73
5.4.3	Limited community support for external partners .....	74
5.4.4	Competing priorities .....	74
5.4.5	Limited Government and NGO support.....	75

5.5	Features that facilitates successful marine CBNRM interventions.....	78
5.5.1	Inclusive leadership.....	78
5.5.2	Community empowerment.....	79
5.5.3	Community acceptance of CBMRM .....	80
5.5.4	NGOs visits and relations .....	80
5.6	Chapter summary .....	81
<b>Chapter 6 Discussion.....</b>		<b>83</b>
6.1	Introduction .....	83
6.2	Revisiting the assumption.....	83
6.3	Remembering the objectives .....	86
6.3.1	Assessment of co-management arrangements of marine CBNRM in the Solomon Islands .....	87
6.3.2	Assessment of marine CBNRM interventions success and failure factors.....	89
6.3.3	Recognizing the relationships between locals and external partners .....	91
6.4	Chapter summary .....	93
<b>Chapter 7 Conclusion and Recommendations .....</b>		<b>94</b>
7.1	Introduction .....	94
7.2	Answering the research questions.....	94
7.3	Key findings and recommendations .....	95
7.4	Future Research .....	96
7.5	Chapter summary .....	96
<b>References .....</b>		<b>97</b>
<b>Appendix A : Checklist of sample research interview questions.....</b>		<b>106</b>
A.1	Interview questions prepared for Funa’afou and Tauba .....	106
A.2	Interview questions prepared for Fumato’o.....	109
<b>Appendix B : Research timetable summary.....</b>		<b>113</b>
B.1	Interview schedule.....	113
<b>Appendix C : Field procedures .....</b>		<b>115</b>
C.1	Field research timetable .....	115
C.2	Actual schedule during field research – for July 2016 .....	115
<b>Appendix D : Copy of consent form .....</b>		<b>117</b>
<b>Appendix E : Copy of Research Information Sheet .....</b>		<b>119</b>
<b>Appendix F : Copy of cover letter for permission.....</b>		<b>121</b>
<b>Appendix G : Copy of recruitment letter .....</b>		<b>124</b>

## List of Tables

Table 1	The distribution of interviewees by the different categories.....	48
Table 2	Constraint factors faced by rural communities. ....	65
Table 3	Positive factors in the rural communities that facilitate sustainable resource management.....	70
Table 4	Factors that failed to facilitate successful marine CBNRM interventions. ....	78
Table 5	Factors that facilitate successful marine CBNRM interventions. ....	81
Table 6	Variables or factors identified by the research participants in the Results Chapter that would facilitates sustainable resource management.....	92



## List of Figures

Figure 2-1	Solomon Islands Ministry of Environment, Climate change, Disaster management, and Meteorology (MECDM) Map of CBRM sites. ....	23
Figure 3-1	Location of Malaita Province in the Solomon Islands.....	30
Figure 3-2	The Lau Lagoon, Malaita, and the location of the three case study communities (Funa’afou, Fumato’o and Tauba). ....	31
Figure 3-3	A smaller artificial island (part of the community of Tauba) in the Lau Lagoon. ....	33
Figure 3-4	Niuleni (part of the Funa’afou community), a larger artificial island in the Lau Lagoon, is build the same way as the small island in Figure 3.3. ....	33
Figure 3-5	The artificial islands comprising the community of Funa’afou in the Lau Lagoon. ....	34
Figure 3-6	The island of Manaoba in the Lau Lagoon.....	36
Figure 3-7	Part of the village of Fumato’o on the island of Manaoba.....	37
Figure 3-8	Tauba Asi – one of the hamlets that is part of the community of Tauba.....	38
Figure 7-1	Interview schedule with research participants. ....	113
Figure 7-2	Proposed schedule for the fieldtrip – May 2016.....	115
Figure 7-3	The actual schedule during the field research .....	115

# Chapter 1

## Introduction

*If the conservation of natural resources goes wrong, nothing else will go right. – M. S. Swaminathan*

Declining fisheries resources is a pressing issue for developing countries, especially in coastal island nations around the globe (FAO, 2016). Whether people will continue to have access to abundant and productive fisheries in the future depends on the way people are harvesting and look after them. Unsustainable fishing practices, growing populations, and commercial markets are some of the primary concerns to the sustainability of fisheries in countries within the Pacific region and elsewhere in the world.

A lot of studies that have been carried out in the Pacific region and in the Solomon Islands focused on factors that affected marine co-management arrangements, but there is little literature that focuses on the assessment of interventions for Community Based Marine Resource Management (CBMRM) in Malaita Province. Despite this, non-government organisations (e.g., WorldFish) strongly advocate CBMRM.

This study adopts a case study approach within the qualitative, inductive genre. It aims to discover, explain and describe the dynamics and relationship between the use of interventions by Community Based Resource Management (CBMRM) advocates and communities, with a focus on social behaviors that can influence successful and long-term sustainability of Community Resource Management (CRM) programs in the community. This will be achieved through studying three CBMRM communities in the Lau Lagoon, North Malaita, Solomon Islands. The communities that were chosen were identified in several reports (Boso, 2010; Rice, n.d; A. Schwarz, Alexander, T., and Bodo, D 2012; A. M. Schwarz, Andrew, N., Govan, H., Harohau, D., and Oeta, J. , 2013; van der Ploeg, 2016) to have carried out resilient projects with the goal of improving fisheries. The main focus of this study will be centred on the marine CBNRM programmes.

### 1.1 Research aims and questions

The aim of the research is to gain insight and understanding into the relationship between the types of interventions that CBMRM advocates take that may influence social behaviors of people in communities to support long lasting (CBMRM) engagement and improvement in livelihoods in the marine context.

In order to achieve this aim, the guiding research questions are:

1. What are the social constraints that rural Solomon Islands' communities face in facilitating sustainable marine resource management?
2. Do interventions aimed at supporting the role of fisheries in providing food security to communities in the Solomon Islands result in long lasting improvement in their livelihoods?
3. What characteristics of places and interventions appear to improve the probability of a successful intervention?

## **1.2 Problems, issues and justification for the study**

The Solomon Islands is experiencing economic variation, and in rural areas communities rely heavily on subsistence horticulture and small scale fisheries as the main sources of food and income. For a province like Malaita that has the highest population of all Solomon Islands' provinces, sustainable management of their natural resources (such as marine resources) would be a development challenge. Here people have very little income and have inadequate infrastructure services, so a management initiative might support them to secure their basic needs. In the case of coastal communities, subsistence and small-scale fisheries provide a predominant traditional livelihood strategy that their ancestors practiced in the past and is still the way of living for recent coastal dwellers' generations. Increasing modernization across the country has resulted in many developments but nevertheless, many communities still manage marine resources using customary marine tenure (CMT) systems only, while others manage marine resources with external support. Because of that, there is a need to gain insight and understand the nature of the relationship between external interventions and their influence on the social behavior of communities to support long lasting marine CBNRM engagement and livelihood improvements.

There is a general insight that combined resource management approaches that incorporate both traditional and western management approaches to fisheries management may work well in the Solomon Islands' setting. Though, this insight should be researched based on temporal considerations. This study, therefore, should provide some insight to such a perception. It will also generate useful insights for organization, agencies and research institutions working with communities towards strengthening CBMRM both in the Solomon Islands and in the greater Pacific region. In addition, it will be beneficial to the Solomon Islands government since CBMRM has been identified as a government priority. Given the fact that 90 percent of the Solomon Islands population live in rural coastal areas and are heavily dependent on marine resources for food and income, this study should contribute to the sustainable management of coastal fisheries, particularly subsistence and small-scale fisheries.

In the Solomon Islands, there have been specific efforts at CBMRM and there have been studies reviewing issues with practising CBMRM, but none included a review of social characteristics of communities practising CBMRM in Malaita. This study will bridge this gap by providing insight on how the success or failure of interventions that tried to establish long-lasting community-based management of resources in Malaitan communities was determined by the social characteristics of the community

Should Non-Governmental Organizations (NGOs) and government actors intervene to try to establish long-lasting community-based management of marine resources in rural Solomon Islands' communities, an understanding of the relationship between coastal rural communities' social characteristics and marine resource management is necessary. This is because one of the key stakeholders in partnership-based marine resource management are the rural communities.

### **1.3 Researcher's interest**

I was born and raised in the Solomon Islands, located in the Pacific region, and have worked in the area of fisheries and what I have seen has driven my passion and interest in looking at community based resource management for improving fisheries to reduce poverty and social injustice faced by fishing communities.

My work has also contributed to my genuine concern and interest in participating in community development in Malaita Province and elsewhere in the Solomon Islands. In this case, I hope that this research will support communities in their natural resource management efforts. This study will generate detailed information regarding the social barriers to CBMRM and I will be able to report this information back to communities.

I have a genuine concern and interest in participating in the development of Malaita Province and the rest of the Solomon Islands. The investigation into the research in development approach will provide potential results of an effective approach that organizations, agencies and institutions can utilize to avoid disappointing community engagement activities.

### **1.4 Structure of thesis**

Following this introductory chapter, the seven remaining chapters are organized as follows:

Chapter 2 is the research theory context. Firstly, the chapter presents the relevant concepts and studies relating to CBMRM and co-management under environmental governance and natural resource management. Specifically, definitions, concepts, features, strengths and weakness of the CBMRM and co-management are discussed. The concept of governance and governance types are briefly discussed.

Chapter 3 sets a brief bio-physical and socio-economic context of the study. The focus is on Malaita Province, in particular, the Lau Lagoon region where the three case study villages of Funa'afou, Fumato'o and Tauba are located.

Chapter 4 outlines the research methodology. The research approach, strategy and methods of data collection and analysis employed in the study are presented. The research design and research field procedures (protocol) are also discussed, including the sampling and triangulation strategies. Constraints encountered during fieldwork and ethical considerations are also discussed.

Chapter 5 presents the results of this research, in particular, the constraints and facilitators of sustainable marine resource management perspectives of the three case study communities.

Chapter 6 provides a discussion on the results presented in Chapter 5 against relevant literature. There are two parts to this chapter.

Chapter 7 draws together the conclusions from the research findings in the thesis. Specifically, the conclusions highlight the answers to the research questions as presented in Section 1.2 above. The chapter also provides lessons learned from the study, recommendations and policy implications of the research findings together with suggestions for further research.

# Chapter 2

## Research Theory

### 2.1 Introduction

Marine resources can be conceived as common-pool resources (Coglan & Pascoe, 2015; Vollan, Prediger, & Frölich, 2013). A common-pool resource (CPR), also called common property resource, is a natural or man-made resource system (e.g., marine resources or fishing grounds), whose size or characteristics makes it costly, but not impossible, to exclude potential beneficiaries from obtaining benefits from its use. CPR goods are different from pure public goods because they diminish over time therefore vulnerable to the effects of congestion or overuse, and thus lead to conflicts of access and rights over them (Freeman & Anderson, 2017; Galinato, 2011; Laurent-Lucchetti & Santugini, 2012). Resource governance is a form of intervention for dealing with conflicts over natural resources. Several practitioners (Aburto, Gaymer, Haoa, & González, 2015; Cuvelier, Vlassenroot, & Olin, 2014; Sattler et al., 2015; Vollan et al., 2013) have argued that there are different forms of governance systems that can have major influences on the quality of management of these resources. Community Based Marine Resource Management (CBMRM), co-management and collaborative management are three approaches that could be taken to managing or governing fisheries and are often seen as the pre-modern traditional approach in developing countries (Arceo, Cazalet, Aliño, Mangialajo, & Francour, 2013; Baquiano, 2016; Leisz, Thanh, & Vien, 2017; Lopes, Rosa, Salyvonchik, Nora, & Begossi, 2013; Zagonari, 2008). Alternative approaches include private ownership and centralised systems of fisheries management, and these have been the predominant approaches to managing fisheries in modernised societies.

The success and failure of these fisheries governance approaches has been the subject of many studies. This chapter outlines the concept of governance systems generally and then focusses on CBMRM, Co-management, and Collaborative governance, and the hypothetical relationship between them, as these have been the form of governance that has gained increasing attention over recent years (Ayles, Porta, & Clarke, 2016; Emery, Gardner, Hartmann, & Cartwright, 2017; García Lozano & Heinen, 2016; Martínez-Novo, Lizcano, Herrera-Racionero, & Miret-Pastor, 2017; Nielsen et al., 2017; Raymond-Yakoubian, Raymond-Yakoubian, & Moncrieff, 2017). This chapter starts by talking about the definition of governance and concept of good governance.

## **2.2 Governance**

This section will discuss the concept and definition of governance, and I will discuss the various types in a subsection. This is followed by discussion of forms of governance popularly used to manage fisheries and marine resources.

### **2.2.1 Definition**

International organisations like the United Nations, the World Bank, the Asian Development Bank, and the OECD Development Assistance Committee (DAC) define the term 'governance' as the exercise of authority or power for the better management of country's economic, political and administrative affairs (ADB, 2013; Joshi, Hughes, & Sisk, 2015; OECD, 2010; UN, 2006; WorldBank, 1994). In addition, an Education For All Global Monitoring Report observes governance as: power relationships; formal and informal processes of formulating policies and allocating resources; processes of decision-making; and mechanisms for holding governments accountable (UNESCO, 2008).

The concept of governance has been found to refer to structures and processes. According to several studies related to environment, politics and economics, the concept of governance is intended to safeguard accountability, transparency, responsiveness, rule of law, stability, equity and inclusiveness, empowerment, and widespread participation (Baio, 2010; Cheng, 2013; Jones, Oven, Manyena, & Aryal, 2014; Roberts, Wright, & O'Neill, 2007; Sethi & Puppim de Oliveira, 2015; Taylor, Perez-Ferrer, Griffiths, & Brunner, 2015). Besides that, the governance concept symbolises the norms, values and rules of the structure and processes through which public affairs are administered in a way that is transparent, participatory, inclusive and responsive. An alternative form of governance system is one of dictatorship, which is not inclusive, and is used to regulate almost every aspect of the public and private behaviour of citizens (De Luca, Litina, & Sekeris, 2015; Grigoriadis, 2016). Based on those rationales, governance can be understated and may not be easily evident. On a general perspective, the concept of governance embraces culture and institutional settings in which citizens and stakeholders network among themselves and take part in public affairs. It is concluded that governance can take many forms and the concept of governance describes a structure and processes that is beyond the structures of the government. The governance concept acknowledges that the participation of civil society, government and the private sector is very important as they all play roles in decision-making processes in deciding outcomes (Cash, 2016).

### **2.2.2 Concept**

The term 'good governance' is found to be used frequently in development literature. In the context of environmental empowerment, international organizations and donors promote the idea of 'good

governance' to enable environmental integrity, poverty reduction, human development, political and economic stability, and ensure sustainable development (Cash, 2016; Devaney, 2016; Lozano, Martínez, & Pindado, 2016; Ochieng, Visseren-Hamakers, Arts, Brockhaus, & Herold, 2016). Good governance is broadly acknowledged and it is one of the targets of the Millennium Development Goals (MDGs) (Joshi et al., 2015). Good governance is popularly advocated by donors and international organizations (e.g., in developing countries) because of increasing concerns that resulted from development efforts. Also good governance is a structure and process that embraces participatory approaches; it is transparent, accountable, effective and equitable and promotes rule of law.

### **2.2.3 Forms of governance**

Governance approaches use forms of administration which vary based on the context. Examples of forms of governance discussed in the literature cover fields as varied as political, economic and financial, e-systems, corporate and environmental. There are several common themes that emerge from the literature on these areas. A particularly prominent theme is environmental governance and natural resources which is a governance mechanism that regulates the various modalities of the environment and natural resources. The various forms of governance from the various fields are found to be incorporated as regulatory mechanisms to deal with conflicts and issues within the structure and processes under environmental governance.

## **2.3 Regimes in marine resource management**

Marine resource management is a domain recognised as an initiative under environmental governance and natural resources (Dryzek & Pickering, 2017; Lo, 2015; Ostrom, 2002; Shinn, 2016). In academic contexts, the approaches of marine resource management is closely related to natural resource management, but distinct as it just focuses on marine resources. Generally marine resource management approaches can be categorised based on the type and rights of stakeholders involved in natural resources. Several studies identify five popular regimes in resource management.

### **2.3.1 State property regime**

This is a centralised governance arrangement whereby ownership and control over the use of resources is in the hands of the state. Individuals or groups may be able to make use of the resources, but only at the permission of the state. Several studies by various researchers (Bromley, 1989; Del Bo, Ferraris, & Florio; Trimble & Berkes, 2013) have shown that the centralised governance regime is similar to state-owned property enterprises. Those researchers went on to say that the central government regime is tied together with common pool resource through the governance systems that it put in place to regulate public goods and services. In this case, common pool



resources are classified as public goods. Under it, the government is liable to develop, for economic gain, and manage these natural resources, so that they will still be abundant for all to access and enjoy. Hypothetically, the laws and policies that government enforce are legal binding frameworks meant to govern behaviours of resource user groups to comply so that order and co-existence can be maintained in the society.

### **2.3.2 Private property regime**

A private property regime is any property owned by a defined individual or corporate entity. Both the benefit and duties to the resources fall to the owner(s). Private land is the most common example. Several studies have shown that a public property regime is a collaborative or co-partnership arrangement that is established based on mode of procurement and operation of public property or infrastructure (Björstig & Sandström, 2017; Buso, Marty, & Tran; Colombo & Labrecciosa, 2013; Mukhopadhyay, 2016; Rouhani & Niemeier, 2014; Teo & Bridge; Vanteeva, 2016). A study in some parts of Europe has shown that a public-private partnership is popularly used as a governing tool for rural development because of its problem-solving capacity and legitimacy of participation and accountability in the procurement process (Björstig & Sandström, 2017).

### **2.3.3 Common property regimes**

Shared resources are often referred to as common pool resources (CPRs) which are often co-owned or are the private property of a group (Coglan & Pascoe, 2015; Ostrom, 1990; Villamayor-Tomas, 2014; Vellan et al., 2013). The group may vary in size, nature and internal structure e.g. indigenous neighbours of a village. Some examples of common property are tribal fishing grounds or open reef areas. In the Lau Lagoon area in Malaita, the Wane I Asi and the Wane I Tolo people, commonly claimed ownership for fishing grounds and land areas through patrilineal descent groups of which there are several lineages. Besides that, often in the past some fishing grounds (alata) and land territories (gano) were transferred from one tribe to another usually as compensation (fadiana). Practical areas of ownership are unwritten and customary and these have been maintained from generation to generation by oral tradition of locals. Akimichi (Akimichi, 1991) indicated that the transfer of the usufructuary rights of alata and sea as fadiana to others are often viewed as secondary rights. This is because those with primary right still have claims of ownership over those alata that their ancestors gave to others as fadiana. Several studies (Anafo, 2015; Fernandez, 2006; Fortmann, 1990; Jampolsky & Carpenter, 2015) have found that usufructuary rights may potentially trigger community disputes because of conflict of interest to property claims and their role as a cause of social action.

### **2.3.4 Non-property regimes (open access)**

In the absence of any rules that limit who may graze or harvest fish and place restrictions on the quantity, timing or spatial distribution of grazing or fishing activity, there is a risk of overharvesting. This absence of rules is referred to as an open access situation. There is no definite owner of these properties. Each potential user has equal ability to use it as they wish. These areas are the most exploited. It is said that "Everybody's property is nobody's property". An example is a deep-sea fishery. In the context of the Solomon Islands, the deep sea area is not owned by any group, but the Solomon Islands national and provincial Government has authority.

### **2.3.5 Hybrid regimes**

Many ownership regimes governing natural resources will contain parts of more than one of the regimes described above, so natural resource managers need to consider the impact of hybrid regimes. The hybrid regime is a joint governance arrangement between different stakeholders (Jentoft, 2005; Nunan, Hara, & Onyango, 2015; R. S. Pomeroy, 1995; R. S. Pomeroy & Berkes, 1997; Ullah, Yonariza, & Pradhan, 2017). An example of such a hybrid is joint local marine resource management between communities and the government in parts of the Pacific, where legislation recognises a public interest in the preservation of marine and fisheries resources, but where most local fishing grounds and reef areas exists under customary tenure boundaries so privately owned by tribal groups (Abernethy, Bodin, Olsson, Hilly, & Schwarz, 2014; R. Pomeroy et al., 2015; R. S. Pomeroy, 1991; R. S. Pomeroy & Berkes, 1997).

## **2.4 Community Based Resource Management (CBMRM)**

### **2.4.1 Definition**

CBRM appears to be a more practitioner-based term derived from (community-based natural resource management) CBNRM. The term CBNRM is used to discuss natural resources and is defined as an approach that involves both physical and socio-economic systems, and the interaction of these two systems to influence the feasibility of resource management engagement status and activities therein (Abernethy et al., 2014; Aheto et al., 2016; Cox, Villamayor-Tomas, & Hartberg, 2014; Mountjoy, Whiles, Spyreas, Lovvorn, & Seekamp, 2016; Ullah, 2017; Ullah et al., 2017).

The term CBRM is however mentioned frequently in literature on marine or terrestrial management but the definition of the term was rarely provided. Alexander, Manele, Schwarz, Topo and Liliqeto (Alexander, 2011) defined CBRM as,

*“Management of natural resources (e.g. forests, forest products, fish, coral reefs) that is primary driven by, or occurring at, the community level.*

*Management rules may target the resources themselves or the environment in which these resources exist”.*

A study conducted in the Solomon Islands discusses CBRM as management of natural resources (e.g. forests, forest products, fish, coral reefs) that communities carry out in order to help safeguard the future of their resources (WorldFish, 2013). The regulatory measures adopted by communities includes specific management rules and other enforcement tools that influence the ways in which the management occurs. These management rules could be relatable to how people can and can not harvest resources (e.g. size limit, species sanction) or how they use the environment in which natural resource live.

#### **2.4.2 Concept**

Early literature referred to the concept ‘community’ as a group of people within a particular geographical location (Clark, 2007; Sam, 2001). Despite the fact that there is no universally accepted definition of community, it is clear that in modern society community is more than just a place. A community is referred to as a collective affiliation made up of different groups of people that collaborate together in many different ways (Clark, 2007; He, Chen, Sun, Fu, & Li, 2017; Lovell, Gray, & Boucher, 2017; Rasoolimanesh, Jaafar, Ahmad, & Barghi, 2017; Sam, 2001; Simmons et al., 2015). Today, people tend to fit themselves to many communities.

Three useful types of associations that form communities is described in a study by McKnight (Mcknight, n.d) to hypothesize the concept ‘community’. Communities are:

- 1) Formal associations that often have titles or names and the members to such affiliations are selected by members that hold certain positions. Some examples of formal associations are sporting clubs, churches, charity groups and others.
- 2) Informal associations that are made up of people getting together to resolve issues and enjoy social interaction. Members do not hold titles or names nor have any positions in the affiliation. Some examples are men and women of tribes or a gathering of neighboring hamlets.
- 3) Business associations that are formed in settings where people get-together to interact and purchase merchandises and services.

The concept of ‘community’ is also important and varies. For instance, people who share a recreational interest in surfing might be an ‘interest’ community, so might a community of commercial fishers. A ‘functional’ community might be one determined by employment (e.g. government workers or NGO workers). A ‘geographical’ community is one determined by being located or connected to a place (e.g. a village). Each member of the village may have roles or

relationships in other communities, and some interest groups or functional groups may have some sort of relationship with a particular place.

These types of associations facilitate a venue for people in various types of communities to interact, and by being involved they gain daily exchanges of support, partake in socially valued roles, and play a part in developing opportunities and maintaining individually important relationships. CBRM is intended to draw on such relationships within to sustainably manage marine resources.

### **2.4.3 Why CBMRM is used and or promoted?**

Several studies (Doss & Meinzen-Dick, 2015; Masud, Aldakhil, Nassani, & Azam, 2017; van den Broek & Brown, 2015) have shown that CBMRM was used as an alternative resource management approach due to failed state management, and privatization of resources. The shift to the CBNRM or CBMRM approach was part of the state's decentralization approach. (Abernethy et al., 2014; Aheto et al., 2016; Chen & Ganapin, 2016; Todinanahary et al., 2017). CBMRM initiatives are adopted and promoted because of government interventions like the decentralization of property rights to local communities (Ruiz-Mallén, 2015). Those studies have indicated that the decentralized approach embraced community-led activities. Such an approach can be designed to empower local people to deal with the unique social, political and ecological problems their community might face and find solutions suitable to their situation. The community-based management (CBM) of natural resources is considered ideal due to its low-cost implementation of activities, shared rules and responsibility which in turn ease national or local economic, political and social pressures that associated with state management and privatization of resources. Existing research (Adger, 2003; F. Berkes, Colding, J., and Folke, C. (Eds.), 2003; Davidson-Hunt, 2003; Walker, 2006) maintains that CBM, when implemented properly, is incredibly beneficial not only for the health of the environment, but also for the well-being of the stakeholders.

CBMRM is promoted because it involves people who are directly affected by conservation decisions in planning and stewardship, and while management increases or maintains biodiversity it also strives to provide direct economic and social benefits to communities (Western, 1994). Schwartzman and Zimmerman (Swartzman, 2005) have stated that local people supported CBMRM engagement because it is an opportunity for them to share their visions with facilitating NGOs and government agencies on best practice to improve the governance of natural resources for the benefit of local people. CBMRM initiatives aim for local stakeholder participation in the planning, research, development, management and policy making for a community as a whole.

People have supported CBMRM because of their sense of attachment or connection to a place. Vaughan (Vaughan, 2014), Oetama-Paul (Oetama-Paul, n.d), and Jacobs et al (Jacobs, Vaske, &

Sijtsma, 2014) have identified that people have a sense of connection to a place because they have lived all their lives there and that the environment and resources are their source of livelihood, food and development opportunities. The adoption of CBMRM by local communities could also come from intrinsic motivations other than economic benefits. Several studies (Armitage, 2009; F. Berkes, 2004; Robinson, 2013) revealed that a collective sense of autonomy at the local level can lead communities to become engaged in conservation projects. The collective sense of autonomy influences local people to fully exercise their legitimate traditional rights and responsibilities to gain access to natural resources, decision making power, and land and fishing ground control to contest external threats as well as the need to safeguard resource for future generations.

Besides that, DeCaro and Stokes (DeCaro, 2008) have described that apart from people's motivation to maintain traditional governance structures and conservation practices, locals are also motivated by other well-being concerns. For example, a community in Mexico pursued the conservation of their local forest because the forest has been an important source of medicine, food, building materials and livelihood assets (Toledo, 2003). Local communities continue to engage in such traditional resource management practices because of cultural reasons, including their worldview and traditions. On a general level, it seems that local people adopt CBRM because they are motivated by various factors that have synergistic effects for them and the environment they inhabit.

#### **2.4.4 Features of CBMRM**

From the research conducted in past years, important features of CBRM have been proposed among research communities and practitioners. By careful examination of the research conducted by a number of researchers (Abernethy et al., 2014; S. Aswani, and Ruddle, K. , 2013; Chowdhury, 2012; Cinner, 2007; Cox et al., 2014; Curtis, 2014; Mountjoy et al., 2016; Rakotoson, 2006; Sutton, 2014; WorldFish, 2013) the key features of CBRM can be described as involving: a bottom-up approach of association; a focus on community participation ; the use of traditional management practices such as seasonal reef closures; traditional kastoms and laws to regulate fishing behaviours; multiple stakeholders; existing governance structures like customary tenure, access rights, chief system and other leadership arrangements.

#### **2.4.5 Strengths of CBRM**

CBRM has been found to be very useful to communities and have a considerable effect on the management of resources. Community-based organizations play an important role in encouraging the development of the resilience of communities and ecosystems they live in. A study by Davidson-Hunt and Berkes (Davidson-Hunt, 2003) advocate that local organizations improve resilience because: CBRM practices are locally adapted and based on local ecological knowledge; local

organizations are on-site and able to observe and adapt immediately, producing and learning from minor errors where centralized governance make major mistakes; CBRM has great diversity of organizational structures among local CBRM groups, and such diversity enhances the potential of learning outcomes that work.

Several researchers (Adger, 2003; F. Berkes, Colding, J., and Folke, C. (Eds.), 2003; Walker, 2006) have indicated CBRM strengthens social capital, and social capital, in turn, is thought to be a key to adaptive capacity in communities. In addition, Keen and Mahanty (Keen, 2006) pointed out that some conservation organizations promote CBRM to foster social learning, a premeditated process, of collective self-reflection through interaction and dialogue among participants. In this case, the promotion of social learning is based on CBRM groups' focus on monitoring and adaptive management, and the emphasis on learning and education. It is assumed that this attention to monitoring and collective learning through adaptive management strengthens feedback between social and ecological systems.

As rural communities face increasing environmental stressors as well as unpredictable economic and political shocks, the ability to learn and adapt is critical to their sustainability and resilience.

#### **2.4.6 Weaknesses of CBRM**

Although CBRM is useful to people and communities, it is also found that CBRM is challenging and local communities encounter several problems in the course of management of their resources. Several researchers (Abernethy et al., 2014; Chowdhury, 2012; Freed, Dujon, Granek, & Mouhhdine, 2016; Pant, 2015; Reid, 2015; Sutton, 2014; Vaughan, 2014) have identified several weaknesses with the CBRM approach and they are discuss below.

- a) There is relatively limited scientific evidence to support claims that CBRM enhances resource rehabilitation or social environmental conditions in the communities. Changes in resource stocks or environmental conditions are difficult to measure using traditional knowledge and methods partly because it takes a longer period for the environment to recover so it takes time for change to happen within the environment.
- b) Under CBRM local people rarely document change and progress, due to limited material resources, financial support and time factors, so knowledge on variation in environmental conditions in communities is often inadequate. With other confounding factors, it is difficult to establish whether CBRM has improved the environment or is not working.
- c) CBRM requires strong and firm leadership in the community.

- d) Communities practising CBRM rarely receive financial support from external partners so they are vulnerable to complicated social and economic pressures like people's fishing behavior, the increasing demand for marine resources and an increasing population).
- e) Multiple social affiliations in community engagement are often too complex for community leaders to manage their interests and expectations towards CBRM.
- f) Political and economic restructuring can have severe implications for CBRM.

## **2.5 Co-management governance**

### **2.5.1 Definition**

Co-management seems to be a 'core' value of CBRM. Co-management can be defined as a partnership arrangement between local resource user groups, other primary stakeholders (e.g. fish traders, service providers, civil societies, other commercial private sectors et cetera, government actors and NGOs who together share power and responsibility for resource management (Jentoft, 2005; Nunan et al., 2015; E. Pinkerton, 1989; E. Pinkerton, 1999; R. S. Pomeroy, 1995; R. S. Pomeroy & Berkes, 1997; Ullah et al., 2017). The study by Pomeroy and Berkes (Jentoft, 2005; Nunan et al., 2015; E. Pinkerton, 1999; R. S. Pomeroy, 1995; R. S. Pomeroy & Berkes, 1997; Ullah et al., 2017) clearly shows community resource management as being outside the end of co-management arrangements. So when people and communities are talking about CBRM or CBNRM they are actually talking about a form of co-management that is not the same as community management, but that is based on community management.

The co-management approach has been recognized by practitioners and scholars as a governance mechanism adopted internationally in response to the perceived failure of a centralized governance regime (Espinosa-Romero, Rodriguez, Weaver, Villanueva-Aznar, & Torre, 2014; Nunan et al., 2015; E. Pinkerton, 1999; Yeboah-Assiamah, Muller, & Domfeh, 2016). The co-management arrangement approach also serves to shift emphasis from unsustainable practices and resource depletion to a people centric focus with a more holistic context of rural communities. This approaches' popularity amongst policy makers has been triggered by the recognition of a need to legislate existing community management practices within national laws and governance frameworks to regulate the effects of an increase in unsustainable practices. The alignment of co-management with ongoing decentralization policies being pursued by the government enable an ideal setting for effective management of community resources.

### 2.5.2 Concept

It is found that co-management originated as collaborative governance. Collaborative governance involves the local resource user groups, other public sector agencies, government actors and NGOs communicating with each other. It also involved multiple stakeholders working together to accomplish multiple sectoral goals that one sector could not achieve on its own (Ansell., 2007; Davis, 2008). The mandatory conditions for effective collaborative governance have been discussed by Ansell and Gash (Ansell., 2007). They pointed out that alternative approaches of collaboration are developed with the goal to highlight variable conditions that could facilitate minimal or maximum support to policy development and public management.

Collaborative governance embraces both informal and formal relationships in problem solving and decision-making. NGOs are found to perform significant roles towards establishing informal and formal relationships, namely 'bridges' between local people, and regional and national actors and facilitators of networks. The facilitation of collaboration between the public, private and community sectors enabled conservative governmental policy processes to be embedded in wider policy or decentralized processes (Barnes, Arita, Kalberg, & Leung, 2017; Davis, 2008). In other words, the objective of collaborative governance is to improve the general practice and effectiveness of public administration. To achieve effectiveness, collaborative governance requires support, leadership and a forum.

Research on collaborative governance reveals important features of collaborative approaches. To date, several reviews by a number of researchers (Davis, 2008; Espinosa-Romero et al., 2014; Kitts, 2007; Nakakaawa, 2015; Stratoudakis et al., 2015) have identified the several features as being associated with the collaborative arrangement for marine resource management. The features of collaborative governance are listed below.

- a) Collaborative governance is a multi-actor regime. It has the representation and participation of local, regional, national and in some cases, international institutions.
- b) Collaborative governance has cooperative management feature. –That is, the incorporation of, planning, implementation, evaluation and adaptation, to management.
- c) Collaborative government contains collective action. That is the ability of a group to have full autonomy to craft and enforce their own rules.
- d) Collaborative governance has polycentric management. That is, the devolution of decision-making power to decentralized units.



- e) Collaborative governance matches with ecological scales. That is the governance aligns to ecological scales.
- f) Collaborative governance contains information sharing. That is, the reciprocal flow of information between regions, communities and institutions.
- g) Collaborative governance has the co-production of knowledge.
- h) Collaborative governance displays social learning. That is the collective process of learning-by-doing which may lead to the emergence of new innovative skills and knowledge.
- i) Collaborative governance contains institutional interplay. That is, the existence of multi-level partnerships.

Pinkerton (E. Pinkerton, 1989) described co-management as a management regime involving a 'decentralized political decision-making system' as a way to deal with the interests of multiple stakeholders (local people and local, regional or national government) who are held accountable for the governance of a common pool resource system. Based on that perception, the decentralized system for decision-making processes can be perceived as an arrangement of collaborative governance. The need for collaborative governance in marine resource management is a prerequisite that will promote a sense of unity and teamwork among people within an institutional framework of social norms.

### **2.5.3 Why is co-management governance used and or adopted?**

Studies carried out in certain in parts of Africa, Asia, Europe, North America and the Pacific have shown that the co-management arrangement is intended for two purposes: to transfer certain management responsibility to resource user groups, for instance arbitrating and policing; and to mould resource management measures to align to local needs (E. Pinkerton, 1999; R. S. Pomeroy & Berkes, 1997; Ratner, Oh, & Pomeroy, 2012).

Co-management is promoted globally because of the significant role of science in public policy decision making. Schlager (Schlager, 2005) described that when science is used to define environmental value, it leaves no room for citizens to participate in environmental management (ecosystem support allocation) but when citizens define environmental values, science can be used to realize those environmental values (sustainable boundaries). Schlager's justification can be related to the co-management approach.

Ostrom's early seminal work appears to validate the significance of a governance system similar to co-management which could be adopted to sustain the complexity associated with the management

of common pool resources (CPRs). Ostrom (Ostrom, 1990) articulated the scenario that when one or more members of a group use a CPR, like marine resources, there is a possibility for members of that group using that CPR to ban others from accessing the CPR. From her analysis of the management of local resources, CPRs like marine resources, she came up with eight design principles for long-lasting sustainable management institutions for natural resource commons: (1) clearly defined boundaries; (2) proportional equivalence between benefits and costs; (3) collective choice arrangements; (4) monitoring; (5) graduated sanctions; (6) conflict-resolution mechanisms; (7) minimal recognition of rights to organize; and (8) nested enterprises (see Ostrom, 1990 for details).

In addition, it is found that NGOs appear to be prominent stakeholders that promote co-management in partnerships with government actors and local communities. Several practitioners and scholars (E. Pinkerton, 1999; R. S. Pomeroy & Berkes, 1997; Ratner et al., 2012; WorldFish, 2013) have shown that in formalized CBRM, the NGO's roles are to support the community and the government in: defining environmental related problems; providing independent advice, notions and expertise; providing competence training and technical knowledge; guide problem solving and decision making processes between them; and promoting community management and action plans in alignment with national plans of action. They assume an important role based on worldviews that adopts a participatory approach that facilitate and empower communities to be competent and eventually sustainable in achieving effective resource management goals.

#### **2.5.4 Features of co-management governance**

Researchers and practitioners have proposed important features of co-management. Several studies (Carlsson & Berkes, 2005; E. Pinkerton, 1999; R. S. Pomeroy, 1995; R. S. Pomeroy & Berkes, 1997; Ratner et al., 2012; WorldFish, 2013) have identified the following features for co-management as: a multi-functional approach e.g. focused on improved resource quality and community experience; an adaptive management approach; including the participation of multiple stakeholders; a mixture of the bottom-up and top-down approach; an integrated form of management – local people/communities, government or NGOs and research institutions; integrated law enforcement – governmental laws and traditional rights are integrated for enforcement; using existing governance structures; integrated scientific and traditional ecological knowledge; and problem-solving specific to integrated, networked and multi-level governance approaches. It is noted that the features of co-management consist of features of CBRM and the centralized governance regime.

#### **2.5.5 Strengths of co-management governance**

Co-management has been found to have considerable positive effects on the management of marine resources. Several scholars and practitioners (Carlsson & Berkes, 2005; Linke & Bruckmeier, 2015; E.

Pinkerton, 1989; R. S. Pomeroy, 1995; R. S. Pomeroy & Berkes, 1997; Ratner et al., 2012; Walker, 2006) have shown through wide-ranging research that the co-management arrangements and its collaborative components in marine resource management have several beneficial attributes. The strengths of co-management governance are listed below:

- a) Co-management increased implementation of and compliance with management decisions.
- b) Co-management application of diverse knowledge sources to management, including local ecological and science based knowledge sources.
- c) Co-management governance improved on-the-ground resource management.
- d) Co-management increased monitoring and adaptive management.
- e) Co-management decreased conflicts over resources.
- f) Co-management increased trust and strengthened relationships (social capital) within the community.
- g) Co-management arrangement resulted in improved livelihoods.
- h) Co-management governance resulted in greater community capacity.
- i) Co-management improved environmental conditions.
- j) Co-management resulted in more resilient socio-ecological systems.
- k) Co-management enable better and collective understanding of multidimensional concerns relating to multiple stakeholders and thus allowing these stakeholders to join forces and reach a decision on solutions.
- l) Co-management arrangement enable NGOs and institutions to better understand the internal mechanism of government and carry more influence in the decision making process.
- m) Co-management governance enable mutual learning and shared experiences among stakeholders, while also pointing out capacity building gaps to improve internal and external institutional frameworks of agencies and organizations.

### **2.5.6 Weaknesses of co-management governance**

Despite the positive effect that co-management arrangements have on resource management, co-management approaches have certain limitations that might thwart effective management of

resources. Several researchers (Ansell., 2007; Carlsson & Berkes, 2005; Jentoft, 2005; Jentoft, McCay, & Wilson, 1998) that have carried out studies on co-management in parts of Africa, Asia, Europe, North America and the Pacific have indicated several issues as obstructing effective implementation of co-management arrangements, and its collaborative component. The weaknesses of co-management and collaborative governance especially in a context where the problem is complex are that the processes require an investment of time, commitment and resources from communities and other stakeholders involved. In a complex structure like the community with many tribal and household affiliations working together, individual roles can become vague and confusing. Certain stakeholders may participate in the arrangement for personal gains while others may participate on behalf of a second or third party organization. Often dominating stakeholders make attempts to manipulate the process rather 'letting things be'. Structural issues also affect how the activities are executed and the agendas and outcomes in the CBRM initiative. Open structures with slack leadership and uncooperative membership will result in CBRM processes pursuing agendas that are fast expanding rather than pursuing a common goal. Achieving goals in such a situation where there are wide agendas will turn out to be difficult because stakeholders struggle to resolve differences and coordinate activities that not common. A collaborative governance arrangement is very vulnerable to issues like accountability of participating members, unequal or hidden agendas, trust between members, power imbalances, and language and cultural barriers. Because all those issues can arise in collaborative government regimes it paves pathways to institutional instability and inconsistency which deters progress of CBRM activities.

## **2.6 Solomon Islands Resource Management, Past and Present**

### **2.6.1 CBRM social issues**

Studies carried out in Isabel Province and the Western Province of Solomon Islands and reported by Cohen et al (P. Cohen, Schwarz, A.M., Boso, D., Hilly, Z., 2014) and Schwarz et al (A. Schwarz, James, R., Teioli, H. M., Cohen, P., and Morgan, M., 2014) have found numerous social problems have obstructed effective implementation of CBRM in the Solomon Islands:

- a) There is often lack of enthusiasm among people to mobilize others to participate and support CBRM. Local people have diverse interests so tend to be involved in what they think matters to them as part of their daily routine.
- b) Involvement in CBRM activities is more on a voluntary basis as it takes up people's time, effort and energy.
- c) Members of the community tend to select short term priorities rather than long term priorities due to immediate gains and tangible results.

- d) Solomon Islands is generally a male dominated society so there is already a cultural definition of roles according to gender. For example, females are not supposed to voice their opinions in front of males.
- e) High disparities between males and females in terms of participation and decision making.
- f) Fragmentation in the community. For example, in some communities the majority of community members migrate and settle in rural areas while there are still community members in the village. There are high disparities between those live in rural and urban areas.
- g) Communities need to be interested in fisheries and resource management in order for CBRM to work or to be long lasting.
- h) Enforcement of management plans can only be effective with the support of: a strong leadership system; wide-spread awareness of management plans and goals; on-going community participation; community ownership of the management process; and a resilient team of community leaders to guide the process of management throughout shocks and changes.
- i) The preference of communities to just use “tambus/ tamboo<sup>1</sup>” or seasonal closures and management measures applicable to open areas may limit management outcomes.
- j) Resource ownership issues. For example, when communities decided to choose a particular fishing ground, which meets the requirement of an ideal marine closure, it is customary protocol that the consent of owners (usually a tribe or a surviving family of a tribe) of the fishing grounds be granted prior further actions. In some cases, resource ownership was claimed and disputed by multiple parties, and if unsolved it may stall management efforts.

These follow what was said in the international context on CBRM with regard to the practices that work and problems that people and communities face. So the lessons learned so far in the Solomons are very similar to what has been identified elsewhere in the international context.

### **2.6.2 Changing phase - past and present**

The marine and fisheries resource management system in the Solomon Islands has gone through at least three phases as set out below.

---

<sup>1</sup> In the Solomons, a ‘tamboo/ tambu’ means a traditional sacred site accessible to only certain people. In marine resource management, it is referred to as a ‘no go zone’.

### **Stage 1: Traditional management**

A 'customary management' system has always been an instrumental tool that guides local Solomon Islands communities in terms of managing both terrestrial and marine resources. The traditional management system used to manage natural resources was through a local customary tenure system that sets out ownership and access rights to resources based on tribal affiliation (Abernethy et al., 2014). These tribes enforced rules through various traditional and social norms. In the context of marine management, the tribal chief or leader imposed a tamboo<sup>2</sup> over a certain period of time. For example, a certain reef area would be closed, before a wedding or a feast takes place or at the time of a death within the tribe, for over a period of three months. It is like a tribal contribution to families with special needs to support social and cultural events.

However, studies have found that customary management practice is just one management measure among many others and its application alone may not be effective in terms of management of marine resources. Both Johannes (Johannes, 1978) and Aswani et al., (S. Aswani, Albert, S., Sabetian, A., and Furusawa, T., 2007) have shown through extensive research that traditional management systems are precautionary and include restriction measures in the course of marine management. Aswani et al., (S. Aswani, Albert, S., Sabetian, A., and Furusawa, T., 2007) having focused their research on protecting coral reefs in the Pacific, argued that customary management is only a preventive management tool that guides social and biological outcome uncertainties but does not offer total protection of marine biodiversity. Johannes went on to say that the old-school method does not have the capability to offer reliable predictions to fishers fishing behaviour, availability of marine species and other factors that may determine effective management. In the face of such convincing evidence, there is growing interest among practitioners, scientists and communities to merge traditional practices with contemporary management initiatives.

### **Stage 2: Western approach to resource management**

Since the 1980s<sup>3</sup> a western approach with legitimate rules and penalties to guard the original system was introduced to local communities. Lane (Lane, 2006) reported the need for an effective bridging governance system in the Solomon Islands for integrated coastal management in order for improved management of its coastal environments and resources. Hence the connection between external partners like NGOs, research institutions, national and provincial government ministries and local communities was slowly strategized to make CBRM possible.

Studies by Cohen et al (P. J. Cohen, Cinner, & Foale, 2013), Cohen et al (P. J. Cohen & Foale, 2013) and Cinner et al (Cinner, 2007) have shown that the western approach to marine resource

---

<sup>2</sup> Tamboo or tabu is a form of sanction used by local communities to regulate access to land and sea resources.

<sup>3</sup> The Solomon Islands gained independence in 1978.

management uses similar techniques to customary management like spatial area, time-frame, gear type restriction, effort, species restriction, and species quantity. Cinner et al (Cinner, 2007) points out two major differences between customary and western fisheries management which are enforcement of size restrictions and establishing permanent marine protected areas (MPA). Cohen et al (P. J. Cohen & Foale, 2013) went on to discuss spatial marine closures that are permanent or long term in order to achieve spillover (spread of adults) and propagules (spread of larva) outside of the area. This tool is considered as having further ecological benefits like the restoration of biodiversity, including fish stocks. However, the implementation of the Western approach on permanent Marine Protected Area (MPA) is believed unrealistic and not applicable to local communities in the Solomons. The common argument is that, the size of their fishing grounds are very small and a lot of people depend entirely on those for subsistence and livelihood options.

### **Stage 3: Combined approach**

It appears now that there is a shift backwards to try and re-establish traditional type of management or a blended-type-of-approach that incorporates both the traditional and western management approach to fisheries management. Cinner et al (Cinner, 2007) provide the following rationales: local practices are cost-effective in terms of regulation and enforcement administration; local people can reliably manage their resources better with more support of their community leaders and groups, traditional norms and values. Thus local management instils in them ownership of the management process.

According to the Inshore Fisheries Strategy (IFS) and the Coral Triangle Initiatives (CTI) National Plan of Action (NPOA), the government recognises that Solomon Islanders are the owners and the custodians of their resources and believes that in the absence of centralised management, community based approaches will be most effective in Solomon Islands. Therefore to maintain healthy coastal fisheries and secure and enhance their benefits the government and supporting NGOs and institutions are looking at community-based approaches to management. In the Solomon Islands context, CBMRM is found to be suitable and it adopts both top-down<sup>4</sup> and bottom-up<sup>5</sup> approaches to management.

### **2.6.3 Where is CBMRM now in the Solomons?**

Although the scale of CBMRM is not vastly spread across the Solomon Islands, there is at least one or more community in each of the nine provinces involved in marine management. Figure 2-1 indicate

---

<sup>4</sup> Top-down: western ways; is based on a lot of data, and is often focused on resources.

<sup>5</sup> Bottom-up: is focused on adaptive management or “learning by doing” and the people who own the resources.

the different CBMRM area that are currently listed in the Solomon Islands Ministry of Environment, Climate Change, Disaster Management and Meteorology (MECDM).



**Figure 2-1 Solomon Islands Ministry of Environment, Climate change, Disaster management, and Meteorology (MECDM) Map of CBRM sites.**

## 2.7 Summary chapter

The literature reviewed has provided insights and understanding into resource governance systems as forms of interventions used to deal with conflicts over natural resources. Under that, the concept of governance was discussed, followed by the explanation of CBRM, co-management and collaborative governance. Examples of forms of governance vary based on the context.

The concept of governance has been found to describe a structure and process that is more than a government structure. The literature pointed out that there are many worldviews on the concept of governance so governance can take on many forms. The term of good governance is found to be used in environmental empowerment context by international organisations and donors and broadly acknowledged and listed as one of the targets of the Sustainable Development Goals.

CBMRM is a form of governance that is used to discuss natural resources management driven by the community but often with the support of an external partner. Co-management is a form of governance that is described as partnership arrangement between local resource users, primary stakeholders, government and NGOs. Under this arrangement, these various stakeholders share



power and responsibility for resource management. Collaborative governance is a form of governance relationship that is established between multiple sector stakeholders involved in the co-management arrangement.

The literature presented above and the theories used to inform this research are instrumental towards answering the research questions.

The next chapter summarises the background to the study, which consists of the human and physical setting of the case study location where the field research is being conducted.

## Chapter 3

### The Study Background: Human and Physical

This chapter outlines the physical, human and economic setting for the study. The research focus is on Malaita Province and in particular the Lau Lagoon (North Malaita) where the three case study communities of Funa'afou, Fumato'o and Tauba are found.

#### 3.1 The human setting

This section provides a general description on the different situations and experiences created by humans.

##### 3.1.1 Socio-demographic features

Under this section, a brief description of Malaita Province is provided. The focus is on the Lau Lagoon and the three case study communities.

##### Provincial level

The population of Malaita Province has increased rapidly since 1970. In 2009, the most recent census year, the population of Malaita Province was 137,595. While the overall population is now almost three times the size it was in 1970, which was 51,722, the rate of growth declined from 2.5% in the 1970 to 1.2% in 2009. The population of Malaita made up 27% of the total Solomon Islands population. With a land area of 4,225 square kilometres, the population density of the province in 2009 was 33 people per square kilometre whereas the average population density for the Solomon Islands was 17 people per square kilometre (SIG, n.d ).

##### 3.1.2 The social background

This section provides a description of the social setting of Malaita Province. Particular attention is placed on the Lau Lagoon where the case studies are located.

##### Ethnic origin

Based on the 2009 census report (SIG, n.d ; SINSO, 2009), Malaita has a homogenous population composition. 98% of the population are Melanesians and 2% are Polynesians. Also present are people of Micronesian and Chinese or European ethnic origin, and they count for less than 1% of the province's total population. However, the ethnic groups of people that are native occupants of the province are the Melanesians and the Polynesians. The Melanesians are predominant in mainland Malaita and directly adjacent islands including Ndai. The inhabitants of the far-flung atoll islands of

Sikaiana and Ontong Java are Polynesians. The presence of Micronesians and Chinese or Europeans in the province is due to intermarriage, land purchase and commercial ventures.

These two ethnics groups (Melanesia and Polynesia) have many cultures and languages. Despite cultural diversity, the traditions of the Melanesians in the province have similar social features including: a subsistence economy, where people trade or barter their surplus goods for other goods they do not have; respect of kinfolk bonds and duties towards extended family; social status is acquired (e.g. through wealth and leadership influence); and a strong connection to the natural environment especially the land and sea. The Solomon Islanders of Malaitan origin still maintain these traditional social features and respect their customary ancestries, but exposure to western lifestyles and inter-ethnic group marriage has changed many aspects of the traditional social culture of these ethnic groups in recent decades.

The people in Malaita speak sixteen different languages, an indication of cultural diversity found on these islands (van der Ploeg, 2016). Lau dialect is the language spoken by the *wane i asi* people of the three case study communities but I am aware from my experience that there are dialectical differences within the Lau Lagoon. Proximity and intermarriage has caused islanders from Suafa Bay on the North to speak a combination of Lau and Tobaita dialects and islanders from the Ata Cove on the northeast to speak a combination of Lau, Baegu and Fataleka dialects.

The original settlers in the Lau Lagoon region were foragers who foraged and gathered fish, shellfish and seaweed on the reefs during low and high tides after which they retired back to the mainland. Over time, the forager-turned-fishers' population slowly increased. Their means of transportation were bamboo rafts which they later used to collect reef stones and boulder corals to build their artificial islands. During this transition period, the original inhabitant's lives were dependent on mainland Malaita. Nevertheless, animosity broke out between artificial island dwellers and mainland Malaitans resulting in fierce fights which killed many of the artificial island inhabitants, and ended social relationships between them and led to permanent habitation on the artificial islands.

## **Religion**

A substantial portion of the population of Malaita Province embraced Christianity. The popular Christian denominations are South Seas Evangelical Church (SSEC), Anglican, Catholic, Seventh Day Adventist (SDA), Pentecostals, and Jehovah's Witnesses. In the studied region, most people are Anglican, SDA and Catholic. Some portions of the population are still heathen and maintain their customary beliefs. Islam was recently embraced by Malaitans from the southern part of the island.

## **The households**

A household has family members and it is the households that make up a community or a village. In the Lau Lagoon, the household is actively involved in producing food and income therefore it is both a unit of production (and reproduction) and consumption. Households are also constantly making decisions about daily life and activities, livelihood production and consumption therefore it is a venue of collaboration and conflict. In addition, the household is an established residential unit.

Members of the household include those who are present and not present in the community as well as extended family members who are living with and carrying out domestic tasks and events with the immediate household members. The household contains a nuclear family of parents and children. The consanguineal relationship combined with the affinal relationships between immediate and extended family members in a household demarcate the fundamental social relationships and structures of the community. These social relationships also played a role in the definition of the daily livelihood typology, use and management of coastal marine resource.

An extended family is a family which is comprised of the parents, immediate children and other family members like grandparents, nieces, nephews, cousins, aunties and uncles. From personal observations and interviews, those two types of families were present in the three case study communities. However, there are no official statistics of the number of these two family types in the three case study communities.

## **Marital status**

The 2009 Census reported that 56% of males and 57% of females aged 15 and older were legally married and another 4% of males and females were living in a de facto relationship. 37% of males and 29% of females were single or never married. A higher proportion of females (8%) were widowed than males (2%). The age at marriage is an imperative proximate factor of fertility. Women who have more children are those who marry at an early age. The majority of all marriages are monogamous and others are polygamous.

In cases where the husband dies, the widow can either return to her family or remain with her late husband's family. She would usually return to her parents if the children are still little, and the wife assumes the role of the husband, with some support from her father and brothers, till her son is old enough to assume his father's role of being the head of the household. If the children are already older, the widow would remain but the elder son would assume the role of his late father as the head of the household. However, under the circumstances of the first scenario, the widow and her family would maintain a close relationship with her late husband's family and relatives.

The head of the family and the household is customarily the father. This is also consistent with the fact that the Melanesian society is patrilineal and male dominated. In this case, the inheritance of land, fishing grounds and other properties is passed from parents to children through the father's lineage.

### **Division of labour**

The structure of labour within the household is stratified by gender. It is customary for the head of household, who is the father, to directly or indirectly make decisions about how their wives and children spend time and carry out activities in producing food and income. However, sometimes the decisions are made jointly by both the father and the mother. Decisions about involvement in household chores (taking care of children, preparing food, cooking, washing clothes and dishes, collecting firewood and fetching water) are usually made by the mother. It is expected that the children abide by the parents decisions.

### **3.1.3 Political background**

The Solomon Islands is a former British colony that gained self-independence in 1978. The small island nation is a member of the Commonwealth and has adopted a Westminster-style of parliamentary democracy. Representation in parliament is grounded on single-member constituencies from the country's nine provinces. The people choose their parliamentary member every four years from their respective constituencies. Malaita Province has 14 constituencies, namely, Aoke-Langalanga, Baegu-Asifola, Central Kwara'ae, East Are'are, East Kwaio, East Malaita, Fataleka, Lau Mbaelelea, Malaita Outer Islands, North Malaita, Small Malaita, West Are'are, West Kwaio, and West Kwara'ae. The Lau Lagoon falls under the Lau Mbaelelea constituency.

The Prime Minister, who is elected by the Parliament, is the head of the government and he or she is responsible for choosing the cabinet members. An individual ministry is led by a minister with the support of a permanent secretary, a career public servant who oversees the work of staff of the ministry. The Solomon Islands Government has been found to have features of weak political parties and extreme unstable parliamentary coalitions. Its political parties and parliamentary coalitions are regularly subject to repeated votes and motions of no confidence, and government leadership reshuffling. Aqorau (2001) has shown that corruption is also penetrating the political system and is both widespread and systemic.

In each of the nine provinces, an elected provincial assembly is responsible for the administration of the provincial government. The Honiara Town is overseen by the Honiara Town Council. Provincial representation in the Malaita Provincial Government is based on ward regions and the ward leaders

are elected by local community people in those ward areas.. In Malaita Province there are 33 wards. The communities of Funa'afou, Fumato'o and Tauba are all found in the Foueda Ward.

Prior to independence, a movement for self-determination known as Maasina Ruru (or "Marching Rule") represented the rural areas on the Malaita Provincial Government. It comprised of custom chiefs, later called district council members, from the nine districts on the island, appointed as administrative district representatives. These customary chiefs were powerful figures who oversaw local courts. These courts were also part of the government at the community level.

The position of district council member was abolished in the mid-1990s by the national government. This was followed by communities changing their own governance structures, but without consistency. A typical example is in the case of Funa'afou, Fumato'o and Tauba. Presently, Funa'afou still has the chief system, but Fumato'o and Tauba no longer practice such leadership structures. The Funa'afou tribal chiefs' titles are inherited, but the head chief is elected by the other chiefs. In the case of the other two case study communities, a collective decision was made by all the men in the community. If and when a community leader is required, the people elect one based on the demonstration of certain qualities. These chiefs and elected leaders are responsible for matters beyond the household level, including marine resource management.

#### **3.1.4 Economic background**

The Malaita Province's economy is made up of a large informal subsistence sector and the formal sector. The informal sector in the province refers to the informal production activities that are in fact subsistence related and an informal market that existed in the community level. An illustration of subsistence activity is subsistence fishing and agricultural activities.

The formal economic sector refers to economic production that is bought and sold through formal markets. The provincial formal economy has an extensive high significance economic production base made up of copra, cocoa, marine products (fish, seaweed, trochus, sea cucumber and cultured corals), logs and timber, coconut oil and farm products. Products like copra, cocoa and marine products are produced by the households in the community. There are several buyers, most of them are locals and few foreigners. All of these economic products are sold directly to buyers in Honiara. Logs are produced by several overseas logging companies operating in many parts of the province.

### **3.2 The physical setting**

A brief physical description of Malaita Province, the Lau Lagoon region and the three case study communities is provided in this section.

### 3.2.1 Location, topography and climate

#### Solomon Islands

The Solomon Islands is a predominantly island nation with over 1000 archipelagos lying within 12 degrees latitude in the southern hemisphere. The Solomon Islands has an equatorial tropical climate meaning it is usually hot and humid throughout the year, with a mean temperature of 27 degrees Celsius (Tomahawk, n.d).

The case study communities are located in the Malaita Province, which is described below.



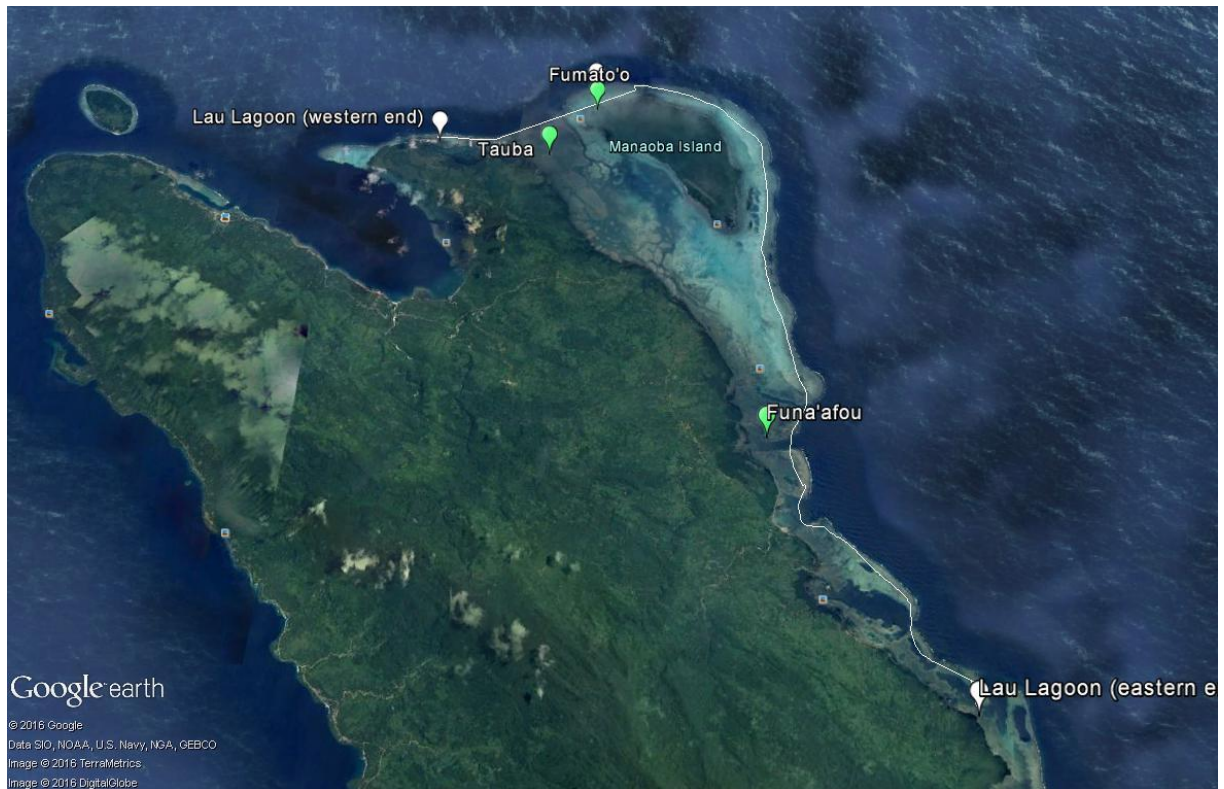
Figure 3-1 Location of Malaita Province in the Solomon Islands.

The Solomon Islands' extensive archipelago has two seasons. The wet season (rainy with periodic cyclones) brought by the westerly winds usually occurs from November to April, and the dry season occurs from May to October.

#### Malaita

Malaita covers a land area of 4,225 square kilometres, which includes mainland Malaita and adjacent islands of South Malaita (or Maramasike), Kwai and Ngosila, Manaoba, Basakana and the far-flung atoll islands of Ndai, Sikaiana and Ontong Java. Malaita is described as a thin island, about 164 km long and 37 km wide at its widest, with mountainous topography, lowland tropical forests and shallow lagoons on the coast. With a population of 137,596 people, Malaita has the highest population of all Solomon Islands provinces (SINSO, 2009).

## Lau Lagoon



**Figure 3-2 The Lau Lagoon, Malaita, and the location of the three case study communities (Funa'afou, Fumato'o and Tauba).**

The Lau Lagoon and adjacent area are located in the Malaita Province of Solomon Islands, with the depth of the lagoon rarely exceeding 40 meters and shallower areas usually less than 20 meters deep. The lagoon is fringed by mangroves on the mainland side and has extensive intertidal and subtidal zones which are covered with seagrass meadows. The mid region of the lagoon has coarse sand and shell sediments and is mostly covered by coral reefs. The lagoon area possibly has the largest seagrass meadows in the Solomon Islands (Mckenzie, 2006). The lagoon is found far from the open sea and is sheltered by a vast reef area and the big island of Manaoba and contains numerous sea-based communities inhabiting artificial islands located near to channels and shallow coral reefs. The big island of Manaoba is also within the lagoon and is also protected by the reefs. The current appears to be not very strong in the lagoon. It is sometimes referred to as the “North” because of the region’s geographic location on Malaita’s northern end. The lagoon is 35 kilometres long and lies behind a barrier reef which contains about 50 artificial islands (Akimichi, 1991; Molea, 2008) and the island of Manaoba. The artificial islands range in size from the size of a football field to 20 meters long by 20 meters wide. The Lau Lagoon is otherwise only accessible by sea.

The first wave of migration to Lau Lagoon from certain parts of mainland Malaita took place some 300 to 400 years ago (Molea, 2008). There is some dispute over the reasons for settling on the



islands. Some suggest that migration occurred primarily because of tribal fighting, headhunting and cannibalism. Others suggest the early settlers migrated there because of family feuds and contentious rivalry among tribes. It was later claimed that people settled on these artificial islands because they wanted to stay in a place that is free of mosquitoes to avoid being infected with mosquito borne diseases such as Malaria (Molea, 2008). Another wave of movement occurred in the 1900s where artificial island settlers migrated back to mainland Malaita and existing naturally formed islands in the Lagoon. The artificial islands are believed to be eroding slowly due to sea level rise.

The inhabitants of the Lau Lagoon are often referred to as saltwater people (*wane i asi*) because of their close association with the marine environment, distinguished from the bush people (*wane i tolo*) who occupy the mainland of Malaita and depend on subsistence agriculture for their livelihoods. The *wane i asi* people use wooden canoes, which they normally purchase from the *wane i tolo* people, and recently fiberglass boats and outboard motor engines, manufactured in urban centres, are used for traveling to and from the islands.

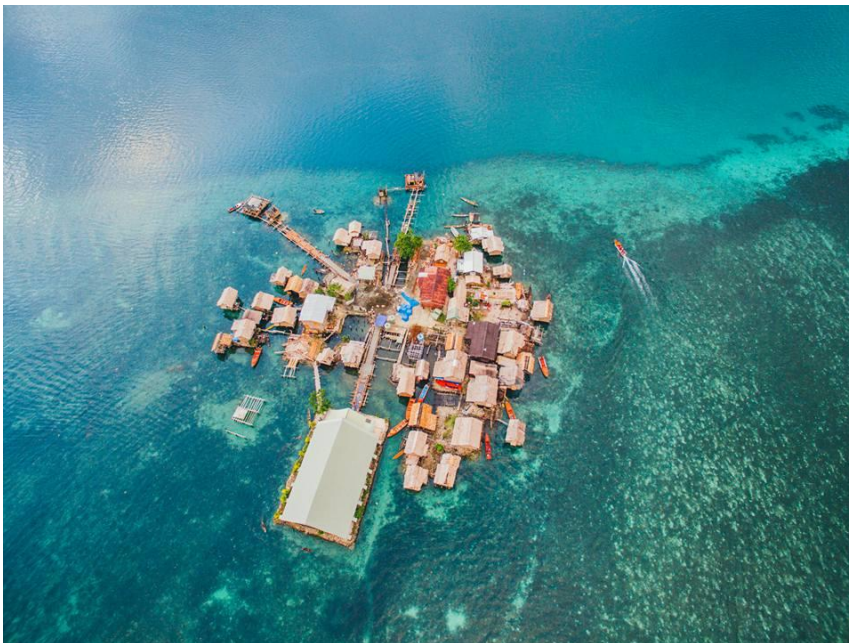
### **Artificial islands of the Lau Lagoon**

These are man-made (artificial) islands built on shallow water near the shoreline and mangrove areas, which can be exposed during low tide, and are protected by a natural system of barrier reefs. The first few artificial islands of the Lau Lagoon were built some 300 to 400 years ago (Molea, 2008). Studies by Akimichi (Akimichi, 1991) and Molea (Molea, 2008) have shown that the artificial islands in the Lau Lagoon were built largely by either piling reef stones or hard corals into mounts on the shallow reef flats or onto a pre-existing base naturally formed from submerged coral knobs that have been on the reef prior to the arrival of early settlers. Early settlers made the islands by enclosing the intertidal knobs and reefs with stones, mostly boulder corals, collected from the reefs at low tide and along the shorelines. When the enclosure reached a height of one to two meters above the highest tide mark, earth was used to fill it and it was topped with small sized corals, rubble and sand on the surface (Molea, 2008).



**Figure 3-3** A smaller artificial island (part of the community of Tauba) in the Lau Lagoon.

These small islands offer limited space for the islander's daily life. The barrier reef supports an extensive diversity of coastal marine resources which provide the economic basis of the Lau region.

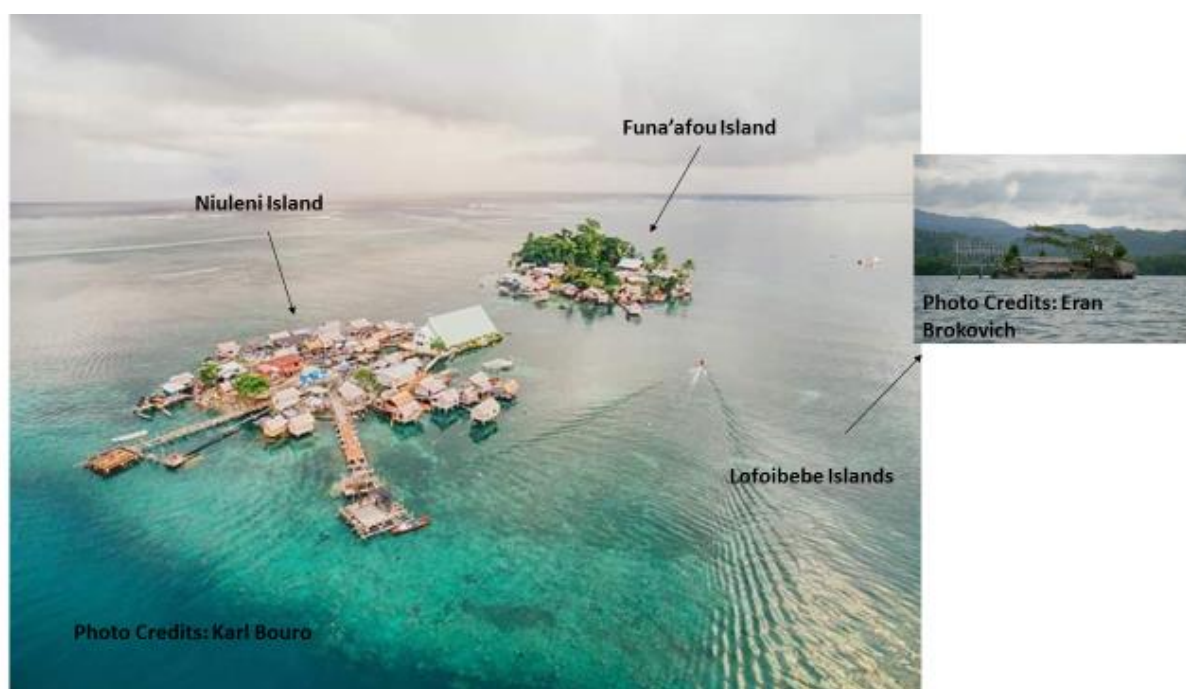


**Figure 3-4** Niuleni (part of the Funa'afou community), a larger artificial island in the Lau Lagoon, is built the same way as the small island in Figure 3.3.

### 3.2.2 The case study community setting

#### Funa'afou

Located in the Lau Lagoon, the community of Funa'afou is on the edge of the Makwanu passage found in the north coast of the Malaita province. Under this study, the Funa'afou community is made of just Funa'afou but these study acknowledges that other cases, the Funa'afou community is made up of three artificial islands namely Funa'afou, Niuleni, and Lofobebe.



**Figure 3-5** The artificial islands comprising the community of Funa'afou in the Lau Lagoon.

Administratively, these man-made islands are grouped under Foueda ward of the Lau Mbaelelea Constituency of the National Parliament. Funa'afou Island is the ancestral home to seven tribal groups, namely the Aenabaolo tribe, Ferailalo tribe, Gulai'fafo tribe, Malobo tribe, Manakafo tribe, Subaru tribe and Taralamoa tribe. Each of these tribes has a chief, who is always a male, representing their tribal *maanabeu*, the men's quarter. Their role involves liaising with the community's head-chief, also a chief, to make decisions on social, cultural and governance matters beyond the ability of respective households. There is no school on the island but children attend the primary school on Niuleni artificial island, which is two to three minutes paddling time, until sixth grade. After this children need to travel to the mainland, to Honiara and other urban centres, if they want to continue their education.

The Solomon Islands 2009 Population Census reported 28 households and 170 people, of which there are 90 male and 80 female, living on the island. The estimated population statistics within the community when this study was conducted was: two to three families living in each house; each family had three to seven children age 0-14; there were few elderly men and women aged over 60

years old; the number of unmarried youths aged 15-24 varied, with less than five unmarried girls and less than ten unmarried boys; and the total number of adult men and women being between the range of 50 to 75. Observations indicated that the demographic trend was that there were more age dependent people than productive aged people in Funa'afou; there was a decline in the number of households (less than 20 households) and household sizes were large.

The island was among the first man-made islands to be built (some 300 to 400 years ago) when the first migrants from mainland Malaita moved to the Lau Lagoon (Molea, 2008). Unlike other artificial islands in the lagoon, Funa'afou was built by piling rocks onto a pre-existing base naturally formed from submerged coral knobs that have been on the reef prior to the arrival of early settlers.

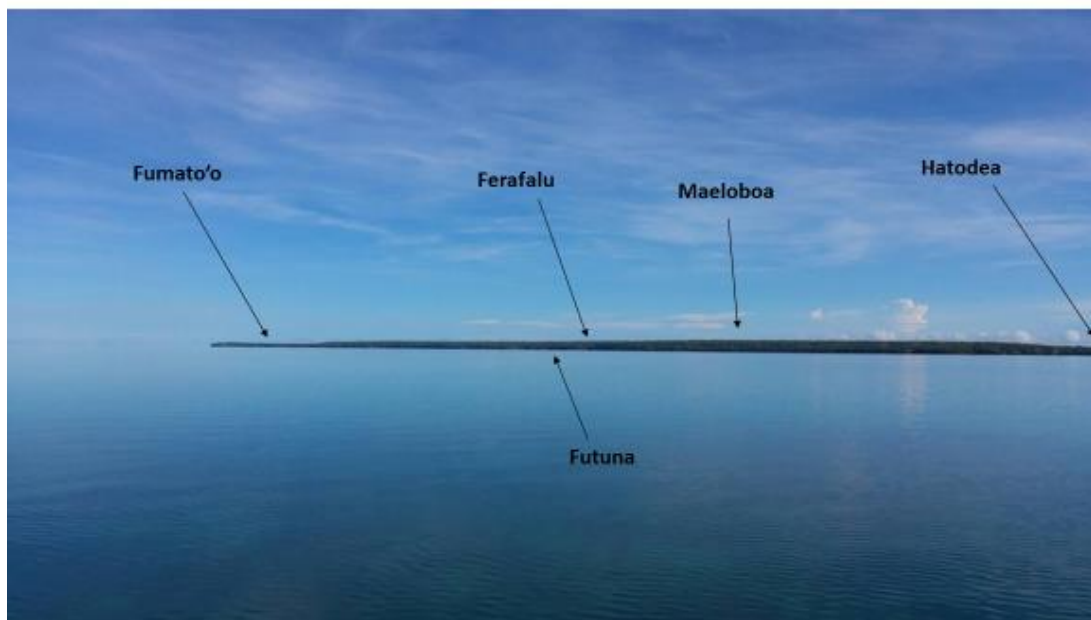
In Funa'afou, the inhabitants have historically been heavily dependent on local marine fisheries for their livelihoods and have limited access to land to grow root crops or vegetables. Because of this, the "barter" system of trade remedied the situation (Akimichi, 1991; Molea, 2008). The barter system of trade involves the islanders exchanging fish and other marine products for root crops, vegetables and other bush material products produce by the *wane i tolo*. This trading system became a significant subsistence activity in the life of Funa'afou inhabitants. Today, the barter system of trade is becoming less vital because imported alternative staple foods like rice, flour, biscuits, canned tuna and noodles are readily available and can be bought from shops. At the time of my research in 2016, the markets popularly accessed by Funa'afou people are Takwea, Sulione, Urutao and Takwa. These local markets are located in different areas on the mainland of Malaita adjacent to the Lagoon. The closest being the Takwea market is one hour paddling time and furthest being the Urutao market is three hours paddling time.

In the early days much of the islander's way of life, including fishing behaviours, were associated with many ritualistic practices because the original settlers' cultural beliefs were embedded in superstitions (Molea, 2008). However, in the 1900s a new belief, Christianity, was introduced to the islanders and resulted in many young converts and desertion of these cultural beliefs as they pursued the newly introduced teachings of the religion. Because the elders believed the converts to be violating the ancestral island of Funa'afou, resentment sprouted between the elders and the converts. Hence the converts resorted to building the artificial island of Niuleni and others to ease the tension, escape the heathen practices on Funa'afou and build a church for their new religion, the Seventh Day Adventist (SDA). Currently, a minority of the island's population are active SDA church

devotees whereas the majority are SDA ‘backsliders’<sup>6</sup> and heathens<sup>7</sup> who do not go to church services.

### **Fumato’o**

Fumato’o is located on the western end of the island of Manaoba in the Lau Lagoon (Figure 3.6) under Ward 12 of the Lau Mbaelelea Constituency. The island of Manaoba is home to five large communities, including Fumato’o, and there are numerous hamlets located in different coastal parts of the island. The interior of the island was logged by an Asian logging company from 2000 to 2001, but the operation stopped at the end of the second year. The research participants in Fumato’o speculated that the operation was halted as there was corruption involved leading to dispute over land tenure. An airstrip was built in 2012 on the southeast side of the island, but flight services could not operate immediately due to technical issues, disputes over royalty benefits and an unresolved land ownership case between some of the local tribal people on Manaoba.



**Figure 3-6 The island of Manaoba in the Lau Lagoon.**

The community is made up of four villages namely, Fumato’o, Gelaulu, Kwaila’abu and Orukalia (locally known as ORK), and have about 130 residents in total. Gelaulu and Kwaila’abu are neighbouring hamlets, which face the mainland Malaita, located along the southern coast of the

---

<sup>6</sup> Backsliders means people who were born in that religious, for example the Seventh Day Adventist, or being converted but no longer attend church services because they do not observe or violate the principles of that religion.

<sup>7</sup> The term ‘heathen’ is used in this thesis to reflect common usage of the distinction in the three case communities. It is not used in pejorative sense. It refers to those people who are not converted Christians or never go to any church services.

island of Manaoba adjacent to the Lau'alo passage. ORK is situated northeast of Fumato'o and adjacent to the Lade passage. The people residing in Gelaulu, Kwaila'abu and ORK are former residents of Fumato'o, and they originate from 6 tribes: Duruana, A'ausmaloa, A'ausiuala, Boeboe, Takwa-odo and Amana. Several families resorted to establishing the villages of Kwaila'abu, Gelaulu and ORK to ease village hostility, escape physical violence and start a new life for their families. Almost all the locals have ancestral ties to the community of Hatodea, which is located on the eastern side of the Manaoba Island, Funa'afou and other parts of the lagoon. The chief system is no longer active, and in the absence of that, decisions are made collectively by men and women of the community.



**Figure 3-7 Part of the village of Fumato'o on the island of Manaoba.**

Social groups have been formed in the community due to the community's prior engagement with external partners and for church related activities. There have been two previous projects, funded and carried out by Australian Aid and the Red Cross, that have provided water tanks and gardening tools to community residents and building materials for the community's school. Recently, an NGO (WorldFish) has been supporting the community to improve resource management. The primary sources of water are wells, rain water and often if people need water they take bottles to the mainland Malaita to fill. Currently, the whole community are active Catholics.

The community has its own primary school and recently, in 2014, a high school. Urban drift in Fumato'o is occurring at a relatively low pace. A minority group of people left the community

permanently because of family or tribal feuds, social deviation and unfavourable cultural norms. Others commute to urban centres because of job opportunities, better schools, better access to health services, and other social and cultural amenities. These urban drifters often return to the community for occasions like holiday seasons, traditional feasts and weddings and funerals.

### **Tauba**

The island of Tauba is situated adjacent to the Island of Manaoba and Uru'uru on mainland Malaita in the Lau Lagoon (Figure 3.8). A larger part of Tauba has a pre-existing base naturally formed from large submerged rocks and limestones but the middle part of the island is piled with rocks like the island of Funa'afou due to the island's very low elevation of about 0.9 meters above sea level.



**Figure 3-8 Tauba Asi – one of the hamlets that is part of the community of Tauba.**

The community consists of four main hamlets namely, Tauba Asi, Ba'ali Tauba, Uru'uru and Kwaenadu, and is inhabited by more than 30 households in total. During the time of this research, there were several tiny new hamlets scattered to the east and west of Uru'uru and for proximity I grouped them under Uru'uru. The settlement on the mainland, like Uru'uru and Kwaenadu, was established due to increasing population leading to competition for housing space, tribal feuds, and unfavourable social and cultural norms that had led to social tensions between individuals and families.

Around the early 1990s, the community experienced a huge urban drift and people started marrying outside of their community and respective tribes. The respondents believed that people settled in urban areas like Honiara and Auki because of more job opportunities, better schools, easier access to water, better access to health services, and other social and cultural amenities. These urban drifters regularly return to the community for occasions like Christmas holidays in December to January, weddings and funerals. The whole community are active Catholics.

Administratively, Tauba is part of the Foueda Ward. There is little NGO activity in the area of resource management, with the exception of Australian Aid, UNDP and the Red Cross, which provide building materials for the school and housing, solar panels to improve lighting, and piping to improve access to safe drinking water. The Tauba islanders' subsistence depends mostly on marine resources. Their alternative livelihoods include agriculture, piggeries, seaweed farming and casual-paid jobs. Many of the islanders have limited access to land for agriculture and the barter system of trade became a substantial survival activity and remains so. At the time of my research, in 2016, the markets popularly accessed by the Tauba islanders are: Nadi, Rewa, Takwa, and Ulunabaolo which are located in different areas on the mainland Malaita adjacent to the lagoon. The closest is the Rewa market which is one to two hours paddling time and furthest is the Takwa market which is three to four hours paddling time. The community has a primary school located in Uru'uru on the mainland so all school age children are schooled there until sixth grade and if they want to further their education they travel to Takwa Community High School, St Paul High School in Fumato'o or other schools in mainland Malaita and elsewhere in Solomon Islands. The school receives grants from the Solomon Islands' Government (SIG) and external partners to fund administration programmes.

### **3.3 Chapter summary**

The Solomon Islands contains many islands scattered over a large body of ocean area. There are nine provinces and the case study communities are located in Malaita Province, the province with highest population. All three case study communities are found within the Lau Lagoon. The communities have different physical features but are all located adjacent to mainland Malaita. Two of the case study communities (Funa'afou and Tauba) are artificial islands, while the other, Fumato'o is located on the island of Manaoba. These respective case study communities are made up of households that are either nuclear or extended. The population of Malaita Province has increased rapidly over the past decades. In the context of the governance structure of the study setting, the national government is the highest entity, followed by the provincial government and the community leadership arrangements at the community level. The connection between the national, provincial and community governance is clearly defined as well as the connection between community leadership and the provincial government. Malaita Province is one of the largest contributors to both



the informal subsistence sector and the formal sector of the Solomon Islands. It has an extensive economic production base and an economy that is invested in by external investors especially in the agriculture, forestry and fisheries sectors.

# Chapter 4

## Research Methodology

### 4.1 Introduction

This chapter outlines the methodology used to conduct the research. Particularly, it outlines the research approach, strategy and methods of data collection used in the research. It also outlines the processes used in the design and data collection (including sampling strategies), the limitations encountered during the research and ethical considerations.

### 4.2 Research questions elaborated

This study has three guiding research questions (see section 1.1):

1. What are the social constraints that rural Solomon Islands' communities face in facilitating sustainable marine resource management?
2. Do interventions aimed at supporting the role of fisheries in providing food security to communities in the Solomon Islands result in long lasting improvements to their livelihoods?
3. What characteristics of places and interventions appear to improve the probability of a successful intervention?

These were derived from three main assumptions.

1. The success or failure of interventions that try to establish long-lasting community-based management of marine resources in Malaitan communities is determined by the social characteristics of the community more than the biophysical characteristics of the communities or the type of intervention used.
2. The government decentralization strategy allows greater participation and empowerment of local communities in resource management and decision making.
3. Opportunities for collaborative arrangements between other rural communities and external partners are based on existing and induced sustainable practices.

The three research questions and the underlying assumptions offer direction to the development of information objectives. These shaped the research strategy and enabled questions to be addressed.

The objectives were to:

1. Identify cases of successful; and failed CBMRM initiatives
2. Document and describe the social characteristics of the community
3. Document and describe the nature of the CBMRM interventions
4. Gather information that enables an understanding of the nature of the relationship between locals and external partners

Achieving these information gathering objectives enabled a comparison of successful and failed CBMRM and the social relationships that affected the outcomes.

### **4.3 Research strategy**

This research was carried out using a qualitative approach which considers and compares several case studies. Although the research method used is qualitative, triangulation and interpretation were supported by information obtained from related documents.

#### **4.3.1 Qualitative research**

The qualitative method finds meaning from the view point of people living in real-life environments (Bryman, 2004; DeHoratius & Rabinovich, 2011; Malterud, 2001; Quinn Patton, 2002) while quantitative methods investigate meaning using measurements or standardising data (DeHoratius & Rabinovich, 2011; Leppink, n.d). Because qualitative research is seen as an interpretivist strategy, it adopts social constructions of reality (Huan-Niemi, Rikkonen, Niemi, Wuori, & Niemi, 2016) rather than the objective reality of social facts (Leppink, n.d). Qualitative methods generally generate data as words (Bryman, 2004; Malterud, 2001; Quinn Patton, 2002) whereas data obtained from quantitative methods are numerical (Leppink, n.d). This does not mean that qualitative data cannot be categorised and analysed using quantitative methods. However, in qualitative research, the researcher immerses herself or himself in the researched environment to collect data (Malterud, 2001; Quinn Patton, 2002). Because this method includes subjective elements, the researcher understands the social setting from the viewpoints of the studied research participants (Malterud, 2001; Quinn Patton, 2002).

Qualitative research using multiple case studies was chosen as the most appropriate methodology because of the nature of this study as descriptive, exploratory and explanatory. The descriptive, exploratory and explanatory nature of research allowed the researcher to seek answers to the how, what and why questions respectively (Malterud, 2001; Quinn Patton, 2002). The research is

descriptive and exploratory by nature because it tries to describe and explore the phenomenon of success or failure of CBMRM in communities and its relationships with the community's social characteristics. In order to gain deep insight and understanding of the phenomenon under study in their natural environment, I adopt an ethnographic technique to gather data. Ethnographic techniques are qualitative methods (Elmir & Schmied, 2016; Furuta, Sandall, & Bick, 2014; Konu, 2015) that require the researcher to be immersed in the social environment over a lengthy period of time.

Before I went out to the case study areas to collect data, I initially did a literature search about the phenomenon (CBMRM) and theory in order to educate myself. A presentation by Lazarides (Lazarides, 2010) called this initial phase 'theoretical sensitivity', which she borrowed from Barney Glaser's early work in 1978, and it is significant because of the opportunity it presented for me. I predetermined that some case studies were examples of failed CBMRM and some were examples of successful CBMRM, and my reading of the literature shaped the questions asked in this research. Having followed a standard multiple case study approach which set out to compare three examples of CBMRM that use the same type of resource management approach, I recognised that the approach to implementing CBMRM in each community might be different and that the characteristics of each community were different. This requires the researcher to have an adaptive strategy while studying the phenomenon in its natural environment because there were too many variables and also too few cases to undertake hypothesis testing research of CBMRM. Adopting an adaptive approach is essential because a researcher will never know what they will need prior to entering field research, so flexibility in the research design permits space for adaptive management of the design of the research and protocols, especially in unforeseen events.

### **4.3.2 Case study approach**

By using a case study approach, an individual researcher is given a chance to conduct an in-depth study into one part of a problem over a small period of time (Bell, 2005; Yin, 1989). Kohlbacher (Kohlbacher, 2006) expanded that view by saying that a case study is used to study a specific phenomenon within a real-life environment, often with a specific purpose. Yin (Yin, 1989) explained that the justification for adopting a case study approach is to explore the boundaries between a phenomenon and the context due to existence of limited evidence and applicability of multiple sources of evidence. In addition, Kohlbacher (Kohlbacher, 2006) and Babbie (Babbie, 2001) described case studies to be appropriate because they are instrumental to deliver insight and broad understanding of the phenomenon under study centring on process and discovery. Hence, it is justifiable to use a case study approach in this research because the focus is to gain insight and understanding into the relationship between the types of interventions that CBMRM advocates

used that may influence social behaviours of people in community to support long-lasting CBMRM. Yin (Yin, 1989) further described case study as a useful tool for analysis either using qualitative, quantitative, or triangulation methods.

Stake (Stake, 2000) and Thomas (2003) reported that researchers used a comparative case study to support the richness of their data. Multiple case studies offered more compelling insights and evidence (Burns, 2000) related to the phenomenon under study. It also offered the researcher a venue to make assessments about the phenomenon under study because of diverse views and possible triangulation. This research explores, describes and explains the phenomenon under study over different localities within the same area.

### **4.3.3 Case study design**

Yin (Yin, 1989) have found that a case study design is made up of several parts. The different parts are as follows:

- 1) Research questions

This was outlined in Chapter 1.

- 2) Proposals

To address the research questions, I proposed an inductive case study approach with selected possible theories (CBMRM and Co-management) with a focus on three case study communities. I carried out the field research with an open mind. Based on past experience, research proposals and human ethics committee application requirements, I proposed a set of interview questions (see Appendix A), to guide field interviews. These guiding interview questions were structured as open-ended questions with prompting questions attached to capture information given by research participants.

- 3) Unit of analysis

To address the research questions and to achieve the objective of this research, my focus is on three communities as case studies.

Geographical communities are the units of analysis in this research. The communities needed to meet criteria based on their potential to provide relevant information to meet the research objectives. The selection of the case study communities was based on the following criteria, they: (1) are managing fishing; (2) have a diverse range of involvement in the management of their marine resource (they receive different forms of support from outside and from within the community and

engage differently with the external supporters); (3) use different ways of working and intervention to mobilise participation at the community level, and (4) have diverse experiences (in terms of success or failure) in managing their natural resources.

Funa'afou, Fumato'o and Tauba (described in Chapter 3) were the communities chosen as meeting these criteria. Local knowledge was a factor in their being chosen.

As indicated in Chapter One, I am from Manaoba (Hatodea Village) and have previously worked for WorldFish (Solomon Islands based) as a researcher involved in CBMRM initiatives. From that background I was aware of attempts to establish CBMRM approaches to marine resources in the Lau Lagoon. The three communities were selected because they appeared to have attempted to achieve CBMRM differently and with different outcomes. My initial understanding of the situation in each was as follows.

In 2008, a Conservation NGO (WorldFish) and The Solomon Islands Ministry of Fisheries and Marine Resources (MFMR), started a CBMRM programme with two communities (Funa'afou, my proposed case study area was one of them) in Lau Lagoon, Malaita. Funa'afou is now an inactive CBMRM project. The CBMRM activities at this community ended after a 5 year project period. Tauba, on the other hand, started managing their marine resources on their own by the establishment of a Marine Protected Area (MPA) which has rules, but with no project funding or direct support from external partners. The MPA was going well for up to three years, however, it also appears to have ended. The third of my case study communities, Fumato'o, is currently working with the same NGO (Worldfish) that previously worked with Funa'afou community and they have an ongoing CBMRM activity.

As discussed in Chapter Three, these three communities are related through social connections (e.g., ancestral ties, religion). Most ancestors of people in Tauba and Fumato'o also come from Funa'afou. There is a tribal system of ownership of fishing grounds in reef areas within these communities. Each community has several tribal groups with different levels of access rights, hence ownership is complicated so often disputes arise between the different tribes. Decision-making structures and physical contexts vary between the three communities, but not to an extent that would render comparison inappropriate.

#### **4.4 Data collection**

When undertaking this research I used three main methods to collect data. Primary data was gathered through conducting semi-structured interviews and focus group discussions with selected participants and groups in the three case study communities. The purpose for collecting primary data in Funa'afou, Fumato'o and Tauba was to: gain first-hand experiences, views, activities, feelings and

behaviours of rural community people in order to understand their relationship with external partners; and, assess the social setting of these communities.

Secondary data was gathered from scientific journals, reports and online sources to narrate context evidence.

#### **4.4.1 Semi-structured interviews**

Studies by Pickard (Pickard, 2004) have found that research interviews differ from very formal and structured to relatively informal and unstructured. The research adopted the method of semi-structured interview using open-ended questions to allow participants the freedom and privacy to express their views in their own terms. An interview question was set up (see Appendix A) based on the concepts of social aspects, interventions, community engagement and capacity to innovate. These questions were set as guiding questions to trigger conversation and possibly probe during the fieldwork. Ideally, semi-structured interviews enable in-depth replies about the researched phenomenon from the research participant's viewpoint, and this was found to be the case in carrying out my fieldwork.

These semi-structured interviews were the prime method of gathering data for this case study. I carried out a series of semi-structured interviews over a five week period in the three different communities. The preference for using this method was based on my previous experience that the use of quantitative survey questions is often biased because most people living in the community are illiterate so tend to seek help from others to answer questions. Also certain marginalized groups of people in the community (e.g. women and youths) do not have the freedom and space to contribute to discussion in larger focus groups settings. A sample of the questions asked is attached in Appendix A. The intention of these interviews was to gain insight into the social characteristics and the capacity of the respective communities. Also, it was to capture the social constraints that these respective communities face towards marine resource management. In addition, the interviews were used to investigate how the participants interpreted the success or failure of interventions that tried to establish long-lasting community-based management of marine resources in their communities.

Interviews were conducted with selected community members of each of the case study communities according to target groups. As I am from the case study region, I speak the local dialects fluently and no interpreter was required.

The target groups were fishermen, fisher women, resource owners, resource users, youths, elders, church leaders, and women's groups. (1) Fishermen and women were people who fish and collect sea resources; (2) youths were boys and girls who are within the age range of 15 to 24 years old, however some adult men and women of ages 25 to 35 were considered part of the youth category

because they were either a single parent, un-married or physically young and were the ones whom the elders and leaders delegate most community tasks to; (3) elders and church leaders were older people over the age of 35 years, who have leadership roles in the community and church, and they participate in decision-making processes; (4) women's groups refers to women in general and they were not necessarily members of the women's church groups or the community women's association; (5) resource owners were generally those who claim to have ownership of certain fishing grounds, they were also fishermen, elders, and church leaders; (6) resource users refers to all groups categorized under 1, 2, 3, 4, 5, and 6.

#### **4.4.2 Focus group discussions and interviews**

The semi-structured interview approach was complemented by focus group discussion (FGD) and interviews. These were undertaken to add depth and richness to the data collected in the series of semi-structured interviews. FGD and interviews were used to talk to the members of resource management committees in each of the communities. FGD in small groups is useful in this study because it offers the opportunity for me to seek clarification, and to obtain detailed information about group feelings, perceptions and opinions in a broader sense.

#### **4.4.3 Personal observation**

The field research was supplemented by my general observations on the interaction of people within the community in relation to livelihoods and social relations. Where aspects of interchange between participants occurred that appeared relevant to the research topic these were noted in a diary.

### **4.5 Field research procedures**

The basic field research procedures are contained in Appendix C. The field research was supposed to take place in June but occurred in July and ran onto August due to delays in obtaining Lincoln University Human Ethics Committee approval. Once obtained, the research was conducted in accordance with the approval and field procedure. The field protocol for initiating and undertaking the research in an ethically sound fashion is described in section 4.6 below.

### **4.6 Sampling strategies**

In any research the sampling strategies always include frame, size and methods. In this research, the sampling frame are the three communities and the sampling unit is the individual research participants I selected (18 from Funa'afou and 15 from Fumato'o and Tauba respectively). At the time of this research, there were no updated population statistics on each of the case study communities, however the 2009 population census indicated 170 people living in Funa'afou, 298 inhabitants in Fumato'o and 296 in Tauba.



In total 45 interviews were carried out, of which, 17 people were in Funa’afou, 15 people in Fumato’o and 13 people in Tauba.

In qualitative case studies, there are several sampling methods commonly used including purposive sampling and quota sampling. In this study, purposive sampling is employed and the sample population is selected using predetermined criteria. I used purposive sampling in this study because it enabled me to choose individuals who are: decision makers; people not usually involved in decision making although they attend community meetings; resource owners; a range of ages; and of different genders. So a sample of participants selected from those groups were (1) members of the resource management committee or those who have a position in an informal management structure for focus group discussion; and (2) a randomized quota of members of the community for interview. I aimed for a random quota of: 20% reef owners/men; 20% from women’s groups; and 20% youth (fishers and non-fishers). A sample of these people was selected from each case study community.

**Table 1 The distribution of interviewees by the different categories.**

Community name	Total Households	Committee members/ leaders involved (FGDs)	Women (20%) (interview)	Youth (20%) (fishers and none fishers) (interview)	Reef owners/ Men (interview)	Total participants
Fumato’o	20	7	5	5	5	15
Tauba	20 (approximate)	2	5	5	5	15
Funa’afou	28	6	6	6	6	18

It was suggested early and later confirmed during the field research that it is common for people in these target audiences (especially men) to have multiple roles, for example, a reef owner is normally a male who is also a fisherman and a member of the resource management committee. The researcher was aware of this and therefore able to incorporate relevant questions in the semi-structured interview questions to cover all roles when presented with a research participant in that situation.

The most common disadvantages associated with purposive sampling are misrepresentations produced by complexities in sampling and alterations over time. However, my understanding of the case study region and personal acquaintance (I previously worked with an NGO in Funa’afou and Fumato’o) with the case study communities has aided me to make sure that the selected research participants were representative. In addition, the number of participants in the research was sufficient to address the research objectives. The complexity of the sampling was overcome by using

FGD and interviews with key informants. The FGD and interviews with key informants provided comprehensive views on aspects that required clarification or were often unsatisfactorily addressed in the semi-structured interviews.

#### **4.6.1 Data triangulation**

Bryman (Bryman, 2004), Kohlbacher (Kohlbacher, 2006) and Yeasmin (Yeasmin, 2012) refer to triangulation as the assessment of data using multiple data sources. This is to verify the validity and reliability of the data collated. However, the value of the data could be assessed by a number of checks that compare data collection techniques in the research.

According to a FAO report (2002), triangulation can be methods, data, theory, investigator triangulation and case study protocol designs. Tungale (2008, pg. 65) said,

*“Methods triangulation involves using various methods for collecting and analysing data. Data triangulation relates to various sources and data types. Theory triangulation is when various theories are used to explain and describe phenomena under study. Multiple triangulations involve several cases, and investigator triangulation is a situation where several researchers undertake the same research”.*

In this case study, triangulation was achieved by employing different research methods, collecting different types of data, consideration of different theories from the literature and using three case study communities as multiple triangulation.

Data was produced in the form of voice recordings, written text, and field notes. Investigator triangulation was not considered in this research for logistical considerations (e.g. cost, training time, availability of suitable people).

#### **4.7 Ethical considerations**

Ethical considerations are a crucial component in any social science research. In this project, ethical approval was pursued and approved by the Lincoln University Human Ethics Committee. Ethical considerations in such research mainly address potential impacts that may surface due to the implementation of this research and measures to protect the participants (Family Health International, n.d). Because this study uses human subjects, it is a customary Lincoln University policy protocol for this study to secure ethical approval from the Lincoln University Human Ethics Committee prior to commencement of field research. The Lincoln University Human Ethics Committee Application Form Guidelines (2014) clearly state four primary principles as pillars to governing sound ethical research involving human participants. These are informed consent, respect for rights of privacy and confidentiality, limitation of deception and minimisation of risk.

The process leading to the interviews with locals in each of the communities was: I visited the head chief in Funa'afou, an appointed community elder in Tauba and the vice-chairman of the resource management committee in Fumato'o on the same day. However their responses were to continue interviews on different occasions. During the visits, I briefly mentioned in the local dialect the purpose and aim of my research, why I chose their communities as my case study area and gave each a cover letter written in English (see Appendix F). Once I received feedback to proceed in each of the case study communities, I sought potential research participants and gave them recruitment letters (see Appendix G) before I started the interviews. On each day before each interview began, the Research Information Sheet (RIS) written in English (see Appendix E) was given to the research participants following a brief introduction from the researcher and the participants.

The rationale was to make sure that the research participants had a very clear understanding about the aims of the research, the way I was going to collect information and next steps on how I was going to use that information. Besides that, the RIS informed research participants about their rights in participating in the research and that they could withdraw from participation after the interview if they desired. Following this, research participants were given a consent form to sign. The consent form (see Appendix D) officially confirmed that the research participants consented to take part in the research and that I would decide whether to tape our interview or not. This process was repeated across all three case study communities. The confidentiality of research participants was maintained through a number of ways. First, I was the only one transcribing the interviews. Second, names and contact details of research participants were not used in data dissemination. Third, pseudonyms or code names will be used in any written or oral presentations. Finally, no individual identifying information will be presented in public.

#### **4.8 Data analysis and interpretation**

In this research, the use of qualitative methods generated vast and rich textual data which required description and summary. To do that, I separated the data analysis process into two steps. The first step involved analysis of each individual case study community and the second step involved the cross analysis of all three case study communities. The first step was set out in such a way that the one-on-one results from the three case study communities were fit together as a single discussion. The data analysis and interpretation methods and procedures used in this research reflect similar techniques and methods as described by Lofland (et al, 1995), Miles (et al, 1994) and Davidson (et al, 2004). The procedures for extracting meaningful data were: data reduction, followed by data organization and display, and finally data interpretation as well as verification and conclusion. Step two of the data analysis process followed as soon as the one-on-one case study community analysis was completed, which is the cross analysis of the three cases.

In the field, I was able to take few notes because from my experience note-taking and engaging in a conversation is often really distracting especially to the research participants (participants were usually distracted and stopped talking when they saw the interviewer writing or not maintaining eye contact). The interviews were conducted in my local dialect (Lau) and were recorded using a voice recorder. I was able to download all the recordings into my personal computer and cell-phone after the field research. The interview data was transcribed later and stored in my personal computer and flash drive, and this gave me the chance to familiarise myself with the data gathered. I was able to acquire a better sense of the conversation shared and gain a better understanding of the situation by transcribing the interviews and listening to them.

#### **4.9 Constraints and limitations**

During the research, the main constraints encountered were found to be related to practical methods. Although I am familiar with all three case study communities, I faced minor complications when I delivered the cover letter to the chief in Funa'afou. That is, there was some confusion between this research project and my past work and the elders expected financial payments from me for conducting research in their community. To overcome this I had an informal meeting with them to re-brief them and ensure they were clear in their expectations of the project. The informal meeting and "word of mouth" made it easier for me to explain the information sheet to research participants, but I spent more time explaining some of the guiding questions due to the low level of literacy in the community. The other two case study communities also had low literacy levels, but all research participants had no problem signing their signature on the consent form. I was unable to achieve the proposed number of research participants for interviews in Funa'afou (I interviewed 17 people when I should have interviewed 18 people) and Tauba (I interviewed 13 people when I should have interviewed 15 people). In Funa'afou, a potential research participant left suddenly to attend to their personal commitments as well as their neighbour whom I planned to interview as substitute in the absence of potential research participants. In Tauba most of the youth target group was absent from the village (they were in Honiara to support a social/ cultural event concerning their youth). I was unable to conduct a focus group discussion with some of the remaining Marine Resource Management committee members because some of them advised me not to do so. They are not on agreeable terms with each other because of a fishing project. Fishermen who were part of the project were selected by the local fishing project owner but initially everyone hoped that the project would include all fishermen on the island. I only travelled to Funa'afou during the daytime to conduct interviews and to avoid further straining relationships between different households because of the financial implications of my accommodation which would benefit only one household. I did not have accommodation problems in Fumato'o and Tauba.

#### **4.10 Chapter summary**

This research used a qualitative research approach and the research paradigm that was used in this research was the constructive-interpretive example. A combination of these paradigms guides the researcher to communicate with people, recording their individual opinions and views, and interpreting their opinions and views. A multiple (3) case study approach was used as a research strategy in this study. Prior to conducting the research the field research procedures were drawn up. A sampling strategy was also considered as the study involved sampling, specifically purposive sampling. A triangulation strategy was employed for validating the credibility of the data collected. Various methods of data collection, primarily interviews and participant observations and analysis were used to collect data. The research constraints and the ethical considerations have been presented.

As the following chapters demonstrate, the methodology has provided information enabling substantial contributions to knowledge and theory with regards to forms of resource management regimes and the success and failure of resource management in rural communities in Malaita Province.

## Chapter 5

# Results: Constraints and facilitators of sustainable marine resource management

### 5.1 Introduction

This chapter presents the social considerations and structures that communities found to be obstructing or prompting effective implementation of marine CBNRM in rural Solomon Island's communities. This chapter also presents the capacities that people and communities found to be supporting marine CBNRM in rural Solomon Island's communities. The results in this chapter are supplemented in certain places with relevant observation and are summarised in tables at the end of each major section.

### 5.2 Constraints that rural Solomon Islands has faced in facilitating sustainable marine resource management

In this section, responses are reported from two of the case study communities (Funa'afou and Tauba). The rationale for the difference in interview questions is because these two case study communities are no longer carrying out resource management in their community. When asked to identify the difficulties (afetaia or ilitoa) that different groups in the community face in helping sustainable management of marine resources, the participants in the two case study islands mentioned a number of factors that can be grouped and are reported under the following headings: cultural norms, cultural change, disconnected communities, and structural constraints.

#### 5.2.1 Cultural norms: Gendered roles

##### Funa'afou

All participants in Funa'afou and a lessons learned study conducted on resource management in the community (Govan, 2013; A. M. Schwarz, Andrew, N., Govan, H., Harohau, D., and Oeta, J. , 2013) pointed out that the roles of men and women are different according to gender although they are both actively involved in community activities, in producing food and income, and in preparing food and taking care of their families. FUNC05 said,

*“Men attend every meeting in this village held by people from outside. They always make themselves available to go to meetings and training organised in the village or outside the village. Only funerals or someone in the family being very sick would prevent them from attending these meetings. Household chores are just small responsibilities and they leave them instantly and do it later”.*

From my personal observation, there are more men on local committees and in regional and national politics. Men have more opportunities to travel outside of the community to meetings and training than women, who have the primary responsibility for child care and work longer hours. These different roles can affect whether and how men and women are able to participate in, and how they are impacted by, decisions about resource management.

All participants in Funa'afou pointed out that the gender roles of men and male youths are different despite both having active roles in community activities, manual work and decision making processes. FUNC15 said,

*“Elder and adult men do most of the talking during meetings and training unlike us youth boys, we do not talk much because we might say something wrong. So we youths let elders make decisions for us, while we wait for them to tell us to what to do, like manual work. But when we youths do not participate or are slow to do the work, the elders and adult men act unfriendly and use foul language towards us youths”.*

FUNC11 said,

*“Elder and adult men are more mature than youth boys because elder and adult men have visited different places and have done similar things in the past that youths nowadays do. So elder and adult men make good decisions, because of their great experience, than youth boys”.*

From my personal observations, both elder men and young men are always present in local, regional and national events. Elderly men are confident public speakers while young men are often too shy to speak up. Young men have the physical attributes and ambitions to participate in doing manual tasks while elder men give instructions and regulate manual tasks. These various roles can affect the ethical behaviour of elder men and youth men and how they participate in resource management activities. For example, few elder men often take credit for work done by some young men. Such deception can be damaging to the trust of those young men and this results in conflict and retaliation.

All participants on Funa'afou described that men and women often have different motivations for getting involved in managing resources and hold different objectives for management. FUNC04 said,

*“Some men get involved in resource management because they were told by others that they will get rewards when they attend meetings”.*

FUNC16 said,

*“Women participated in the management of sea resources because they wanted to make sure that there will be more resources out in the sea for the future of their children and their children's children”.*

The presence of dominant gender roles and norms in the community sometimes affects community representation and interests. For example, men tend to look more at the land and sea for ways to generate income while women may place greater emphasis on how the land and sea can provide adequate food for their families.

### **Tauba**

On Tauba, the research participants identified gender inequality as a social constraint that their community faces in the implementation of community development activities like resource management. They said that men and women share household responsibilities and chores but they played different roles when it came to community activities. TAU05 said,

*“Women and girls do not have extra time to attend meetings and training like men. They do most of the cooking, cleaning and look after children all day long if they do not go the garden on certain days. Doing these household chores plus gardening takes up a lot time which leaves them exhausted afterwards”.*

The representation of women from Tauba in meetings, workshops and training is described by research participants as minimal and dominated by men for various reasons. TAU01 said,

*“Whenever external partners hold workshops in our community, they always ask us to select people to attend the workshops. To be honest, we have selected more men to go to workshops than women in the past. We try to make women attend these workshops but they are often very unwilling so we just leave them alone to do what they usually do. However, in some of the workshops where we were fortunate to have two or three women present, the domination of the discussion by men did not help boost women’s confidence in public speaking at all. I think they feel intimidated by men so are unwilling to talk about their personal views or say little during meetings”.*

In addition, all research participants on Tauba reported that men are very much more proactive than women in attracting the attention of external supports into their community but maintained that women also support men. TAU05 said,

*“Men regularly travel a lot to other parts of the lagoon and outside the province. During these trips they encounter new ideas and networks which they share with other folks on the island. People in our community like new ideas so it will catch everybody’s attention if anyone talks about something new. Also people here tend to listen well when men say something. When women talk it will be just for the women but women are also in the background influencing their husbands”.*

TAU04 said,

*“For example, Mr. John was the person responsible for reviving the traditional tabu of marine resource management in our community. We*



*elected him to represent us in the Provincial Government to bring change in our community. But in general men are outspoken, confident, good public speakers and very determined”.*

Based on informal conversations with several men and women on different occasions, the community of Tauba established a marine protected area (MPA) in 2004 when Mr. John was elected as provincial member in the Malaita Province Government. He was the individual who brought staff from the Malaita Provincial Fisheries department to talk to the community about marine resource management. The project was initially about increasing production of fish for food and for the market, and later for conservation of the fish stocks. The community project was entirely coordinated and carried out by Mr. John and members of Tauba community, and there was never any form of support from any outside organization.

In my observation on Tauba, the representation of women on local committees and in regional associations and networks is minimal compared to men. Women are often unwilling to attend meetings organized by external partners because they are ashamed of being illiterate and were weighed down by low self-esteem, lack of confidence and loaded domestic chores and responsibilities. Men, who have the primary responsibility for producing income, may have more opportunities to travel outside of the community to meetings and training than women. These different roles can affect whether and how men and women are able to participate in, and how they are impacted by, decisions about resource management. These various roles can affect the behaviour of elder men and young men and how they participate in activities about resource management.

## **5.2.2 Cultural change**

### **Funa’afou**

All participants on Funa’afou pointed out that the loss of certain traditional practices played a role in the downfall of resource management in the community. FUNC12 said,

*“Although we still place sticks to tabu our alata, it is not very effective as it was in the past. I believe that people do not have respect for traditional tabu because reef owners in our community no longer have the furai’kwaikwai net in their possession. This traditional fishing net gives power to our decision to tabu our fishing grounds for people to respect the tabu and not steal from it. When a reef owner made a tabu and possessed a furai’kwaikwai, the visual image it showed to people is that the tabu is for an important social events like feast, funeral, and wedding. Such events are important to all people in the community and they brought people together despite feuds and hostility”.*

Apart from that, all the research participants identified that their culture has changed rapidly leading to underrating traditional systems of leadership. FUNC06 said,

*“The customary system of electing chiefs is good but often those chiefs are not good leaders. Their bad attitudes towards others made people not respect them and not listen to what they say. We cannot change this system because we do not want to further agitate the leaders’ families or cause enmity among or between tribes in our community. Such unskilled leadership in our community is not helping us with any plans for management of our resources”.*

## **Tauba**

On Tauba, all research participants pointed out that people are no longer practicing the traditional management practices so the change is really affecting resource management initiatives in their community. TAU03 said,

*“Our tribes inherit land and fishing grounds through our male lineage. It has been our culture for many generations. But today we face problems with this tradition, because this system controls how men and women access resources and take part in tribal activities. For example children from the women’s side of the family now have a share in looking after coconut plantations and some parts of the fish grounds”.*

TAU13 said,

*“A big problem for us today are orphans with maternal ties to our community who do not have access rights to fishing and land for gardening and building houses. In the process of bonding with close relatives to their mother to gain a sense of belonging and a feel of home, the elder kinsmen manipulate and use these orphans to rebel against rival tribes. These poor orphans are rebellious and often do things like resort to violence, insult other people to gain attention and out of respect to their next of kin who is now their other father. In return their relatives treat them fairly and well and let them control fishing grounds and small pieces of land area. But these kinds of attitudes destroy relationships between families and households and community cooperation and unity”.*

TAU09 said,

*“A lot has changed in our community. The last time I saw a tabu carried out effectively was in the late 1960s when my father was still alive and I was just a girl. At that time every reef owning tribe had their own furai’kwaikwai, which they used for fishing when they lifted a tabu they imposed. Today you cannot find any furai’kwaikwai in our community and reef owners are no longer imposing bans over their fishing grounds. My adult son did not know how to make the tabu effective and above that he did not possess the furai’kwaikwai but only had and used gillnets for fishing. So he has no power to make people respect the ban even if he is a reef owner”.*

### 5.2.3 Community disconnectedness

#### Funa'afou

All participants on Funa'afou mentioned community disconnection from the collective, individual and subgroup as a social impact that is affecting social cohesion in their community. FUNC07 said,

*“When we started the program with WorldFish, I see that people were close and open to each other, it caused them to cooperate with each other to carry out activities under the management ... today I feel that people no longer have a sense of community togetherness since the breakdown of the sea management programme. People struggle on their own to earn money and produce food for their own family every day rather than lend a hand to other families that need help. I see that people are moving towards being independent or individual rather than communal although extended family ties are still strong. So life on the island now is like help yourself before helping others”.*

FUNC17 said,

*“People in our community no longer work together towards resource management because of guilty consciences and delinquent behaviour towards others who are often their next of kin and neighbours e.g. poaching in tabu areas is done out of need for fast cash, survival instincts, laziness, and disrespect to others' property ... during the time of the management programme, everyone including youths and women were involved in making the rules and the goals for our management plan. We all cooperated together with WorldFish to carry out the activities, for example, cutting sticks to put around the tabu area”.*

On Funa'afou all participants indicated that although family members, relatives, and close friends remain mutually close and valuable to each other, the weight of limited resources, the rising cost of transportation, food, school fees, and clothes combined with shrinking incomes, has reduced their ability to support families and neighbours. FUNC13 said,

*“Families do not share resources with each other e.g. even if I ask my neighbours for their gillnet to go fishing, they will not let me borrow it because they worry that their net will be torn after I use it. Mending fishing nets takes time, requires skills and costs money, which could be used for other things. Only few men in our community know how to mend fishing nets but we need to pay those men also to have our nets fixed”.*

I have also observed that since many families have moved to urban areas, the vast distances have split many families. It is expensive to maintain communication between families in urban areas and on the island. Despite the strength and importance of kinship reciprocity reported in the past, nowadays people in the community are less able to support relatives and the flow of money and merchandise is more and more restricted to parents, children, and siblings. FUNC14 said,

*“The money that we earn from fishing and marketing is not enough to pay for our children’s needs and wants. So it is hard for us to keep in touch with our extended family as well as lend a helping hand to other family members and relatives”.*

On Funa’afou, some of the research participants described that social networks and systems in their community are affected by poor relationships between inhabitants. FUNC01 said,

*“Not all tribes in our community are well connected to each other, even the chiefs and leaders are suspicious of each other especially regarding the involvement of external projects on the island and the resource ownership issue. So when external partners or individuals visit us, we are often reluctant to welcome them into our community because we fear they might use us for our knowledge and then leave with unfulfilled promises”.*

FUNC02 said

*“Change in living standards and lifestyles and wealth cause people to become cynical, suspicious, and jealous of other’s success”.*

From my personal observation, locals most often point to dishonest and corrupt behaviour as the means by which these successful entrepreneurs obtain their wealth although few of the allegations have led to legal actions so the veracity of the allegations is unable to be tested. FUNC04 said,

*“We the unfortunate ones often avoid meeting those fortunate ones for fear of feeling embarrassed and getting humiliated in front of our neighbours and families”.*

From my personal observation, this humiliation is poignant in the case of illiterate adults, elders and leaders, who sometimes prefer to distance themselves rather than meet with their successful rivals at the risk that their rival might mock them for their limited knowledge and poor lifestyle. FUNC13 said,

*“Generally, we the less well-off people in our community share resources and rely on each other to improve our way of life. However, less-well off people often mis-treat each other too. We tend to limit support to our less well-off neighbours and next of kin out of fear for and feeling intimidated by those well-off and influential people. We sometimes do not trust each other and get suspicious of each other because some often take sides with the fortunate ones”.*

In the community, church members and non-believers’ behave differently. FUNC06 said,

*“Men and women who are religious devotees are very considerate about improving the community, may often have more opportunity to influence people and promote caring attitudes. But people who are heathen and not part of any religious faith are often more focused on the use of resources and ignore the need for management”.*

FUNC17 said,

*“The majority of people in our community are not part of any religious faith so their influence to exploit our resources is like a bush fire. They are less favourable towards fisheries conservation unless external partners bring to them something in exchange for doing resource management. For example, optimistic ideas that involve generating cash and other tangible benefits”.*

The domination of certain tribal affiliations is observed to be excluding certain people and families from participation in community activities, causing unethical behaviours and misconduct in the community. This formation of group affiliation is observed to have been influenced by inter-island marriage in some ways. Inter-island marriage brings about new traditions and beliefs which often clash with the island’s norms and traditions making it almost impossible for cultural integration or creating a unified community. FUNC01 said,

*“In the past, many men in our community took women from the bush and other islands as their wives. Because of that their half-blood children are often raised in a household with two different kastoms and culture. It became problematic for us in our community when some of the children of these families applied some of the ways they learned from their other parent’s home. For example, certain half-blood community members from certain tribes who are not real resource owners in our community copy and apply the ways of doing things in their other parent’s home by often bribing and persuading other full-blood resource owners to take action against some members of their tribes. These half-blood community members ended up assuming the roles of some of those ousted tribal members like tribal spokesman. Such takeover is not originally from our community but is an introduced culture from outside the community”.*

Thus, the clash of traditions was significant and offers no guarantee for interactions to be peaceful, productive or show mutual respect between people on the island.

## **Tauba**

On Tauba, all participants described the increase of social disconnectedness between households and tribal groups in the community as a huge setback that affects the management of natural resources and other social activities. TAU07 said,

*“More men and women in this community are forced to resettle in new places for various reasons. Their absence over longer periods of time have resulted in them investing less time and fewer resources to add to and sustain relationships in our community”.*

All the participants have pointed out that the out-migration from their community may contribute to the decline of opportunities of community gatherings and behavioural change of the younger generation towards cultural norms in the community. TAU09 said,

*“In the past, it was common practice for most families to hold their children’s traditional wedding ceremonies here on the island even if they live in urban areas. This kind of event brings people together. But in the late 1990s, the popularity of this kind of event in the community declined, families hold these events in their new place of residence which is outside of the community. I think the cause for change is, a lot of our elders have passed so their influence is not there anymore and almost everyone from our community is now living in urban centres”.*

Besides that, all the research participants in Tauba described that survival instincts and power play by well-off individuals may have been responsible for the deteriorating relationships between individuals and tribes in the community. Families do not share resources with each other so that affects how families work together and relate with each other. TAU03 said,

*“For me, it is not because of selfishness that people do not share but limited availability of resources, increasing household expenditure, increasing numbers of family members and the pressure from having more mouths to feed because households to be careful about the resources they have to survive. Also, families tend to limit material support and only offer manual labour to others on certain occasions. For others who do not understand the reality of struggling to survive, they thought this is an act of selfishness so they say bad things about those families who are struggling”.*

Well-off households are often not too pressured to harvest resources but with the extra material resources they own they often use it to support others especially less well-off households. Such associations produce conflicting attitudes in the community. TAU10 said,

*“The sad reality in our community is that less well-off people commonly look up to and ask for financial support from well-off individuals and families. Such pressure causes less well-off people to be very loyal and to stand by decisions made by these well-off individuals rather than make their own decision, continue clear relationship with other households and work together with the rest of community”.*

The research participants described that the poor relationships among members of the community was also caused by education gaps. TAU04 said,

*“Well-educated people come to the village, they were treated like the chiefs and elders but they spent more time analysing activities and not paying attention to the rationale behind community activities. They are always critical of our decisions, social events, how people live and what people eat as if we are something they study in school. Doing that is belittling who we are and our life here in the community”.*

TAU06 said,

*“Families distance themselves from each other because the different tribal groups have multiple or overlapping interests or rights and responsibilities to land and fishing grounds”.*

These various relationships can affect whether and how men, women, youth and children are able to participate in, and how they are impacted by, decisions about resource management.

In Tauba, all the research participants pointed out that community fragmentation is a social feature that obstructs effective implementation of community development activities. That is, social fragmentation is the probable cause of unstable relationships between tribal groups, families and individuals from the community. TAU01 said,

*“We never had issues with land and sea ownership in the past but about three years ago certain members of our community from certain tribes that are living outside of the community started questioning the credibility of customary ownership over land and sea. From that point, tribal groups started disputing each other’s ownership claims. The severity of the situation causes animosity among the different tribes and the destruction of our community’s marine conservation area, which was established in 2005”.*

All research participants described that their community had experienced problems with reaching a consensus for implementation of community development projects. TAU09 said,

*“Almost all of us remaining in the community usually compromise when we have development projects like external support for housing improvement, solar panel for lighting, school materials and others. We were usually one-minded because it is good for us, it improves the way we live but our decisions were usually contested by our relatives that are not living in the community”.*

From my observation, the level of common understanding is very different in any community that is fragmented. That could be influenced by the new or different traditions, knowledge, culture and social behaviours where the out-migrant Tauba people are exposed too in their new place of residence. The lack of common understanding among people in the community made it difficult for cultural norms to maintain community cohesion and constrain immoral behaviours. Hence, community fragmentation challenges resource management engagement in Tauba.

#### **5.2.4 Structural constraints and restrictions**

##### **Funa’afou**

On Funa’afou, the people live in social groups stratified by ethnicity, status, tribe and class. All the research participants said that the chief system is still in place in their community compared to some communities in the Lau Lagoon and other parts of Malaita, but is weak. FUNCO1 said,

*“Our people value our chiefs as leaders, and these chiefs hold the highest power, as a governing structure in the community”.*

FUNC17 said,

*“The chiefs have always been our local police we go to in situations where common understanding and agreement cannot be reached between resource users and reef owners. However, when our chiefs cannot maintain collaboration and order in our community power becomes extremely divided”.*

On the island the popular response to difficult situations is to form social groups in the community and in urban settlements, which rally to provide a voice for their members. However, in the course of the process people were either included or excluded from participation or from being part of a social group therefore causing a rift between people. FUNC17 said,

*“The resource management project was brought to us by WorldFish and the Fisheries Department after some members of our community visited them in their respective offices in Honiara. The project was about management for rehabilitation of fish stocks for food and for the market. This was based on our experience with declining fish species. Just before the project ended, other community members living in Honiara made a decision to form a new committee based on allegations of inappropriate use of community funding by certain members of the then committee. The move was met with both opposition and approval, and because of that there is a rift between the old and new committee members as well as their families.*

FUNC12 said,

*“Our tribal groups filed legal actions with the national justice system in an attempt to resolve difficult situations but the processes were too long, costly and caused hostility between neighbours, kin and friends”.*

Based on informal conversations, a reinforcement of ties within individual social groups by an individual or a group of people can worsen existing fragments and further marginalize individuals that were already excluded from these social groups. From my personal observation, a number of new fibre-glass boats and out-board-motor engines were supplied, by a private business owner, to the community before this research was conducted to a group of men. The group of men are fishermen who, having received the new fibre-glass boats and out-board-motor engines, are members of the community’s small fishing project that is operated by a local businessman. The project was about catching certain pelagic fish species<sup>8</sup> to be sold in domestic and international markets. It was also said in informal conversations, that this support appeared to cause animosity between project members and non-members because most men in the community were excluded from the fishing project.

All participants on Funa’afou reported that the bond between existing social groups on the island is weak and distant. FUNC10 said,

---

<sup>8</sup> Deep sea snapper and others but not tuna.



*“Tribes on the island have tense relationships with each other”.*

From my personal observation and informal discussions, often when it is hard to overcome tense relationships, locals seek help from outside their community to support them. Provided with consultation venues, the locals tend to use forums hosted by external support agents to voice their local partisan views. FUNC07 said,

*“We value meetings organized by external partners because it gives us opportunities to seek assistance, share our issues and our personal views which could be biased or relevant sometimes. Yet we share them”.*

However, FUNC08 said,

*“NGOs and other external institutions always provide information and expect locals to participate in knowledge exchange with constant reminders that we will achieve our goals for resource management and development along the way. But what is the use of this information to us when external partners do not support us with the infrastructure or materials or finance that our community needs in order to implement community development activities or resource management ideas”.*

From my personal observation and informal discussions, some people ignore community activities or seek comfort within tribal groups to find answers to their uncertainties. It is mentioned during informal conversations that when external partners are incapable of meeting such demands from the community, locals’ trust and confidence in external partners spirals downwards. So it is common for some people in the community to, to some extent, become more pessimistic about the goals of intervening external agents.

## **Tauba**

In Tauba, the islanders live in social groups stratified by ethnicity, status, tribe and class. The research participants reported rigidities in their community’s institutional structures that work against efforts towards successful marine resource management. TAU03 said,

*“Our community used to be governed by chiefs, and it was very effective but the tradition is long gone. Today, the decisions are made collectively by the men from the community and when they cannot reach a consensus on complicated issues, the elders seek help from the local tribal association. Particularly we seek local governing bodies to help us make compromises about complicated land and sea ownership issues and if they cannot achieve that for us, we undertake legal actions with the police and justice systems in urban areas”.*

All research participants pointed out that in their community power and responsibility are clearly specified and allocated to individuals according to their standing or position in the hierarchy whether they live in the community or in urban areas. TAU02 said,

*“If we compare the lives of people living in rural areas and our relatives living in the city, you would discover that almost all households on the island experience the harshest deprivation of social services and other benefits. Our relatives in urban centres have better access to social services, but still they will intervene whenever we have community development projects on the island, with plans to improve our living conditions. Their lack of moral consideration to giving their relatives, here on the island, a chance is causing a lot of frustration among household heads. If they let us be, we would be working together to implement successful community based programs”.*

TAU10 said,

*“I feel that because our current community leadership system is weak, most of us tend to associate ourselves with our own tribal groups where our leaders are usually those with a higher social status and greater wealth than us. A negative impact of such an alliance is an unfriendly relationship between some households and we often do not feel free to speak our minds”.*

All research participants also mentioned that poor organization in the community played a probable role in the unsupportive behaviour towards effective resource management in our community.

TAU11 said,

*“The absence of an independent resource management group, like a committee to look after the implementation of the management plan and enforcement of rules may have contributed to poor resource management in our community. Even though we experience the biological benefits of having a conservation area, having a committee with a wide representation of resource owners, resource users, tribal leaders, and women and youths would have improved management activities”.*

Table 2 Constraint factors faced by rural communities.

	<b>Funa’afou</b>	<b>Fumato’o</b>	<b>Tauba</b>
Cultural norms: Gendered roles	High – variation of gender roles (women, youth and men)	Moderate to low – level of gender role varies but the people work together	High – variation of gender roles
Cultural change	High – level of loss of traditional management practices	Moderate to low – traditional management practices are still used in the community	High – level of loss of traditional management practices
Community disconnectedness	High – level of disconnectedness between community people	Low – of disconnectedness between community people	High level of disconnectedness between community people

Structural constraints and restriction	High – level of poor organization in the community	Moderate to low	High
--	--	-----------------	------

### 5.3 Successful factors that facilitate sustainable marine resource management in rural Solomon Islands

Under this section, the responses are only from one of the case studies because they have an on-going marine CBNRM programme supported by a facilitating NGO. The researcher used questions that were different from the ones she used in the other two case studies because the other two case study communities no longer carry out resource management in their community. The following features were mentioned by participants in Fumato’o when asked to identify the factors that support different groups in their community to be active in the management of marine resources and ensuring that the programme is continued.

#### 5.3.1 Multiple forms of livelihoods

When asked what people do every day, all research participants mentioned that their daily activities involved multiple forms of livelihood. FUM03 said,

*“We go to the garden at any time of the week except Sundays. When we do not go gardening, we make copra in the coconut plantation to sell to the wane i tolo buyers. The men and boys go fishing at least twice a day, we eat some of the fish they catch and sell the others for cash or exchange with wane i tolo for others root crops at the markets. Every household in Fumato’o feeds pigs to sell for either traditional shell money or cash”.*

FUM06 said,

*“I teach at our community’s primary school so I am supporting my father and my siblings financially. Some families do gardening and harvest the root crops and send them to their children and relatives who live in town and in return they send them cash and merchandise”.*

All research participants initially indicated that locals on Fumato’o depend heavily on fisheries resources for food and cash, however in the end all of them pointed out that there are other means of subsistence besides fishing. FUM01 said,

*“In the past, our main source of food and wealth was fishing. Even well-known private businesses owned by imola i asi from Lau Lagoon started their businesses by fishing and marketing of fishes. But subsistence today involves a variety of activities besides fishing like agriculture, copra production, piggery and others”.*

So aside from fishing the subsistence of the people in Fumato’o is also composed of agriculture, piggeries, copra production and remittance.

### 5.3.2 Behavioural and mentality changes

All research participants said that they survived and adapted to changes caused by the establishment of a conservation area and having a management plan by shifting to involve themselves in other livelihoods they initially considered not important. FUM08 said,

*“Most of the men in our community do not work in the garden with their wives. We go fishing every day for fish to eat and to sell at the market. But when we started the conservation area our fishing efforts decreased because our main fishing area was closed. A lot of us complained at first but then they started getting busy doing other activities to get food and cash. I saw a lot of men going to the garden with their wives, people produced copra two to three times per week and sold it every Wednesday, and families expanded their pig pen for more pigs”.*

From my personal observation, the group of people who usually went to the reef for fishing were mostly primary and high school age children. Adult men rarely went fishing. Also there are no fishing nets e.g. gillnets or traditional fishing nets to be seen in the village. The children and the men used only spears and line-and-hooks for fishing. The adult men in the community were always out working in the coconut plantation and or working in the garden with their respective spouses and other children every day. At the end of the day, the male children brought a string of fishes and their parents and other siblings brought firewood, garden crops and vegetables from the garden and bush. It appeared that there are fewer fishing methods and less fishing effort, a change in traditional gendered roles, mutual understanding and sharing of responsibilities between men and women, and participation is more central in other alternatives to produce food and generate income for their families. FUM14 said,

*“Before we managed our sea, men went fishing three times a day and once in the night so they could have surplus fish to sell at the market for cash. Men hardly went to the garden with their wives to clear the bush or hoe the mountain for planting potatoes. But since we started working with the NGO to plan the management and carry it out, men have divided their time to go to the garden, and encourage our children to come with us to the coconut plantation to make copra”.*

FUM08 said,

*“Now we men go to the garden with our wives, we are making them happy. We are helping them with the heavy lifting and physical work in the garden which reduces the chances of our wives getting sick with female related illnesses. Some of the men have now realized how gendered roles are contributing to deteriorating health of our women”.*

From my personal observation and informal conversations, it appeared that, because they already engaged, though limited extent, in multiple forms of livelihoods to sustain their living, they were able to withstand the changes and shocks of reduction of their usual fishing activity through shifting

behaviour like time and effort. However, the change in the nature of their occupations may not be sustainable for long given the circumstance that additional pressure created by more people gardening may likely lead to soil infertility. FUM05 said,

*“Every family in our community is still using slash-and-burn methods for making gardens even after the organic and mulching training conducted in our community by Mr. Osanty and WorldFish. Only two to three women continue to mulch their garden but the rest of us stopped mulching, because our potato gardens were not very fruitful, and resumed slash-and-burn”.*

### **5.3.3 Social cohesion and community cooperation**

All research participants stated that the status of social cohesion in their community is strong; individuals, tribes and other social groups remained mutually close and respectable. At the community level FUM10 said,

*“It has been four years now since our community started working with that NGO to manage our marine resources, and we are still doing it today because all of us in the community work together and do things the old way. For example, in times where there are funerals, unexpected deaths, sickness, cyclones or droughts and accidents, the people here would put together their resources and energies to provide both material and moral support to individuals and families in need or being affected”.*

FUM02 said,

*“This management supported by WorldFish brought back to life our past practices of looking after our resources and sharing responsibilities, and because we share the responsibilities, people are always talking to each other”.*

Hence this connectedness among individuals and families enable collaboration and fair distribution of resources across the whole community.

All the research participants described that families and individuals have an open and reciprocated relationship. FUM05 said,

*“The closeness between families enables single parent families like my family to get help to accomplish day-to-day tasks that are difficult, like house building, making a garden or picking coconuts and producing copra. We have women’s groups that interact with each to other to do gardening, cutting firewood and other household chores. Other families in the village would give me fish for lunch or dinner and I would give them root crops like potatoes or yam”.*

In my personal observation and informal conversation, strong social cohesion enables community stability and reduced pressure of material and physical strains that might disadvantage people.

### 5.3.4 Genuine community leadership

All of the research participants also pointed out that most of the urban drifters are young people who left the village mainly to pursue further education and paid jobs and live-in with relatives in the city, and return to the community during school breaks or holiday seasons. FUM12 said,

*“You would not see many boys and girls here in the village because most of them are in town. They went to attend some of the schools there and live with our relatives there. Other women’s husbands also travel to the town to look for work. They always came back home for holiday either during Easter, school mid-term break in June or in December for Christmas”.*

On a personal observation note, these urban-drifters do not have strong ties in urban areas but have strong ties to their community, which is why when they quit their jobs or drop out of school they always return home. In the community these youths and adults assume leadership roles in the various groups in their community as well as teaching at the primary school. Most of these young people often do not get married outside of the community and Lau Lagoon however they take either a bride or groom from other tribes in the community. In my view, it somehow binds households together, alleviates personal differences between them and instead forms alliances between families in the community.

All the research participants reported effective leadership regarding the management of marine resource management. FUM09 said,

*“Our community now has a new committee that is quick to deal with concerns that arise from the management of our resources. They always remind us about what we can do to make our resource management better. We all value them and their advice. They keep us informed about what is going to happen next and talk to us about new ideas that we can all benefit from”.*

In addition, an important reason for strong social cohesion and community collaboration that I observed is related to church occasions (maedani beu), funeral rites (maea) of members or important persons (wane taloa) of the community and feasts (fanga’a). When someone died, the committee and community elders open the seasonal closed alata for some period of time, for harvesting during mourning. Also when there is fanga’a leaders and elders organized families in the community to put together root crops, like yam and taro, pigs, merchandise and traditional shell money to support whichever family hosted the fanga’a. Sunday is a rest day for the community and usually after the sacramental service, leaders organized formal and informal meetings for people to share food and betel nut, while discussing and planning community matters and activities.

As only in Fumato’o is there a relevant programme, the summary Table 3 of factors found that facilitated sustainable resource management lists the other case studies as ‘not applicable’ (N/A).

**Table 3 Positive factors in the rural communities that facilitates sustainable resource management.**

	Funa’afou	Fumato’o	Tauba
Multiple forms of livelihood	N/A	High	N/A
Behavioural and mentality change	N/A	High	N/A
Social cohesion and community cooperation	N/A	High	N/A
Genuine community leadership	N/A	High	N/A

## 5.4 Features that failed to facilitate or achieve successful marine CBNRM interventions

Under this section, the researcher interviewed people from the two case study communities that are currently not carrying out resource management of their marine resources. The research participants in Funa’afou and Tauba pointed out the following factors when asked why their community stopped management of marine resources and how interventions were unsuccessful to support long term improvement in their livelihoods in their community.

### 5.4.1 Issues related to resource ownership

#### Funa’afou

All research participants in Funa’afou described that NGOs and government ministries lack a realistic strategy to help communities deal with some contentious issues concerning the practical aspects of traditional fishing rights and ownership which may arise because of CBNRM. FUNC07 said,

*“My tribe owned the fishing grounds that were selected as the conservation area. So technically, all the males in my family and our tribe have bigger responsibilities to support the resource management committee. But most of them are now living in Honiara. The presence of all our family members on the island would have made people to be more respectful towards the conservation area and poaching would have been minimized. I am also not a real fisherman like most of the people on this island, most of the time we get fish to eat from other relatives here on the island. My family get cash and food from other means but not from fishing. Most of the time, I feel sorry for those people who repeatedly poach in the conservation area so I was reluctant to make a move or support the committee to prosecute them. I do not want to be the one shaming them”.*

The research participants in Funa’afou pointed out that communities were not prepared to deal with concerns about access rights and ownership that may not surface at the start of management engagement, however over time emerged due to increasing interest in a fishing grounds. FUNC12 said,

*“The conservation area that we made tabu was ended after just about a year or so from when it was established. We were unable to deal with issues*

*related to ownership of the sea and sea resources because most of us here are not in a good position to prevent it. The conservation area is inside the fishing grounds owned by one of the tribes in our community. So I feel that even if this particular tribe voluntarily gives up their fishing grounds for conservation, they still have more power to influence people than the resource management committee. This makes it difficult for the committee to prosecute people who steal in the conservation area when some members of that tribe also have a hand in influencing other men to fish there”.*

FUNC07 said,

*“I saw that since WorldFish and fisheries visited us and supported us to start the resource management programme in our community, it revived our old way of managing sea resources and some old fishing techniques which were almost lost as well as making people to work together. But the appearance of jealousy, disrespect, poaching, no common understanding and eventually ownership issues over resources, broke up the good relationship between people in our community”.*

The research participants went on to identify that people who breached the rules in the CBMRM plan were driven by increased commercial interest in resources within an area, and they ‘are our relatives’. FUNC06 said,

*“At the start of this management program, every family for together to take part in the different activities that the NGO and or the committee organized, from meetings to the awareness of our community’s rules and the setting up of the conservation area. After some time, we experienced increasing fish catches in areas outside the conservation area but that is also the same time when we started experiencing people poaching in the conservation area. The committee did discipline these poachers but still poaching continued, some reported and some not reported. So the increasing interest for fishing access in the conservation area by those poachers angered the tribal groups who own the fishing grounds causing them to make the committee to lift the tabu over the conservation area. We only have management rules and the facilitating NGO did not prepare us for worst case events which may happen. All they preached is that the national laws will help us prosecute people who break the rules in our management plan but those laws are not so effective in backing us in the community. It is hard to prosecute family members or neighbours or friends”.*

On a personal observation note, people in the community often assumed that the resource management plans and the conservation areas in their community are not community owned activities but rather NGO and government ministry owned. The phrase “WorldFish’s conservation area” was heard on several occasions during informal conversation with other community members. These allegations provoked misinterpretation of resource ownership claims and rights among tribal groups in the community. During these informal conversations, individuals spoke of the idea that facilitating NGOs were aware of their contributing role in the emergence of such claims which damages community trust and confidence but fail to address such concerns.



## Tauba

All the research participants in Tauba described that the execution of development projects in the community is accountable for the emergence of issues related to access rights and ownership. For example, TAU01 said,

*“Our conservation area would not be destroyed if not for the dispute over land rights and access between members of two different tribes in our community. The cause of the dispute was that the tribal members of tribes disallow an individual, one of our very own businessman, from tribe two from setting up his business activity planned for a certain location on the mainland. From then on, the two groups were verbally abusive and violent towards each other and as a result our families lived in fear and animosity. The final damaging actions were when men from tribe one destroyed the conservation area by going inside the area and catch fish”.*

All research participants in Funa’afou stated that NGOs and government ministries’ teams who visited their community did not follow standard professional work ethics. So, their unprofessional attitudes triggered some contentious issues concerning the practical aspects of traditional rights and ownership which may arise from development initiatives. TAU13 said,

*“One of the weaknesses of our community is that almost every community depends on support from others rather than starting activities on their own. People have very high expectations especially for material and financial support from the Government and NGOs. For example, when NGOs and government ministries come into our community with community development projects, like housing and solar lighting schemes, people were very excited. Under the scheme, only a few families were selected to receive building materials like corrugated iron roofing, louvre frames and glasses, and solar panels. Bitterness grew between project recipients and others because we all have no idea of how they select project recipients. We think they are selected because the project team knows them and they are families of the community agents. The project teams and community agents do not even make any effort to let the community know the criteria for selection. So the lack of clear criteria for selecting project recipients is not professional, and these teams let community agents choose families to receive projects. Because there are only three families on the island and the rest are on the mainland, people assumed the selection to be a form of tribal conspiracy”.*

On a personal observation note along with respective views raised by TAU09 and TAU10, Tauba did not have any NGO support for the management of their marine resources but there are other NGOs and government ministries helping their community with other development aspects of their community. These partnerships had no direct relation to marine resource management, but the outcomes of these partnerships did affect resource management in the community. TAU09 and TAU10 said, for example, unethical behaviour, like favouritism, by project teams affected the relationship between households causing them to be hostile to each other. The unstable social

relationships ignited conspiracy theories and further worsened existing animosity between tribes.

TAU12 expanded on the notion by saying,

*“At the moment, NGOs and the national and provincial government support our community through improving alternative livelihoods and improving living conditions, but the hostility among our tribes caused by the land dispute influences how the project benefits are distributed. Tribal groups, men and women, families and households can not stop conspiring against each other and this affects how those outside groups make decisions. At the moment, almost all poor families do not receive any benefit”.*

Besides that, all research participants stated that NGOs and government ministries that worked in their community were aware of complex land issues that resulted from the execution of community development projects but made no effort to mediate before initiating community development projects. TAU04 said,

*“I know it is not their role to get involved in our land issues, but the least they can do is connect us to the government ministry responsible for reconciliation. However there is no such thing as them helping us. I see that any development project in our community will always end up failing because our land is disputed, people are angry at each other and we are divided. We cannot solve it on our own. The national justice system process is complex and takes a longer period of time so is not making it easy to settle our traditional ownership disputes too”.*

#### **5.4.2 Selective participation approach**

##### **Funa’afou**

On Funa’afou, all the research participants stated that the method of selective participation used by facilitating NGOs is not an effective and strategic approach to mobilising participation in the community towards sustainability of CBMRM. FUNC04 said,

*“When we started the management, the facilitating NGO was the one organizing our community to better look after our sea resources. Our community formed a resource management committee with representatives coming from each of the tribes on the island with their support. Every person in this community was involved in the early meetings and awareness programs but after the first year of the project, the facilitating NGO organized workshops and training that only involved selected people. They requested that we, the members of the committee, choose people to attend those workshops. We did not choose random people- the facilitating NGO gave us criteria to choose participants like committee members, village leaders, resource owners. To avoid embarrassment, we made sure to select people that knew how to read and write because most of us here have not gone to school at all. I feel that it is unfair to a lot of the people who did not have the chance to attend those workshops, most times it was just the same people that attended those meetings all the time. So it is expected that whenever NGOs and*

*government ministries visit our community, these people are expected to welcome them and go to their meetings”.*

### **5.4.3 Limited community support for external partners**

#### **Funa’afou**

All the research participants pointed out that the technique of selective participation used by external partners triggers unsupportive behaviours among community members which is limiting the chance of greater mobilisation of all community members to partake in planned resource management activities. FUNC11 said,

*“I was never part of any of the workshops and training organized by the facilitating NGO here because I was never selected to be included so I think I cannot give you enough information about resource management here in our community. I think there are others in the community who are also in the same situation as me. Some of us became disinterested and even refused to take part in any in community activities. We mind our own business”.*

FUNC16 said,

*“Some people, especially resource users who often do not have access rights to fishing, are offended by the way they are left out of the program’s main activities like workshops. I feel that when the committee did not include them, it made them break the rules of the management plan or do other things that the committee and resource owners would not agree to like poaching, owning magnet fishing nets and night diving with torchlight”.*

### **5.4.4 Competing priorities**

#### **Funa’afou**

In Funa’afou, the research participants pointed out that community members have competing priorities that affect their ability to implement or sustain CBMRM, and the intervening NGO is not very supportive about resolving these priorities. FUNC01 said,

*“A lot of families here prioritised the obligation to make money to support themselves and their families but that is opposed to the need for their community to look after marine resources. Our attempt to look after sea resources puts a lot of pressure on our daily sustenance, it disturbs the activity of our main livelihood. You see, when we do not go fishing today we may not have any products to sell at the market for money or to exchange with bush people for vegetables and fruits. The facilitating NGO is not providing us with tangible livelihood options to generate income that might support us to and that does not give us much choice for us to divide our time and resources. That limits our participation and effort towards active resource management”.*

From my personal observation, the people in the community also have busy schedules, occupied with family commitments, gardening for food, fishing for food and cash, church and other

community commitments. FUNC05, FUNC06 and FUNC08 have described that people maintain their busy household schedules in order to meet their daily expenditures and improved the lives of their family which are their highest priorities. People only participate on a voluntary basis and out of curiosity in formal and informal meetings and other marine resource management activities in their community.

The research participants indicated that, external partners have the resources to offer the locals tangible support like materials or finance, to fulfil their priorities, and in return they may place more time and effort in implementing CBMRM. FUNC02 said,

*“Facilitating NGOs and the Government with the community can make CBMRM in our community long-lasting by investing resources, supporting alternative livelihoods and providing support. For example, in return for us prioritising CBMRM, the NGOs and the Government should provide us with proper transportation and fishing gear. Then we harvest and sell marine products to get cash to pay for our individual and household priorities”.*

#### **5.4.5 Limited Government and NGO support**

##### **Funa’afou**

On Funa’afou, all the research participants stated that there is limited involvement of lead national government ministries and the Provincial Government Extension division with facilitating NGOs in the community. FUNC12 said,

*“Our community never had any real direct involvement of government ministries in resource management or fisheries livelihood projects. The presence of the ministry was only seen at the start of the program, when there was a representative from the main ministry who came over with the facilitating NGO. But since then, only one representative, the provincial fisheries extension officer, was present with the facilitating NGO”.*

All the research participants stated that the NGO’s role in CBMRM is mostly to deliver technical information (the know-hows) to better manage their marine resources. The locals often get frustrated and lose interest in CBMRM when practical solutions are forfeited from engagement. FUNC14 said,

*“The facilitating NGO was very into doing training and workshops which taught us a lot of new ideas to better manage our reef resources like livelihood projects that can help us generate incomes for our families. We want such activities because doing CBMRM limits how we do and go fishing. The facilitating NGO deployed a rafter<sup>9</sup> for us, but most people did not go to fish there because they did not have the proper canoes for fishing in the deep-sea area where the rafter was located”.*

---

<sup>9</sup> Rafter is another word for Fish Aggregating Device (FAD)

In addition, the research participants reported that the external partners that facilitate CBMRM programmes have minimal support and interests where alternative livelihood activities are concerned, and this killed the ambition and high expectations of community members towards CBMRM engagement programmes. FUNC14 said,

*“We welcomed NGOs and government ministries into our community because we want to get support from outside that will benefit the family and the community as a whole. We wanted to get involved in activities to change how people live and do things because we struggle so much. We never had any real government support in community development projects like projects that help our families produce cash. So you can see that we want the facilitating NGO and government ministry to not only give us technical support but also alternative activities that we can earn money from or make our living better”.*

FUNC06 said,

*“People in our community only follow the trail of the money. That is why they do not support the outside groups to look after resources because they are disappointed that there are not many activities or ways to generate income except the rafter”.*

## **Tauba**

On Tauba, all the research participants pointed out that their community has a self-governing arrangement in looking after their marine resources. TAU02 said,

*“The decisions about marine resource management rules and penalties were made by resource owners and with collective advice from members of the community. So everyone has the responsibility to monitor the rules of our management and at the same time enjoy the benefits of the conservation area established”.*

The research participants went on to describe that the lack of support from both the National Government and Provincial Extension was somewhat responsible for the failure of their resource management programme. TAU01 said,

*“We only had one visit from someone working at the provincial fisheries division in Auki. We were experiencing declining marine resources at that time but never got any support from the province or the Government. Since I was a member of the Provincial Government, I used my power to invite that person from the provincial fisheries to come visit our community to identify a best site for the marine conservation area. There was no real awareness of such program. Several years later, I came into contact twice with a CBMRM facilitating NGO working in another community in the lagoon but they made no formal visit to this community”.*

The research participants described that the inadequate involvement of any CBMRM facilitating government ministry deprived community members of the privilege to become educated about the legal fisheries and environmental laws and regulations. TAU09 said,

*“The Ministry of Fisheries never visited our community to conduct an awareness program about the laws for managing fisheries and the sea. Generally almost all people here do not know the punishment or what they should do if a person breaks the law. If we have knew what to do, those people who destroyed our management rules would have been punished for their wrong doings”.*

The research participants pointed out that the lack of involvement from NGOs, and the national and provincial governments, has impacted on their community’s resource management plan in the sense of poor reinforcement of legal fisheries and environmental laws and regulations. TAU01, TAU02 and TAU13 described that for instance, the violation of their traditional marine tabu after a seven year ban might not happen if the fisheries fine for poaching was higher and police acted quickly to apprehend poachers. If such processes were enforced it might reduce people’s delinquent behaviour because financially they are unable to afford bailing themselves out of such crime.

Since there is no direct involvement of facilitating NGOs and government ministries in the community, the locals obtain educational resources from neighbouring communities that also undertake marine resource management. TAU09 said,

*“People here are informed by others in the community and elsewhere who have some knowledge about the fisheries law but there was only one awareness program, about the biology of the fish, corals, seagrass, mangroves and other sea resources, conducted here on the island”.*

TAU12 said,

*“Because of no NGO direct support in our community, we did not have the opportunity to be educated about the various processes that may have helped them review their management program so our management action failed. For instance, if they have a resource management committee with tribal representatives, we might have good arrangements towards long lasting CBMRM”.*

The summary Table 4 of factors that did not facilitate successful CBNRM interventions includes comments on ownership and NGO/Government support that are drawn from other sections but are best represented in this table as they show a quite contrasting situation.

**Table 4 Factors that failed to facilitate successful marine CBNRM interventions.**

	Funa’afou	Fumato’o	Tauba
Issues related to resource ownership	High – rate of disagreements over resource ownership and NGOs & Government is not helping communities to deal with such issues	Low - rate of disagreements over resource ownership	High - rate of disagreements over resource ownership due to external development projects
Selective participation approach	High – selective approach is used on many occasions involving trainings and meetings		
Limited community support for external partners	High – level of unsupportive behaviours from within the community		
Competing priorities	High – number of community priorities that affect community’s ability to better implement CBMRM		
Limited Government and NGO support	Low – level of support from NGO towards alternative livelihoods and limited involvement of Government in the CBMRM programme	High – level of interaction between community and NGO	Low – low level to no support at all from the government and NGO

## 5.5 Features that facilitates successful marine CBNRM interventions

Under this section, the responses are only from one of the case study communities that have an on-going marine CBNRM programs supported by a facilitating NGO. I used questions that were different from the ones used in the other two case studies. The rationale for difference in interview questions is because the other two case study communities no longer carry out resource management in their community (this is represented by ‘not-applicable’ (N/A) in summary table 5 at the end of this section). The following features were identified by participants in Fumato’o when asked to share the views about how external partners or outside organizations worked with members of their community and what can be done to make resource management long-lasting at the community level.

### 5.5.1 Inclusive leadership

In Fumato’o, FUM01, FUM02, FUM07 and FUM10 described that prior to the execution of marine CBNRM in their community, leadership roles were dominated by men which caused variability in the ability of men and women to participate and network. FUM02 said,

*“In our community men go to government officers to ask for project information on behalf of our community; community agents who communicate with project people, and others, are also men. This also happened in other communities in the Lau Lagoon. Men are our expected leaders because it is our custom. Women remain in the background and men in the frontline. So when it comes to communicating and working together with other people, tribal groups, and communities, men lead the way”.*

All the research participants pointed out that the intervention influences collective participation from the different groups in the community to make decisions about marine resource management and it is very encouraging to the facilitation of marine CBNRM. FUM11 said,

*“In our community, the facilitating NGO chooses people to attend training but when the training takes place in the community, all the community members, including their children are present to take part in the training. People’s curiosity to attend the training made us all realise that the inclusion of all in resource management makes it easy for every community member to better understand the basis for decisions and people will be more likely to respect that decision. Also the presence of people in the meetings made elders confident that our community values the resource management program”.*

## **5.5.2 Community empowerment**

On a personal note during informal conversation, I found that people spoke of how several training facilitated by the facilitating NGOs equipped people with methods of hands-on action enquiry. During the interviews, all the research participants indicated that training enabled people to make assessments about resource management on their own. FUM12 said,

*“The facilitating NGO takes time to teach us about resource awareness and management. They ran several training sessions and workshops since we started three years ago. It was the action planning of community proposed activities at the start of our CBMRM program that taught us a lot. It was an eye opener for myself and others in the community too. I think many people never plan their household activities before they carry them out. We never identified who will be responsible for daily activities and we did not even budget for our plans. The action planning helped our community to identify the different CBMRM activities, resources and skills that we have in our community. Later in the planning, we identified people and groups who have the skills to lead these activities. So the responsibilities to implement different parts of the action planning was shared and led by different people in our community including youths and us women. Now we see the importance of better planning”.*

All the research participants described that those training sessions and workshops stimulated leaders to be adaptive and innovative for improvement and to make better decisions in the design and implementation of CBMRM. FUM04 said,



*“We have formed a new resource management committee this year because all of us in the community see that our previous committee was not widely represented and they were a bit slack in consulting members within the community before making a decision. Now the committee has ten members representing women, youths, men, resource owners and resource users, who are also from the different tribes in our community. I think when decisions, about resource management, are made by a different group of people, we make very good decisions and the implementation of activities to reduce pressure on reefs will be very effective”.*

All the research participants pointed out that the training and workshops under the resource management programme strengthened different groups in the community to be active in the management of marine resources. FUM09 said,

*“I feel that men are influenced by the many training sessions and workshops, to see that we women and youths also play important roles in resource management so these days we are never stopped from voicing our concerns during community meetings”.*

### **5.5.3 Community acceptance of CBMRM**

All the research participants identified that the involvement of the facilitating NGO in CBMRM has inspired the involvement of different groups in workshops, training sessions, decision making processes and leadership roles in the community. FUM13 said,

*“This program taught me lots of things; it taught me to make good decisions and do things the right way now so my children will enjoy the resources in the future because I will pass away someday. My family and I always make time and volunteer to support this program”.*

All the research participants pointed out that the CBMRM programme is widely accepted among the different groups in the community. FUM15 said,

*“Since the start of CBMRM, we experienced individuals and families working together to carry out the different activities under the program. All of us are always watching out for our conservation areas. Everyone in the community said that they want the conservation program to stay forever”.*

### **5.5.4 NGOs visits and relations**

All the research participants pointed out that the other factor that facilitates successful interventions in marine CBNRM is NGO visits. FUM08 said,

*“The facilitating NGO’s visits into our community are very important for us. They teach us different sides about resource management and why our fisheries resource is declining. This awareness made us sit together to discuss ways for our community to manage our fisheries and sea resources. We successfully erected floaters in the conservation area after the NGO’s first visit three years ago. They have visited our community many times over*

*the past years; they conduct resource awareness, training and workshops for us. Importantly they help us develop a management plan for the open reef area, permanent conservation area and an open-closed conservation area”.*

All the research participants described that the NGO visits are highly valued by community members because they benefit the whole community with information and other incentives. FUM14 said,

*“The presence of the facilitating NGO in our community is very important and helpful to us in the village. Not only do we attend training to hear more information but they also buy our garden and fishing produce, which we later eat when we go to the workshop and training. The women and girls who take turns to prepare and cook food for the workshops are paid by the NGO people. Families were paid for providing accommodation for the NGO’s team”.*

In addition FUM07 said,

*“I think all of us in this community respect the facilitating NGO for on few occasions their visits were cut short because someone in the village died. I see that the NGO team handled the situation so well with great respect for our custom. The NGO team are usually overseas and local people. So instead of continuing with the program they leave us to mourn our dead and left food and cash to the deceased family”.*

FUM07, FUM09, FUM10, and FUM13 described that the NGO visits and presence were very effective and kept the community interested and focused on CBMRM. For example, facilitating NGOs often visit their community two to three months after a meeting or training. FUM07 and FUM13 said that these visits give the community space and time to conduct the activity in addition to their personal busy schedule. When their external partners revisited they used the opportunity to discuss problems they face, areas for improvement, to visit people and places in the community, report on how the project activities were proceeding and so forth.

**Table 5 Factors that facilitate successful marine CBNRM interventions.**

	Funa’afou	Fumato’o	Tauba
Inclusive leadership	N/A	High	N/A
Community empowerment	N/A	High	N/A
Community acceptance of CBMRM	N/A	High	N/A
NGO visits/ relations	N/A	High	N/A

## 5.6 Chapter summary

Community based marine resource management is found to be obstructed by several factors, namely: cultural norms, particular gendered roles; cultural change; community disconnectedness; and, structural constraints and restrictions. In Funa’afou and Tauba, the research participants

reported a high presence of these factors in their communities which made it difficult for the different groups in their respective communities to establish sustainable management of marine resources. The presence of these factors contributed to the breakdown of the marine resource management programme in these two communities.

In Fumato'o, it is found that there are several factors that appear to support the different groups in the community to be active in the management of marine resources and making sure that the programme is ongoing. They are: multiple livelihoods; behavioural and mentality changes; social cohesion and community cooperation, and; genuine community leadership. The research participants indicated a high presence of these factors in their community which made it easy for the different groups in community to establish sustainable management of marine resources.

Interventions were unsuccessful to support long term improvement of the livelihoods of people in communities because of several factors. The research participants in Funa'afou and Tauba identified the following factors as preventing successful marine CBNRM interventions: issues related to resource ownership; the selective participation approach; limited community support for external partners; competing priorities and; limited government and NGO support. There is an indication, by the research participants in those two communities, of a high presence of these factors being present in the community and tied to the interventions. The presence of these factors contributed to the unsuccessful intervention in these two communities.

In Fumato'o, the research participants identified four key factors as the ones that facilitate successful marine CBNRM interventions. They are: inclusive leadership, community empowerment; community acceptance of CBMRM; and NGO visits/ relations. The research participants pointed out that there is a high presence of these factors in their community and it was facilitated by the intervention. The presence of these factors contributed to the success of the CBMRM in this community.

The next chapter discusses the nature of the relationship and interaction between the communities and the people with the external partners under the co-management arrangements.

## Chapter 6

### Discussion

#### 6.1 Introduction

This chapter revisits the initial assumptions and objectives as described in the methodology in Chapter Four and discusses the findings in the context of the literature reviewed in Chapter Two. As will be discussed, the assumptions made in Chapter Four, prior to the field research, are supported by the findings reported in Chapter Five. The discussion in this chapter is structured on the information objectives identified in the methodology chapter. The chapter begins by assessing the co-management arrangements of marine resources in the Solomon Islands. This is followed by discussion of the CBNRM interventions' success and failure factors and the relationship between locals and external partners under the co-management arrangements. Having used the social features to analyse the data collected, it is evident that social characteristics are useful in describing the studied phenomenon and providing measures for effective marine CBNRM interventions. As will be discussed the assumptions made in Chapter Four, prior to the field research, are supported by the findings reported in Chapter Five.

#### 6.2 Revisiting the assumption

Prior to the field research in Funa'afou, Fumato'o and Tauba three fundamental assumptions were made. These were set out in the methodology chapter.

It was assumed that:

1. The phenomenon of success or failure of interventions that try to establish long-lasting community-based management of marine resources in Malaitan communities is determined by the social characteristics of the community more than the biophysical characteristics of the communities or the type of intervention used, and,
2. The government decentralization strategy allows greater participation and empowerment of local communities in resource management and decision making, and
3. Opportunities for collaborative arrangements between other rural communities and external partners are based on existing and induced sustainable practices.

The first assumption was straightforward. It was through the study on the phenomenon that the research participants from the three case study communities identified several concerns of the

community that appears to trigger the success and failure of interventions that try to establish long-term CBM of marine resources. With one notable exception, these were largely of a socio-cultural nature, rather than technological or biophysical. The literature review pointed out that co-management appears to be a core value of CBNRM and community development programmes. Its application in the three case study communities implies that the intervention and intervenor's presence at the community level is highly valued, but in the absence of social connectedness, the locals' ambition to manage their marine resource spirals downwards. It also implied that interventions or external developments bring to local communities a new sense of consciousness that often precipitates a change or triggers the emergence of new issues in the community.

A typical example, identified in the Results Chapter, is that shared land and fishing grounds ownership and management are often disputed because of the presence of interventions and the unforeseen benefits attached to the initiative but NGOs and government actors are largely unaware of the intervention effects. The research participants in the three case study communities were more focused on doing marine resource management for individual subsistence and livelihood options and making a hybridized approach with legitimate rules and penalties than achieving an intervention's organizational goals, for example, equal access to marine resources, diverse or multiple livelihoods and equal participation among men and women and others. These goals, however, appeared to alter local norms and introduced a new sense of consciousness.

The notable exception is the level of access to multiple land based resources that one community had. Despite similar access to fishing grounds in all three communities, similar use of multiple resources did not occur at the other two communities (Funa'afou and Tauba) because they did not have the same access rights to land based resources. For example, in Funa'afou and Tauba all families co-own fishing grounds and have similar access rights to fishing grounds but this does not apply to land as only some families co-own land on the mainland<sup>10</sup>. Therefore, most families in Funa'afou and Tauba usually seek permission from those who own land to make gardens. This, however, is not the case in Fumato'o. In Fumato'o, the people have similar access to fishing grounds and multiple land based resources. That is, people co-own fishing grounds and land resources.

The second assumption was found to be straightforward and arguably flawed. The decentralization reform strategy has indeed allowed greater participation and empowerment of local communities in resource management and decision making. This is evident in the Results Chapter. Rural communities were empowered through the dissemination of information by interventions and such a trend is common across the three case study communities regardless of whether the intervention is for conservation or other community development programs. In spite of the fact all the research

---

<sup>10</sup> Mainland used in this context refers to the hills adjacent to the three case communities and the Lau Lagoon.

participants indicated satisfaction with the technical or information support they received from interventions into their communities, they suggested alternatives for interventions to improve CBM engagements. It is evident in the Results Chapter that even though a decentralization policy had taken place, the respondents in the three case study communities were not given ample opportunities to receive external tangible assistance to contribute to authentic physical community development. All the respondents in Funa'afou and Fumato'o had received more opportunities than those in Tauba to further improve local resource management or decision making. Besides that, the frequent presence of NGOs and government actors is required in communities to make decentralization effective and to make co-management work. For instance, in Funa'afou support from within the community towards resource management collapsed when NGOs and government actors stopped visiting the community. The likely scenario of overly empowered elites in the community together with the community's characteristics as a hierarchal and male dominated society with a culture of prejudice had led to divisions based on status of wealth, power, land tenure and politics. As a result, community members became dissatisfied and lost confidence in community leadership.

Community disconnectedness is evident in most rural communities in the Solomon Islands and there were claims that the fragmentation had been the result of poor decentralization reform that had spread into local resource management. With poor organization and solidarity in the community, claims were made that certain groups of people seemed to be dominating the decision making and participation processes as well as obtaining benefits for themselves rather than a collective benefit. Similar failures have been well-documented in literature from other countries for example, in parts of Africa, Asia, Europe, North America and the Pacific (Ansell, 2007; Carlsson & Berkes, 2005; Jentoft, 2005; Jentoft, McCay, & Wilson, 1998). It is clear why these case studies seem to differ from those reported from elsewhere (Carlsson & Berkes, 2005; Linke & Bruckmeier, 2015; E. Pinkerton, 1989; R. S. Pomeroy, 1995; R. S. Pomeroy & Berkes, 1997; Ratner et al., 2012; Walker, 2006). In the case study communities' context, decentralization may have resulted in community empowerment but without adequate infrastructure and external tangible support, actual physical community development will just be a vision and locals will remain sceptical about the potential for long-lasting CBMRM.

The communities of Funa'afou, Fumato'o and Tauba were comprised of people with a history of migration, tribal feuds, carnage, tenure disputes, injustice, and cultural and collective loss. This may explain the failures in the communities of Funa'afou and Tauba. There may not be the necessary social capital to enable the new approaches to take root without considerable effort and appropriate professional approaches. The experience of these communities stands in contrast with Fumato'o, and this can be explained by the effect of having multiple forms of livelihoods, complemented with behavioural and mentality changes, social cohesion and community cooperation, and genuine

community leadership. While decentralized reforms offer rural communities new community development initiatives, these livelihood initiatives were however not always implemented using sustainable values, like being people-centered, including participatory action, being holistic and multi-levelled, using a partnership pilot and being sustainable and dynamic (Allison & Horemans, 2006). Activities brought into the communities through marine CBNRM have a tendency to be more fixated on conservation goals, and participation is just about informing the community, rather than connecting communities with new stakeholders.

Based on reports available online (Boso, 2010; Rice, n.d; A. Schwarz, Alexander, T., and Bodo, D 2012; A. M. Schwarz, Andrew, N., Govan, H., Harohau, D., and Oeta, J. , 2013; van der Ploeg, 2016) I assumed that the existing formal relationships between the facilitating NGOs and the communities of Funa'afou, Fumato'o and Tauba would be a bridge to form new and formal partnerships with other Solomon Island's government ministries (e.g. Fisheries and Marine Resources, Ministry of Agriculture and Livestock, Ministry of Tourism) which have mandates over community development projects that fund fisheries and non-fisheries community projects. This assumption however was weak, as there was no<sup>11</sup> evidence of such agreement provided during the research between any government ministry and any of the three case study communities to work together. There was however a suggestion from most of the research participants that their respective communities have informal plans or mutual expectations to work with government ministries in the future. While evidence of individual funded projects was shown in the Results Chapter, it is unknown whether these projects have been initiated based on formal agreements or any related sort of understanding. Workshops and training had taken place in each of the case study communities.

### **6.3 Remembering the objectives**

When developing the research strategy for this research, four information objectives were set:

1. Identify cases of successful; and failed CBMRM initiatives
2. Document and describe the social characteristics of the community
3. Document and describe the nature of the CBMRM interventions
4. Gather information that enables an understanding of the nature of the relationship between locals and external partners

---

<sup>11</sup> There were evidence of other community development projects being implemented in each of the communities but none of the research participants mentioned any formal arrangement, e.g., an MOU, between each community and external partners.

The discussion that follows draws on the information gathered to assess the co-management arrangements, factors affecting success and failure of CNMRM and the relationships between locals and external partners.

### **6.3.1 Assessment of co-management arrangements of marine CBNRM in the Solomon Islands**

The first objective was accomplished through the literature review and the Results Chapter. First of all, it was found that co-management of marine CBNRM in Solomon Islands, particularly the case study communities, was an alternative governance regime that the locals adopted to improve marine resource management. The literature review has shown through extensive studies that co-management of marine and fisheries resources are considered due to failed state management (centralized governance), and the privatization of resources (customary management). In the case of the three case communities, they all have a history of adopting a 'customary management' system that has always been an influential socio-cultural and preventative management tool that directs people and communities to manage both terrestrial and marine resources. The customary management systems seem to not work out well so the locals seek support from NGOs and government actors to co-manage local marine resources, and or respective NGOs and government actors were prompted to intervene as morally<sup>12</sup> and legally<sup>13</sup> required. A concluding argument drawn from the literature review is that NGOs and government actors intervene with a worldview and strategy to change local fisheries management in a way that incorporates both the traditional and western management approach to fisheries management. In the face of the transition, local people and communities are now co-managing local marine and fisheries resources with the government, NGOs and other primary stakeholders.

The evidence in the Results Chapter suggested that conservation interventions support these rural communities by conducting training, workshops, social learning events, biological awareness programs and all sorts of capacity building activities. Hence the respondents in the case study communities have revealed that they were richly empowered with information, facilitated by conservation interventions, which lead them to greater awareness to diagnose the level of impact they put on their marine resources and identify measures to organize and manage their activities and marine resources. It is made known by the research participants that the co-management arrangements of marine resources did recognize and revive customary management practices in their respective rural communities. Also, the presence of interventions opened potential pathways towards strengthening and forming new and existing relations between communities and external

---

<sup>12</sup> NGOs do not have any legal requirements, only moral.

<sup>13</sup> The government is obligated under legal requirements to intervene when and where required.



stakeholders. Examples of community development projects that are becoming increasingly popular in rural communities and are pilot partnership projects identifiable in the three case communities are related to the health, energy, housing, tourism and fisheries sectors. Community based partnerships similar to such turn out to be beneficial to the host communities and improve integrity to the facilitating NGOs and private sector parties or in some cases, the benefit is felt the other way round.

In spite of the strategies adopted by those who intervened, this research finds that support of the interventions appeared to be unsatisfactorily aligned with community characteristics to assure effective CBMRM and establish long-lasting CBM of marine resources in rural communities in this part of the Solomon Islands. In Funa'afou, Fumato'o and Tauba, the shift in people's livelihoods from traditional subsistence livelihoods, coupled with overpopulation<sup>14</sup> to a cash based market oriented livelihood has resulted in a focus on immediate cash resources as the means to sustain non-sustainable livelihoods rather than long-term that NGOs and government actors had hoped to establish. Also, co-management arrangements of marine resources, in theory, achieve community empowerment, strengthen existing community structures, build community capacity and so forth. For example, in Fumato'o where the NGO is still working in a co-management type of relationship, the barriers (like social disparity between males and females, youths and adults, prosperous and unfortunate, literate individuals and illiterate individuals, extroverts and introverts) which are found in Funa'afou and Tauba, where co-management failed, have been broken down. The marine co-management arrangement in Funa'afou and Tauba failed, not because it did not work, but because the ways in which the interventions took place and the structures that were sought to be established were not well done. The evidence in the Results Chapter suggested that the training organized at the community level was good for people but in Funa'afou and Tauba the training was only available to literate folks and was conducted away from the community. The training acted to destroy the potential to achieve workable co-management. So it was the way in which the intervention was conducted (like the lack of connection with other places and the failure to address land tenure issues) that seemed to contribute much to the failure of the interventions and to in fact aggravate the problems (like the social disparities).

The findings in the Results Chapter suggested capacity building and partnerships are important variables that interventions use to facilitate sustainable marine resources management at the community level. To begin with, it is evident in the Results Chapter that mutual connectedness and partnership is vague and not always realized when a community decides to work with an NGO and government actors. To become real partners, both stakeholders need to be thinking in a similar way regarding the occurrence of events and activities under the CBMRM programme. Although the co-

---

<sup>14</sup> Which is evidenced by the tensions that have forced the colonization of the sea and new settlements to continually be built on land.

management arrangements studied have helped organize and strengthen the community and people, the findings in the Results Chapter suggest that, by doing that, is not enough to promote a successful CBMRM programme, and the researchers of other studies (Ansell., 2007; Carlsson & Berkes, 2005; Jentoft, 2005; Jentoft, McCay, & Wilson, 1998) also confirmed that is not sufficient. It appears from one case study community (Fumato'o) that a focus on establishing community social connectedness appears as a key ingredient to successful CBMRM, for instance, the facilitating NGO bringing in the training programmes to the community and using approaches that do not create or aggravate existing disparities (e.g., between literate and illiterate).

### **6.3.2 Assessment of marine CBNRM interventions success and failure factors**

Through the literature review, the theories of governance, CBMRM, community, co-management and collaborative governance were explored. From this, the strengths and weaknesses of such regimes were recognised. The initial approach of this research was to investigate what functions interventions could be performed that may influence social behaviours of people in rural communities in the Solomon Islands to better manage marine resources. Over the course of the research, it has become clear that social connectedness in the community and related community dynamics is what merely facilitates successful intervention. It is evident in the Results Chapter that all three communities at least initially supported the interventions, but only one survived, and that may be just because the presence of the external partners in their community provided them with an extra source of income. Therefore such incentives trigger rural people's ambition to support interventions.

In the Results Chapter it is evident that community development programmes are popular in rural Malaitan communities. In the three case study communities, there is evidence of interventions to support locals to implement CBMRM and community development projects.

A small number of legacies left in the aftermath of previous interventions and urban migration can be seen in the three case study communities, and seemed to affect the mindsets and behaviours of locals towards outsiders and changes. Studies have shown that past events tended to have long-lasting effects on people's well-being and ability to cope and do things even if they have moved on and do things like any other normal human being (Djelantik, Smid, Kleber, & Boelen, 2017; Rosenbaum et al., 2015). So the combined interaction of these social dynamics appears to have a major impact on rural communities' perception on social and human capital especially when outsiders intervene to manage or develop resources therein. Urban migration was mentioned as the cause of community desertion that I observed during the data collection period. But it is the negative impacts it has on land and marine tenure systems, traditional cultures, community cohesion and social memory that has had a great negative impact on two of the case study communities

(Funa'afou and Tauba). The negative impact that migration has had on social memory is that some community members have a deteriorating sense of community or place and attachment towards their native home. Therefore, it affects the structural stability and relationships among community members and tribal groups, and this contributes to incompetent social learning among people.

When discussing the breakdown and continuity of CBMRM with the research participants, any reference to causes was not restricted to any aspect of circumstances. In Funa'afou and Tauba, all respondents made references to community fragmentation, social cohesion, misalignment of community-NGO priorities, and non-monetized community input as the ultimate cause of the collapse of CBMRM and failed intervention. These concerns were also raised in Fumato'o as potentially obstructing successful CBMRM.

Furthermore, in the community of Funa'afou and Tauba, the geographical characteristics of their island home defines the nature of their livelihoods. It is difficult for people in these two communities to adopt alternative sources for livelihoods because of limited space and land on their islands. This is a major limiting factor for locals to better manage marine resources. However, this fundamental problem of lack of alternatives will be overcome through mutual sharing of space on the mainland for alternative livelihoods. On the other hand, Fumato'o has more space and land to pursue alternative livelihoods, and collective actions through cohesion can enable connectedness and common understanding of community goals and activities.

How, then, does the intervenor seeking to establish co-management ensure connectedness and or partnerships at different levels between and within groups involved in the relationship? To begin with, the views of the research participants in the Results Chapter suggest or support the views of Robert Pomeroy, Louisa Evans, Fikret Berkes, Joshua Cinner, and Svein Jentoft that the power base from which internal community connectedness could be established should be one where the facilitating NGOs and government actors discover and pursue internal community interests, and introduce innovative and adaptive strategies. Also, the interventions' participatory process must provide a well-defined engagement framework that also enables participation of relatives living outside of the community in the management and decision making processes. Further, the findings in the Results Chapter suggested for interventions to ensure a balance between meeting the alternative needs of the community doing marine CBNRM and allowing opportunities for social interaction with other external facilitators of support services. For example, in Fumato'o, the role of training appeared to be the core to the success to some extent due to the training occurring within the village and so everyone benefited from providing accommodation to serving food and buying local food. Perhaps, interventions will improve their binding and bonding connection with communities implementing CBMRM once they understand what the key goal community goal is and proceed to

carry out the interests of community members before aiming for their own goals. The conclusion may be drawn, then, that in order to be a successful intervening CBNRM co-manager, the community must be a focal point to foster connectedness and good relationships within and between those involved with the resource and wider community. For example, in the successful case study community (Fumato'o) the resource management committee acts as the focal point, to send people for training out of the community whereas in the unsuccessful case study communities (Funa'afou and Tauba), the intervention selected and took some members of the community out to the intervenors base for training there.

### **6.3.3 Recognizing the relationships between locals and external partners**

Connectedness between government authorities and communities is very important because marine conservation and small-scale fisheries management is the responsibility of the national and provincial governments, and local resource owners. NGOs appeared to play a more technical role towards supporting and strengthening of provincial and national institutions' capacities as well as mediator to align national priorities and communicate with communities. Under that, NGOs they help cause a partnership to develop between the government and the community. In the focus region of this research, NGOs engaged directly with communities on behalf of government actors, while government actors appeared to have minimal physical presence in these communities. This, however is different with conservation projects and other community development projects. The findings in the Results Chapter suggested that the presence of provincial and or national ministries in the community is important as such occasion enables community perspectives to reach much higher levels of governance and planning. For example, those who attended meetings may have a greater chance to be informed and or understand legal documents, project benefits and awareness. In that sense, these individuals may have good understanding and be able to rate the issues that influence people to seriously implement a CBMRM type programme.

Occasional visits by external partners have been found to have a considerable effect on the CBMRM program in the community. The Results Chapter implies that regular and relatively frequent but well-spaced visits by external partners are essential and or worked for the community. In Funa'afou and Fumato'o the facilitating NGO visited the communities after two to three months following a meeting or training. This was to give the community space and time to conduct the activity in addition to their busy personal schedules. Most of the respondents in the two communities described the technique to be very effective because when their external partner revisited they used the opportunity to discuss problems they faced and areas for improvement, to visit people and places in the community, to report on how the project activities are proceeding and so forth.

Therefore the external partner’s continued presence in the community kept locals interested and focused on CBMRM.

The findings in the Results Chapter asserted that CBMRM interventions can establish long-lasting CBM of marine resources and livelihoods improvements in communities only if rural Solomon Islanders accept the interventions, with genuine motives, and fully understand the immediate and long-term or intangible and tangible benefits associated with such programmes. However, this is only a distinct manner for analyzing the studied phenomenon and there is also a need to understand the phenomenon from other perspectives.

To proceed to the stage where CBMRM is effective, interventions need to consider the social characteristics of communities. In the Results Chapter, a number of factors or variables were identified by the research participants, and were assessed (see Table 6) by the researcher based on the degree to which they were present or absent in each of the case study communities. These variables did prove useful in describing the CBMRM interventions in rural communities in Malaita. However, the analysis of the results and the general description of the variables are tremendously subjective. This research used a specific approach rather than general to investigate CBMRM interventions, although the type of interventions used to facilitate CBMRM was in the forefront in the course of the research project.

**Table 6 Variables or factors identified by the research participants in the Results Chapter that would facilitate sustainable resource management**

Variables that facilitate successful sustainable resource management	Funa’afou	Fumato’o	Tauba
Cultural norms: Gendered roles	Low participation of women and youth	Moderate to high – participation of women, youth and men is balance	Low participation of women and youth
Cultural change	Low	Moderate to high	Low
Community connectedness	Low	High	Low
Structural flexibility and freedom	Low	Moderate to high	Low
Multiple forms of livelihood	Low	High	Low
Behavioural and mentality change	Low	High	Low
Social cohesion and community cooperation	Low	High	Low
Genuine community leadership	Low	High	Low
Absence of issues related to resource ownership	Low	High	Low
Unselective participation approach	Low	Moderate	Low
Community support for external partners	Low	High	Low

Alignment of priorities	Low	Low	Low
Government and NGO support	Low	High	Low
Inclusive leadership	Low	High	Low
Community empowerment	High	High	Low
Community acceptance of CBMRM	Low	High	High
NGO visits/ relations	High	High	Low

The emerging outcome of this research is that the approaches used by interventions to facilitate effective marine resources management in rural communities appeared to not fully pursue many of the interrelationships and interdependencies that exist between social and natural systems. An intervention's focus on intangible supports (e.g. information dissemination on resource biology, destructive fishing behaviors, leadership training) might facilitate effective decision-making processes and general CBMRM consciousness and planning processes. However, those factors were not part of the current research and given the difficulties experienced in one community with the inaccessibility of the fish aggregation device, such approaches may need to be developed more systemically within the community.

The variables identified in Table 6, in one way emphasised that the success and failure of CBMRM interventions in rural Solomon Islands communities is dependent on the social characteristics of the community more than the biophysical characteristics of the communities or the type of intervention used.

As already discussed, the assumptions made in Chapter Four, prior to the field research, are supported by the findings in Chapter Five.

## 6.4 Chapter summary

This case study has shown that co-management arrangement in the Solomon Islands appeared to be working well with communities as it empowers local communities to better manage their marine resources. However, interventions appeared to not align their approaches and goals with the community characteristics, hence long-lasting CBMRM is unsuccessful. Interventions initiate CBMRM initiatives with local communities based on a worldview and higher level strategy to blend local management practices with western management approaches to better manage marine resources.

It is also found that rural people's ambition to support intervention appeared to be different as time goes by with management due to various forms of incentives that attached with the arrival of interventions into local communities.

## Chapter 7

### Conclusion and Recommendations

#### 7.1 Introduction

The conclusions of this thesis and the implications for future research based on the results will be drawn in this final chapter.

#### 7.2 Answering the research questions

The aim for this Master's thesis was to explore the relationship between the types of interventions that CBMRM advocators take that may influence social behaviors of people in communities to support long lasting Community-Based Resource Management (CBMRM) engagement and improvement in livelihoods in the marine context. Therefore this research aimed to answer, what are the social constraints that rural Solomon Islands communities face in facilitating sustainable marine resource management? Having completed this research, several variables were found to obstructing the successful implementation of resource management in rural communities.

The other aim of this thesis was to find out, if interventions aimed at supporting the role of fisheries in providing food security to communities in the Solomons leads to long lasting improvement in their livelihoods. In discussing whether interventions showed concerns for discovering and pursuing internal, external, bridging and bonding relationships for rural community connectedness, the Results Chapter has shown little evidence of such interaction. However, it appeared that interventions are focused more on their conservation centric goals than community oriented interests, which are usually for improved livelihoods and other support services. Addressing community oriented interests may have triggered greater cohesion and connectedness. Interventions appeared to provide information and expect locals to participate in knowledge exchange. Interventions often offer limited support to communities especially with regards to infrastructure or materials or finance that community often requires to implement community development activities or resource management or to sustain alternative livelihoods. So my observation is that, even though ideas such as promoting equal participation in household or community decisions and promoting equal opportunities to access and benefit from resources are considered important to households and communities, it can be a challenge in reaching a balance with cultural norms.

Also, this thesis aimed to explore what characteristics of places and interventions appear to improve the probability of a successful interventions. It is concluded that community connectedness has been

found to be critical to the successes of CBNRM and community development programs. It was clear communication and collective understanding that triggered mutual connectedness and good relationships. First of all, a close knit and well connected community has greater influence to support the success of interventions that try to establish long-lasting conservation and community development in rural communities. The evidence in the Results Chapter suggests greater social cohesion in Fumato'o between individuals, households and tribal groups living in the community as well as with other community members that are living abroad. This, however, is not the case in Funa'afou and Tauba. Arguably, based on the situation of Funa'afou and Tauba, community fragmentation has led to disparity among the heterogeneous group of people that make up their respective community and are either living within or abroad. So the lone strategy commonly used by interventions to foster community empowerment, educational biological awareness and change by capacity building and information dissemination, however is not enough to ensure successful CBMRM.

### **7.3 Key findings and recommendations**

At the start of the research, I suspected that the social structure of the three case study communities had a lot of impact on the resource management programme that was and or is implemented. As the project progressed the significance of the social structures of each of the case study communities became increasingly evident. This led me to the conclusion that the leadership status and community structure of the community played a significant role in successful marine CBNRM.

Based on the results obtained and their analyses, several conclusions are drawn. The three communities are communities with limited resources, therefore having additional resources (agriculture land) to use while implementing marine resource management is critically important. However, the problems of increasing demands on resources and limited returns from the cash economy suggest that the future for these communities, that are artificial island based, is very tenuous. Already present social disparities in the communities have been aggravated by poorly implemented interventions, but there is hope that more community focussed interventions may work.

Future interventions may work, only if couched in context of government to community partnerships, rather than through intermediaries without the power to resolve issues like ownership, and that underlying problems like literacy and inequality must be addressed through the interventions as part of the overall picture of co-management partners. This was because the interventions will have unintended consequences that may set such sustainable livelihoods even further on a downward spiral. To that extent, a focus on building a sense of community and community connectedness appears to be fundamentally needed in approaches to these communities



and maybe a key aspect for implementation of similar types of intervention in other parts of the world with similar characteristics.

#### **7.4 Future Research**

In view of the conclusions drawn, the following suggestions are made:

A future researcher might like to extend the study to other communities, there are more than 50 communities in the Lau Lagoon. A future researcher might even like to revisit these communities and see how things have changed over time and whether or not new types of interventions that more closely follow the recommended guidance of this research might work better.

Since this research focus on getting the opinion of the people in the communities, future researchers might want to extend the study by conducting a study which focused on the external partners and their approaches in facilitating sustainable resource management with rural communities in Malaita.

#### **7.5 Chapter summary**

Overall, it is evident from the findings that marine CBNRM in the three case studies varied. Their variation appears to be influenced by various factors related to the social characteristics of the community as well as the approaches used by the interventions.

## References

- Abernethy, K. E., Bodin, Ö., Olsson, P., Hilly, Z., & Schwarz, A. (2014). Two steps forward, two steps back: The role of innovation in transforming towards community-based marine resource management in Solomon Islands. *Global Environmental Change*, 28, 309-321. doi:<http://dx.doi.org/10.1016/j.gloenvcha.2014.07.008>
- Aburto, J. A., Gaymer, C. F., Haoa, S., & González, L. (2015). Management of marine resources through a local governance perspective: Re-implementation of traditions for marine resource recovery on Easter Island. *Ocean & Coastal Management*, 116, 108-115. doi:<http://dx.doi.org/10.1016/j.ocecoaman.2015.07.008>
- ADB. (2013). Evaluation Approach: Supporting Good Governance: A Thematic Evaluation Study of ADB Support for Enhancing Governance in its Public Sector Operations (Publication no. <https://www.adb.org/sites/default/files/evaluation-document/36108/files/eap-tes-governance.pdf>). Retrieved 12/12/2016, from Asian Development Bank <https://www.adb.org/sites/default/files/evaluation-document/36108/files/eap-tes-governance.pdf>.
- Adger, W. N. (2003). Social Capital, Collective Action, and Adaptation to Climate Change. *Economic Geography*, 79(4), 387-404. doi:DOI: 10.1111/j.1944-8287.2003.tb00220.x
- Aheto, D. W., Kankam, S., Okyere, I., Mensah, E., Osman, A., Jonah, F. E., & Mensah, J. C. (2016). Community-based mangrove forest management: Implications for local livelihoods and coastal resource conservation along the Volta estuary catchment area of Ghana. *Ocean & Coastal Management*, 127, 43-54. doi:<http://dx.doi.org/10.1016/j.ocecoaman.2016.04.006>
- Akimichi, T. (1991). Sea Tenure and Its Transformation in the Lau of North Malaita, Solomon Island. *South Pacific Study*, 12(1). doi:<http://hdl.handle.net/10232/15559>
- Alexander, T., Manele, B., Schwarz, A.M., Topo, S., Liliqeto, W. . (2011). Principles for best practices for community-based resource management (CBRM) in Solomon Islands *Coral Triangle Support Partnership*. Retrieved from <http://www.worldfishcenter.org/content/principles-best-practice-community-based-resource-management-cbrm-solomon-islands>
- Allison, E. H., & Horemans, B. (2006). Putting the principles of the Sustainable Livelihoods Approach into fisheries development policy and practice. *Marine Policy*, 30(6), 757-766. doi:<http://dx.doi.org/10.1016/j.marpol.2006.02.001>
- Anafo, D. (2015). Land reforms and land rights change: A case study of land stressed groups in the Nkoranza South Municipality, Ghana. *Land Use Policy*, 42, 538-546. doi:<http://dx.doi.org/10.1016/j.landusepol.2014.09.011>
- Ansell, C. a. G., A. (2007). Collaborative Governance in Theory and Practice. *Journal of Public Administration Research and Theory*, 18, 543-571. doi:doi:10.1093/jopart/mum032
- Arceo, H. O., Cazalet, B., Aliño, P. M., Mangialajo, L., & Francour, P. (2013). Moving beyond a top-down fisheries management approach in the northwestern Mediterranean: Some lessons from the Philippines. *Marine Policy*, 39, 29-42. doi:<http://dx.doi.org/10.1016/j.marpol.2012.10.006>
- Armitage, D. R., Plummer, R., Berkes, F., Arthur, R. I, Charles, A. T., Davidson-Hunt, I. J., Diduck, A. P., Doubleday, N. P., Johnson, D. S., Marschke, M., McConney, P., Pinkerton, E. W., and Wollenberg, E. K (2009). Adaptive co-management for social-ecological complexity. *Frontiers in Ecology and the Environment*, 7(2), 95-102.
- Aswani, S., Albert, S., Sabetian, A., and Furusawa, T. (2007). Customary management as precautionary and adaptive principles for protecting coral reefs in Oceania. . *Coral Reefs*, 26, 1009-1021 doi:DOI.10.1007/s00338-007-0277-z
- Aswani, S., and Ruddle, K. . (2013). Design of Realistic Hybrid Marine Resource Management Programs in Oceania *Pacific Science*, 67(3), 461-476. doi:doi:<http://dx.doi.org/10.2984/67.3.11>
- Ayles, B., Porta, L., & Clarke, R. M. (2016). Development of an integrated fisheries co-management framework for new and emerging commercial fisheries in the Canadian Beaufort Sea. *Marine Policy*, 72, 246-254. doi:<http://dx.doi.org/10.1016/j.marpol.2016.04.032>

- Babbie, E. (2001). *The practice of social research* (9th ed.). Belmont: Wadsworth.
- Baio, A. (2010). Show me the way: Inclination towards governance attributes in the artisanal fisheries of Sierra Leone. *Fisheries Research*, 102(3), 311-322. doi:<http://dx.doi.org/10.1016/j.fishres.2010.01.003>
- Baquiano, M. J. (2016). Understanding coastal resource management using a social representations approach. *Ocean & Coastal Management*, 133, 18-27. doi:<http://dx.doi.org/10.1016/j.ocecoaman.2016.09.008>
- Barnes, M. L., Arita, S., Kalberg, K., & Leung, P. (2017). When does it pay to cooperate? Strategic information exchange in the harvest of common-pool fishery resources. *Ecological Economics*, 131, 1-11. doi:<http://dx.doi.org/10.1016/j.ecolecon.2016.08.005>
- Bell, J. (2005). *Doing your research: a guide for first-time researchers in education and social science (Fourth Edition)*. Berkshire, England: Open University Press.
- Berkes, F. (2004). Rethinking Community-Based Conservation. *Conservation Biology*, 18(3), 621-630.
- Berkes, F., Colding, J., and Folke, C. (Eds.). (2003). NAVIGATING SOCIAL–ECOLOGICAL SYSTEMS: Building Resilience for Complexity and Change [Press release]. Retrieved from [http://lauer.sdsu.edu/courses/510-Spring-2016/readings/Berkes\\_2003.pdf](http://lauer.sdsu.edu/courses/510-Spring-2016/readings/Berkes_2003.pdf).
- Björstig, T., & Sandström, C. (2017). Public-private partnerships in a Swedish rural context - A policy tool for the authorities to achieve sustainable rural development? *Journal of Rural Studies*, 49, 58-68. doi:<http://dx.doi.org/10.1016/j.jrurstud.2016.11.009>
- Boso, D., Paul, C., and Hilly, Z (2010). *Lessons from implementing, adapting and sustaining community-based adaptive marine resource management*. Retrieved from [http://pubs.iclarm.net/resource\\_centre/AAS-2014-16.pdf](http://pubs.iclarm.net/resource_centre/AAS-2014-16.pdf). Accessed 15 April 2016.
- Bromley, D. W. (1989). Entitlements, missing markets, and environmental uncertainty. *Journal of Environmental Economics and Management*, 17(2), 181-194. doi:[http://dx.doi.org/10.1016/0095-0696\(89\)90031-4](http://dx.doi.org/10.1016/0095-0696(89)90031-4)
- Bryman, A. (2004). *Social research methods* (2nd ed.). New York: Oxford University Press.
- Buso, M., Marty, F., & Tran, P. T. Public-Private Partnerships from Budget Constraints: Looking for Debt Hiding? *International Journal of Industrial Organization*. doi:<http://dx.doi.org/10.1016/j.ijindorg.2016.12.002>
- Carlsson, L., & Berkes, F. (2005). Co-management: concepts and methodological implications. *Journal of Environmental Management*, 75(1), 65-76. doi:<http://dx.doi.org/10.1016/j.jenvman.2004.11.008>
- Cash, C. (2016). Good governance and strong political will: Are they enough for transformation? *Land Use Policy*, 58, 545-556. doi:<http://dx.doi.org/10.1016/j.landusepol.2016.08.012>
- Chen, S., & Ganapin, D. (2016). Polycentric coastal and ocean management in the Caribbean Sea Large Marine Ecosystem: harnessing community-based actions to implement regional frameworks. *Environmental Development*, 17, Supplement 1, 264-276. doi:<http://dx.doi.org/10.1016/j.envdev.2015.07.010>
- Cheng, K.-T. (2013). Governance mechanisms and regulation in the utilities: An investigation in a Taiwan sample. *Utilities Policy*, 26, 17-22. doi:<http://dx.doi.org/10.1016/j.jup.2013.04.003>
- Chowdhury, I. A., Kamal, M. M., Haque, N., Islam, M. N., and Akter, S. . (2012). Patterns of Co-operation in Community Based Fishery Management: A Sociology Study of the People of Hail Hoar. *Asian Social Science*, 8 (15), 222-234. . doi:10.5539/ass.v8n15p222
- Cinner, J. E., and Aswani, S. . (2007). Integrating customary management into marine conservation. *Biological Conservation*, 140((3-4)), 201-216. . doi:10.1016/j.biocon.2007.08.008.
- Clark, A. (2007). *Understanding Community: A review of networks, ties and contacts*.
- Coglan, L., & Pascoe, S. (2015). Corporate-cooperative management of fisheries: A potential alternative governance structure for low value small fisheries? *Marine Policy*, 57, 27-35. doi:<http://dx.doi.org/10.1016/j.marpol.2015.03.023>
- Cohen, P., Schwarz, A.M., Boso, D., Hilly, Z. (2014). *Lessons from implementing, adapting and sustaining community-based adaptive marine resource management*. Retrieved from [http://pubs.iclarm.net/resource\\_centre/AAS-2014-16.pdf](http://pubs.iclarm.net/resource_centre/AAS-2014-16.pdf)

- Cohen, P. J., Cinner, J. E., & Foale, S. (2013). Fishing dynamics associated with periodically harvested marine closures. *Global Environmental Change*, 23(6), 1702-1713.  
doi:<http://dx.doi.org/10.1016/j.gloenvcha.2013.08.010>
- Cohen, P. J., & Foale, S. J. (2013). Sustaining small-scale fisheries with periodically harvested marine reserves. *Marine Policy*, 37, 278-287. doi:<http://dx.doi.org/10.1016/j.marpol.2012.05.010>
- Colombo, L., & Labrecciosa, P. (2013). Oligopoly exploitation of a private property productive asset. *Journal of Economic Dynamics and Control*, 37(4), 838-853.  
doi:<http://dx.doi.org/10.1016/j.jedc.2012.11.007>
- Cox, M., Villamayor-Tomas, S., & Hartberg, Y. (2014). The Role of Religion in Community-based Natural Resource Management. *World Development*, 54, 46-55.  
doi:<http://dx.doi.org/10.1016/j.worlddev.2013.07.010>
- Curtis, A., Ross, H., Marshall, G. R., Baldwin, C., Cavaye, J., Freeman, C., Carr, A., and Syme, G. J. . (2014). The great experiment with devolved NRM governance: lessons from community engagement in Australia and New Zealand since the 1980s. *Australasian Journal of Environmental Management*, 21(2), 175-199. doi:DOI: 10.1080/14486563.2014.935747
- Cuvelier, J., Vlassenroot, K., & Olin, N. (2014). Resources, conflict and governance: A critical review. *The Extractive Industries and Society*, 1(2), 340-350.  
doi:<http://dx.doi.org/10.1016/j.exis.2014.07.006>
- Davidson-Hunt, I., and Berkes, F. (2003). Learning as You Journey: Anishinaabe Perception of Social-ecological Environments and Adaptive Learning *Conservation Ecology*, 8(1).
- Davis, N. A. (2008). Evaluating collaborative fisheries management planning: A Canadian case study. *Marine Policy*, 32(6), 867-876. doi:<http://dx.doi.org/10.1016/j.marpol.2008.01.001>
- De Luca, G., Litina, A., & Sekeris, P. G. (2015). Growth-friendly dictatorships. *Journal of Comparative Economics*, 43(1), 98-111. doi:<http://dx.doi.org/10.1016/j.jce.2013.09.002>
- DeCaro, D., and Stokes, M. . (2008). Social-Psychological Principles of Community-Based Conservation and Conservancy Motivation: Attaining Goals within an Autonomy-Supportive Environment. *Conservation Biology*. doi:DOI: 10.1111/j.1523-1739.2008.00996.x.
- DeHoratius, N., & Rabinovich, E. (2011). Field research in operations and supply chain management. *Journal of Operations Management*, 29(5), 371-375.  
doi:<http://dx.doi.org/10.1016/j.jom.2010.12.007>
- Del Bo, C. D., Ferraris, M., & Florio, M. Governments in the market for corporate control: Evidence from M&A deals involving state-owned enterprises. *Journal of Comparative Economics*. doi:<http://dx.doi.org/10.1016/j.jce.2016.11.006>
- Devaney, L. (2016). Good governance? Perceptions of accountability, transparency and effectiveness in Irish food risk governance. *Food Policy*, 62, 1-10.  
doi:<http://dx.doi.org/10.1016/j.foodpol.2016.04.003>
- Djelantik, A. A. A. M. J., Smid, G. E., Kleber, R. J., & Boelen, P. A. (2017). Symptoms of prolonged grief, post-traumatic stress, and depression after loss in a Dutch community sample: A latent class analysis. *Psychiatry Research*, 247, 276-281.  
doi:<http://dx.doi.org/10.1016/j.psychres.2016.11.023>
- Doss, C. R., & Meinzen-Dick, R. (2015). Collective Action within the Household: Insights from Natural Resource Management. *World Development*, 74, 171-183.  
doi:<http://dx.doi.org/10.1016/j.worlddev.2015.05.001>
- Dryzek, J. S., & Pickering, J. (2017). Deliberation as a catalyst for reflexive environmental governance. *Ecological Economics*, 131, 353-360. doi:<http://dx.doi.org/10.1016/j.ecolecon.2016.09.011>
- Elmir, R., & Schmied, V. (2016). A meta-ethnographic synthesis of fathers' experiences of complicated births that are potentially traumatic. *Midwifery*, 32, 66-74.  
doi:<http://dx.doi.org/10.1016/j.midw.2015.09.008>
- Emery, T. J., Gardner, C., Hartmann, K., & Cartwright, I. (2017). Incorporating economics into fisheries management frameworks in Australia. *Marine Policy*, 77, 136-143.  
doi:<http://dx.doi.org/10.1016/j.marpol.2016.12.018>
- Espinosa-Romero, M. J., Rodriguez, L. F., Weaver, A. H., Villanueva-Aznar, C., & Torre, J. (2014). The changing role of NGOs in Mexican small-scale fisheries: From environmental conservation to

- multi-scale governance. *Marine Policy*, 50, Part A, 290-299.  
doi:<http://dx.doi.org/10.1016/j.marpol.2014.07.005>
- FAO. (2016). *The State of World Fisheries and Aquaculture: Contributing to food security and nutrition for all* (pp. 200). Retrieved from <http://www.fao.org/3/a-i5555e.pdf>
- Fernandez, L. (2006). Natural resources, agriculture and property rights. *Ecological Economics*, 57(3), 359-373. doi:<http://dx.doi.org/10.1016/j.ecolecon.2005.04.022>
- Fortmann, L. (1990). Locality and custom: Non-aboriginal claims to customary usufructuary rights as a source of rural protest. *Journal of Rural Studies*, 6(2), 195-208.  
doi:[http://dx.doi.org/10.1016/0743-0167\(90\)90006-T](http://dx.doi.org/10.1016/0743-0167(90)90006-T)
- Freed, S., Dujon, V., Granek, E. F., & Mouhhdine, J. (2016). Enhancing small-scale fisheries management through community engagement and multi-community partnerships: Comoros case study. *Marine Policy*, 63, 81-91. doi:<http://dx.doi.org/10.1016/j.marpol.2015.10.004>
- Freeman, M. A., & Anderson, C. M. (2017). Competitive Lobbying over Common Pool Resource Regulations. *Ecological Economics*, 134, 123-129.  
doi:<http://dx.doi.org/10.1016/j.ecolecon.2016.12.031>
- Furuta, M., Sandall, J., & Bick, D. (2014). Women's perceptions and experiences of severe maternal morbidity – A synthesis of qualitative studies using a meta-ethnographic approach. *Midwifery*, 30(2), 158-169. doi:<http://dx.doi.org/10.1016/j.midw.2013.09.001>
- Galinato, G. I. (2011). Endogenous property rights regimes, common-pool resources and trade. *Ecological Economics*, 70(5), 951-962. doi:<http://dx.doi.org/10.1016/j.ecolecon.2010.12.011>
- García Lozano, A. J., & Heinen, J. T. (2016). Property relations and the co-management of small-scale fisheries in Costa Rica: Lessons from Marine Areas for Responsible Fishing in the Gulf of Nicoya. *Marine Policy*, 73, 196-203. doi:<http://dx.doi.org/10.1016/j.marpol.2016.08.011>
- Govan, H., Schwarz, A.M., Harohau, D., Oeta, J. (2013). *Solomon Islands National Situation Analysis*. Retrieved from Penang, Malaysia: <http://aquaticcommons.org/11219/1/AAS-2013-16.pdf>
- Grigoriadis, T. (2016). Religious origins of democracy & dictatorship. *Journal of Policy Modeling*, 38(5), 785-809. doi:<http://dx.doi.org/10.1016/j.jpolmod.2016.02.012>
- He, J., Chen, D., Sun, C., Fu, Y., & Li, W. (2017). Efficient stepwise detection of communities in temporal networks. *Physica A: Statistical Mechanics and its Applications*, 469, 438-446.  
doi:<http://dx.doi.org/10.1016/j.physa.2016.11.019>
- Huan-Niemi, E., Rikkonen, P., Niemi, J., Wuori, O., & Niemi, J. (2016). Combining quantitative and qualitative research methods to foresee the changes in the Finnish agri-food sector. *Futures*, 83, 88-99. doi:<http://dx.doi.org/10.1016/j.futures.2016.03.007>
- Jacobs, M. H., Vaske, J. J., & Sijtsma, M. T. J. (2014). Predictive potential of wildlife value orientations for acceptability of management interventions. *Journal for Nature Conservation*, 22(4), 377-383. doi:<http://dx.doi.org/10.1016/j.jnc.2014.03.005>
- Jampolsky, J. A., & Carpenter, K. A. (2015). Indigenous Rights A2 - Wright, James D *International Encyclopedia of the Social & Behavioral Sciences (Second Edition)* (pp. 795-803). Oxford: Elsevier.
- Jentoft, S. (2005). Fisheries co-management as empowerment. *Marine Policy*, 29(1), 1-7.  
doi:<http://dx.doi.org/10.1016/j.marpol.2004.01.003>
- Jentoft, S., McCay, B. J., & Wilson, D. C. (1998). Social theory and fisheries co-management. *Marine Policy*, 22(4-5), 423-436. doi:[http://dx.doi.org/10.1016/S0308-597X\(97\)00040-7](http://dx.doi.org/10.1016/S0308-597X(97)00040-7)
- Johannes, R. E. (1978). Traditional marine conservation methods in Oceania and their demise. *Annual Review of Ecology and Systematics*, 9, 349-364. doi:DOI: 10.1146/annurev.es.09.110178.002025.
- Jones, S., Oven, K. J., Manyena, B., & Aryal, K. (2014). Governance struggles and policy processes in disaster risk reduction: A case study from Nepal. *Geoforum*, 57, 78-90.  
doi:<http://dx.doi.org/10.1016/j.geoforum.2014.07.011>
- Joshi, D. K., Hughes, B. B., & Sisk, T. D. (2015). Improving Governance for the Post-2015 Sustainable Development Goals: Scenario Forecasting the Next 50 years. *World Development*, 70, 286-302. doi:<http://dx.doi.org/10.1016/j.worlddev.2015.01.013>
- Keen, M., and Mahanty, S. (2006). Learning in sustainable natural resource management: Challenges and Opportunities in the Pacific. *Sociology and Natural Resources*, 19(497-513).

- Kitts, A., Pinto da Silva, P., and Rountree, B. (2007). The evolution of collaborative management in the Northeast USA tilefish fishery. *Marine Policy*, 31, 192-200.  
doi:Doi:10.1016.j.marpol.2006.07.002
- Kohlbacher, F. (2006). The Use of Qualitative Content Analysis in Case Study Research. *Forum: Qualitative Social Research*, 7(1). doi:<http://nbn-resolving.de/urn:nbn:de:0114-fqs0601211>.
- Konu, H. (2015). Developing a forest-based wellbeing tourism product together with customers – An ethnographic approach. *Tourism Management*, 49, 1-16.  
doi:<http://dx.doi.org/10.1016/j.tourman.2015.02.006>
- Lane, M. B. (2006). Towards integrated coastal management in Solomon Islands: Identifying strategic issues for governance reform. *Ocean & Coastal Management*, 49(7–8), 421-441.  
doi:<http://dx.doi.org/10.1016/j.ocecoaman.2006.03.011>
- Laurent-Lucchetti, J., & Santugini, M. (2012). Ownership risk and the use of common-pool natural resources. *Journal of Environmental Economics and Management*, 63(2), 242-259.  
doi:<http://dx.doi.org/10.1016/j.jeem.2011.06.001>
- Lazarides, K. (2010). Grounded Theory. Retrieved from  
[http://www4.uwm.edu/sotl/help\\_support/upload/GT-February-2010.pdf](http://www4.uwm.edu/sotl/help_support/upload/GT-February-2010.pdf).
- Leisz, S. J., Thanh, M. V., & Vien, T. D. (2017). Chapter 1 - Toward Transforming the Approach to Natural Resource Management in Northern Vietnam *Redefining Diversity & Dynamics of Natural Resources Management in Asia, Volume 2* (pp. 3-10): Elsevier.
- Leppink, J. (n.d). Revisiting the quantitative–qualitative–mixed methods labels: Research questions, developments, and the need for replication. *Journal of Taibah University Medical Sciences*.  
doi:<http://dx.doi.org/10.1016/j.jtumed.2016.11.008>
- Linke, S., & Bruckmeier, K. (2015). Co-management in fisheries – Experiences and changing approaches in Europe. *Ocean & Coastal Management*, 104, 170-181.  
doi:<http://dx.doi.org/10.1016/j.ocecoaman.2014.11.017>
- Lo, K. (2015). How authoritarian is the environmental governance of China? *Environmental Science & Policy*, 54, 152-159. doi:<http://dx.doi.org/10.1016/j.envsci.2015.06.001>
- Lopes, P. F. M., Rosa, E. M., Salyvonchik, S., Nora, V., & Begossi, A. (2013). Suggestions for fixing top-down coastal fisheries management through participatory approaches. *Marine Policy*, 40, 100-110. doi:<http://dx.doi.org/10.1016/j.marpol.2012.12.033>
- Lovell, S. A., Gray, A. R., & Boucher, S. E. (2017). Place, health, and community attachment: Is community capacity associated with self-rated health at the individual level? *SSM - Population Health*, 3, 153-161. doi:<http://dx.doi.org/10.1016/j.ssmph.2016.12.002>
- Lozano, M. B., Martínez, B., & Pindado, J. (2016). Corporate governance, ownership and firm value: Drivers of ownership as a good corporate governance mechanism. *International Business Review*, 25(6), 1333-1343. doi:<http://dx.doi.org/10.1016/j.ibusrev.2016.04.005>
- Malterud, K. (2001). Qualitative research: standards, challenges, and guidelines. *The Lancet*, 358(9280), 483-488. doi:[http://dx.doi.org/10.1016/S0140-6736\(01\)05627-6](http://dx.doi.org/10.1016/S0140-6736(01)05627-6)
- Martínez-Novó, R., Lizcano, E., Herrera-Racionero, P., & Miret-Pastor, L. (2017). Aquaculture stakeholders role in fisheries co-management. *Marine Policy*, 76, 130-135.  
doi:<http://dx.doi.org/10.1016/j.marpol.2016.11.015>
- Masud, M. M., Aldakhil, A. M., Nassani, A. A., & Azam, M. N. (2017). Community-based ecotourism management for sustainable development of marine protected areas in Malaysia. *Ocean & Coastal Management*, 136, 104-112.  
doi:<http://dx.doi.org/10.1016/j.ocecoaman.2016.11.023>
- Mckenzie, L., Campbell, S., and Lasi, F (Ed.) (2006). *Seagrass and Mangroves*. Indo-Pacific Resource Center, Australia The Nature Conservancy, .
- Mcknight, J. L. (n.d). Regenerating Community. Retrieved from  
<https://mn.gov/mnddc/parallels2/pdf/80s/87/87-RC-JLM.pdf>
- Molea, T., & Vuki, V. (2008). Subsistence fishing and fish consumption patterns of the saltwater people of Lau Lagoon, Malaita, Solomon Islands: A case study of Funaafofou and Niuleni Islanders. *SPC Women in Fisheries Information Bulletin*. Retrieved from  
[www.spc.int/DigitalLibrary/Doc/FAME/InfoBull/WIF/18/WIF18\\_30\\_Molea.pdf](http://www.spc.int/DigitalLibrary/Doc/FAME/InfoBull/WIF/18/WIF18_30_Molea.pdf)

- Mountjoy, N. J., Whiles, M. R., Spyreas, G., Lovvorn, J. R., & Seekamp, E. (2016). Assessing the efficacy of community-based natural resource management planning with a multi-watershed approach. *Biological Conservation*, 201, 120-128.  
doi:<http://dx.doi.org/10.1016/j.biocon.2016.06.026>
- Mukhopadhyay, C. (2016). A nested framework for transparency in Public Private Partnerships: Case studies in highway development projects in India. *Progress in Planning*, 107, 1-36.  
doi:<http://dx.doi.org/10.1016/j.progress.2015.02.001>
- Nakakaawa, C., Moll, R., Vedeld, P., Sjaastad, E., and Cavanagh, J. . (2015). Collaborative resource management and rural livelihoods around protected areas: A case study of Mount Elgon National Park, Uganda *Forest Policy and Economics*, 57, 1-11.  
doi:<http://dx.doi.org/10.1016/j.forpol.2015.04.002>
- Nielsen, M., Andersen, P., Ravensbeck, L., Laugesen, F., Kristófersson, D. M., & Ellefsen, H. (2017). Fisheries management and the value chain: The Northeast Atlantic pelagic fisheries case. *Fisheries Research*, 186, Part 1, 36-47. doi:<http://dx.doi.org/10.1016/j.fishres.2016.08.004>
- Nunan, F., Hara, M., & Onyango, P. (2015). Institutions and Co-Management in East African Inland and Malawi Fisheries: A Critical Perspective. *World Development*, 70, 203-214.  
doi:<http://dx.doi.org/10.1016/j.worlddev.2015.01.009>
- Ochieng, R. M., Visseren-Hamakers, I. J., Arts, B., Brockhaus, M., & Herold, M. (2016). Institutional effectiveness of REDD+ MRV: Countries progress in implementing technical guidelines and good governance requirements. *Environmental Science & Policy*, 61, 42-52.  
doi:<http://dx.doi.org/10.1016/j.envsci.2016.03.018>
- OECD. (2010).  
INSIDE THE DAC: A Guide to the OECD Development Assistance Committee 2009-2010. Retrieved 12.12.2016 <https://www.oecd.org/dac/40986871.pdf>.
- Oetama-Paul, A. (n.d). Place Attachment as a Construct for Understanding Individual Pro-Environmental Behaviors in the Workplace. Retrieved from <https://weatherhead.case.edu/departments/organizational-behavior/workingPapers/WP-12-02.pdf>
- Ostrom, E. (1990). Governing the Commons: The Evolution of Institutions for Collective Action. In J. E. E. Alt, North, D. (Ed) (Ed.), *The Evolutions of Institutions for Collective Action*. New York (The Political Economy of Institutions and Decisions): Cambridge University Press
- Ostrom, E. (2002). Chapter 24 Common-pool resources and institutions: Toward a revised theory *Handbook of Agricultural Economics* (Vol. Volume 2, Part A, pp. 1315-1339): Elsevier.
- Pant, L. P., Adhikari, B., and Bhattarai, K. K. . (2015). Adaptive transition for transformations to sustainability in developing countries *Current Opinion in Environmental Sustainability*, 14, 206-212. doi:<http://dx.doi.org/10.1016/j.cosust.2015.07.006>
- Pickard, A. a. D., P. . (2004). The applicability of constructivist user studies: How can constructivist inquiry inform service providers and systems designers? *Information Research*, 9(3).
- Pinkerton, E. (1989). *Cooperative Management of Local Fisheries*. Vancouver, Canada: University of British Columbia Press.
- Pinkerton, E. (1999). Factors in overcoming barriers to implementing co-management in British Columbia salmon fisheries. *Conservation Ecology*, 3(2).  
doi:<http://www.consecol.org/vol3/iss2/art2>
- Pomeroy, R., Phang, K. H. W., Ramdass, K., Saad, J. M., Lokani, P., Mayo-Anda, G., . . . Goby, G. (2015). Moving towards an ecosystem approach to fisheries management in the Coral Triangle region. *Marine Policy*, 51, 211-219. doi:<http://dx.doi.org/10.1016/j.marpol.2014.08.013>
- Pomeroy, R. S. (1991). Small-scale fisheries management and development: Towards a community-based approach. *Marine Policy*, 15(1), 39-48. doi:[http://dx.doi.org/10.1016/0308-597X\(91\)90042-A](http://dx.doi.org/10.1016/0308-597X(91)90042-A)
- Pomeroy, R. S. (1995). Community-based and co-management institutions for sustainable coastal fisheries management in Southeast Asia. *Ocean & Coastal Management*, 27(3), 143-162.  
doi:[http://dx.doi.org/10.1016/0964-5691\(95\)00042-9](http://dx.doi.org/10.1016/0964-5691(95)00042-9)

- Pomeroy, R. S., & Berkes, F. (1997). Two to tango: The role of government in fisheries co-management. *Marine Policy*, 21(5), 465-480. doi:[http://dx.doi.org/10.1016/S0308-597X\(97\)00017-1](http://dx.doi.org/10.1016/S0308-597X(97)00017-1)
- Quinn Patton, M. (2002). Learning in the Field: An Introduction to Qualitative Research, edited by Gretchen B. Rossman and Sharon F. Rallis. Sage, Beverley Hills, 1998. *The American Journal of Evaluation*, 23(1), 115-116. doi:[http://dx.doi.org/10.1016/S1098-2140\(01\)00162-X](http://dx.doi.org/10.1016/S1098-2140(01)00162-X)
- Rakotoson, L. R., and Tanner, K. (2006). Community-based governance of coastal zone and marine resources in Madagascar *Ocean & Coastal Management*, 49 (11), 855-872. doi:doi:10.1016/j.ocecoaman.2006.08.003
- Rasoolimanesh, S. M., Jaafar, M., Ahmad, A. G., & Barghi, R. (2017). Community participation in World Heritage Site conservation and tourism development. *Tourism Management*, 58, 142-153. doi:<http://dx.doi.org/10.1016/j.tourman.2016.10.016>
- Ratner, B. D., Oh, E. J. V., & Pomeroy, R. S. (2012). Navigating change: Second-generation challenges of small-scale fisheries co-management in the Philippines and Vietnam. *Journal of Environmental Management*, 107, 131-139. doi:<http://dx.doi.org/10.1016/j.jenvman.2012.04.014>
- Raymond-Yakoubian, J., Raymond-Yakoubian, B., & Moncrieff, C. (2017). The incorporation of traditional knowledge into Alaska federal fisheries management. *Marine Policy*, 78, 132-142. doi:<http://dx.doi.org/10.1016/j.marpol.2016.12.024>
- Reid, H. (2015). Ecosystem- and community-based adaptation: learning from community-based natural resource management. *Climate and Development*. doi:DOI: 10.1080/17565529.2015.1034233.
- Rice, M., Apgar, M., Schwarz, A., Saeni, E., Teioli, H., and Faiau, J. . (n.d). Engaging the marginalised in Solomon Islands' aquatic agricultural systems.
- Roberts, S. M., Wright, S., & O'Neill, P. (2007). Good governance in the Pacific? Ambivalence and possibility. *Geoforum*, 38(5), 967-984. doi:<http://dx.doi.org/10.1016/j.geoforum.2007.04.003>
- Robinson, L. W., and Sasu, K. A. (2013). The role of values in a community-based conservation initiative in northern Ghana. *Environmental Values*, 22(5), 647-666.
- Rosenbaum, S., Vancampfort, D., Steel, Z., Newby, J., Ward, P. B., & Stubbs, B. (2015). Physical activity in the treatment of Post-traumatic stress disorder: A systematic review and meta-analysis. *Psychiatry Research*, 230(2), 130-136. doi:<http://dx.doi.org/10.1016/j.psychres.2015.10.017>
- Rouhani, O. M., & Niemeier, D. (2014). Resolving the property right of transportation emissions through public-private partnerships. *Transportation Research Part D: Transport and Environment*, 31, 48-60. doi:<http://dx.doi.org/10.1016/j.trd.2014.05.018>
- Ruiz-Mallén, I., Schunko, C., Corbera, E., Rös, M., and Reyes-García, V. (2015). Meanings, drivers, and motivations for community-based conservation in Latin America. *Ecology and Science*, 20(3), 33. doi:<http://dx.doi.org/10.5751/ES-07733-200333>
- Sam, M. K. (2001). 'Community' in the encyclopedia of informal education. Retrieved from <http://infed.org/mobi/community/>
- Sattler, C., Schröter, B., Jericó-Daminello, C., Sessin-Dilascio, K., Meyer, C., Matzdorf, B., . . . Giersch, G. (2015). Understanding governance structures in community management of ecosystems and natural resources: The Marujá case study in Brazil. *Ecosystem Services*, 16, 182-191. doi:<http://dx.doi.org/10.1016/j.ecoser.2015.10.015>
- Schlager, E. (2005). Rivers for Life: Managing water for people and nature. *Ecological Economics*, 55(2), 306-307. doi:<http://dx.doi.org/10.1016/j.ecolecon.2005.08.004>
- Schwarz, A., Alexander, T., and Bodo, D (2012). *Final Report: Improving resilience and adaptive capacity of fisheries-dependent communities in Solomon Islands*. Retrieved from [http://aci.gov.au/files/node/14335/fr2012\\_03\\_improving\\_resilience\\_and\\_adaptive\\_capacity\\_13184.pdf](http://aci.gov.au/files/node/14335/fr2012_03_improving_resilience_and_adaptive_capacity_13184.pdf)
- Schwarz, A., James, R., Teioli, H. M., Cohen, P., and Morgan, M. (2014). *Engaging women and men in community-based resource management processes in Solomon Islands*. Retrieved from [http://pubs.iclarm.net/resource\\_centre/AAS-2014-33.pdf](http://pubs.iclarm.net/resource_centre/AAS-2014-33.pdf)



- Schwarz, A. M., Andrew, N., Govan, H., Harohau, D., and Oeta, J. . (2013). *Solomon Islands Malaita Hub Scoping Report*. Retrieved from Penang, Malaysia:
- Sethi, M., & Puppim de Oliveira, J. (2015). From global 'North–South' to local 'Urban–Rural': A shifting paradigm in climate governance? *Urban Climate*, *14*, Part 4, 529-543.  
doi:<http://dx.doi.org/10.1016/j.uclim.2015.09.009>
- Shinn, J. E. (2016). Adaptive environmental governance of changing social-ecological systems: Empirical insights from the Okavango Delta, Botswana. *Global Environmental Change*, *40*, 50-59. doi:<http://dx.doi.org/10.1016/j.gloenvcha.2016.06.011>
- SIG (Producer). (n.d ). Provincial profile of the 2009 Population and Housing Census: Malaita. Retrieved from  
<http://www.statistics.gov.sb/component/advlisting/?view=download&format=raw&fileId=424>
- Simmons, V. N., Klasko, L. B., Fleming, K., Koskan, A. M., Jackson, N. T., Noel-Thomas, S., . . . Gwede, C. K. (2015). Participatory evaluation of a community–academic partnership to inform capacity-building and sustainability. *Evaluation and Program Planning*, *52*, 19-26.  
doi:<http://dx.doi.org/10.1016/j.evalprogplan.2015.03.005>
- SINSO. (2009). Solomon Islands 2009 Census Reports Retrieved from  
<http://prdrse4all.spc.int/node/4/content/solomon-islands-2009-census-reports>
- Stake, R. E. (2000). Case studies. In Norman K. Denzin & Yvonna S. Lincoln (Eds.) *Handbook of qualitative research (pp.435-453)* Thousand Oaks: Sage.
- Stratoudakis, Y., Azevedo, M., Farias, I., Macedo, C., Moura, T., Pólvara, M. J., . . . Figueiredo, I. (2015). Benchmarking for data-limited fishery systems to support collaborative focus on solutions. *Fisheries Research*, *171*, 122-129.  
doi:<http://dx.doi.org/10.1016/j.fishres.2014.10.001>
- Sutton, A. M., and Rudd, M. A. . (2014). Deciphering contextual influences on local leadership in community-based fisheries management. *Marine Policy*, *50*, 261-269.  
doi:doi:10.1016/j.marpol.2014.07.014
- Swartzman, S., and Zimmerman, B. (2005). Conservation Alliances with Indigenous Peoples of the Amazon. *Conservation Biology*, *19*(3), 721-727.
- Taylor, S. A. J., Perez-Ferrer, C., Griffiths, A., & Brunner, E. (2015). Scaling up nutrition in fragile and conflict-affected states: The pivotal role of governance. *Social Science & Medicine*, *126*, 119-127. doi:<http://dx.doi.org/10.1016/j.socscimed.2014.12.016>
- Teo, P., & Bridge, A. J. Crafting an efficient bundle of property rights to determine the suitability of a Public-Private Partnership: A new theoretical framework. *International Journal of Project Management*. doi:<http://dx.doi.org/10.1016/j.ijproman.2016.10.008>
- Todinanahary, G. G. B., Lavitra, T., Andrifanilo, H. H., Puccini, N., Grosjean, P., & Eeckhaut, I. (2017). Community-based coral aquaculture in Madagascar: A profitable economic system for a simple rearing technique? *Aquaculture*, *467*, 225-234.  
doi:<http://dx.doi.org/10.1016/j.aquaculture.2016.07.012>
- Toledo, V. M., Ortiz-Espejel, B F., Cortes, L., Moguel, P., Ordonez, M. (2003). The Multiple Use of Tropical Forests by Indigenous Peoples in Mexico: A Case of Adaptive Management. *Ecology and Society*, *7*.
- Tomahawk. (n.d, 2017). Solomon Islands: weather and climate. Retrieved from  
<http://www.visitsolomons.com.sb/about-solomons/weather>
- Trimble, M., & Berkes, F. (2013). Participatory research towards co-management: Lessons from artisanal fisheries in coastal Uruguay. *Journal of Environmental Management*, *128*, 768-778.  
doi:<http://dx.doi.org/10.1016/j.jenvman.2013.06.032>
- Ullah, R. (2017). Chapter 2 - Methodological Approaches in Natural Resource Management *Redefining Diversity and Dynamics of Natural Resources Management in Asia, Volume 4* (pp. 11-18): Elsevier.
- Ullah, R., Yonariza, & Pradhan, U. (2017). Chapter 16 - Toward an Effective Management of Dynamic Natural Resources *Redefining Diversity and Dynamics of Natural Resources Management in Asia, Volume 4* (pp. 221-230): Elsevier.

- UN. (2006). Definition of basic concepts and terminologies in governance and public administration. (E/C.16/2006/4). Retrieved 12/12/2016, from United Nations <http://unpan1.un.org/intradoc/groups/public/documents/un/unpan022332.pdf>.
- UNESCO. (2008). Overcoming inequality: why governance matters. Retrieved 12.12.2016, from United Nations Educational, Scientific and Cultural Organization <http://unesdoc.unesco.org/images/0017/001776/177609e.pdf>.
- van den Broek, M., & Brown, J. (2015). Blueprint for breakdown? Community Based Management of rural groundwater in Uganda. *Geoforum*, 67, 51-63. doi:<http://dx.doi.org/10.1016/j.geoforum.2015.10.009>
- van der Ploeg, J., Albert, J., Apgar, M., Bennett, G., Boso, D., Cohen, P., Daokalia, C., Faiou, J., Harohau, D., Iramo, E., et al. (2016). *Learning from the lagoon: Research in development in Solomon Islands*. Retrieved from [http://www.worldfishcenter.org/resource\\_centre/AAS-2016-02.pdf](http://www.worldfishcenter.org/resource_centre/AAS-2016-02.pdf)
- Vanteeva, N. (2016). In the absence of private property rights: Political control and state corporatism during Putin's first tenure. *Russian Journal of Economics*, 2(1), 41-55. doi:<http://dx.doi.org/10.1016/j.ruje.2016.04.003>
- Vaughan, M. B., and Ardoin, N. M. . (2014). The implications of differing tourist/resident perceptions for community-based resource management: a Hawaiian coastal resource area study *Journal of Sustainable Tourism*, 22(1), 50-68. doi:DOI:10.1080/09669582.2013.802326.
- Villamayor-Tomas, S. (2014). Cooperation in common property regimes under extreme drought conditions: Empirical evidence from the use of pooled transferable quotas in Spanish irrigation systems. *Ecological Economics*, 107, 482-493. doi:<http://dx.doi.org/10.1016/j.ecolecon.2014.09.005>
- Vollan, B., Prediger, S., & Frölich, M. (2013). Co-managing common-pool resources: Do formal rules have to be adapted to traditional ecological norms? *Ecological Economics*, 95, 51-62. doi:<http://dx.doi.org/10.1016/j.ecolecon.2013.08.010>
- Walker, B., and Salt, D. (2006). Resilience Thinking: Sustaining Eco-systems and People in a Changing World Retrieved from <http://faculty.washington.edu/stevehar/Resilience%20thinking.pdf>
- Western, D., and Wright, R. M (Ed.) (1994). *Natural connections: Perspectives in community-based conservation*. Washington, DC: Island Press.
- WorldBank. (1994). DEVELOPMENT IN PRACTICE: Governance - The World Bank's Experience from World Bank <http://documents.worldbank.org/curated/en/711471468765285964/pdf/multi0page.pdf>.
- WorldFish. (2013). Community- Based marine resource management in Solomon Islands: A facilitator's guide. Based on Lessons from implementing CBRM with rural coastal communities in Solomon Islands (2005 - 2013). WorldFish. (AAS-2013-17). from CGIAR Research Program on Aquatic Agricultural Systems <http://www.worldfishcenter.org/content/community-based-marine-resource-management-solomon-islands-facilitators-guide-based-lessons>.
- Yeasmin, S., and Rahman, K. F. (2012). 'Triangulation' Research Method as the Tool of Social Science Research. *BUP JOURNAL*, 1(1).
- Yeboah-Assiamah, E., Muller, K., & Domfeh, K. A. (2016). Rising to the challenge: A framework for optimising value in collaborative natural resource governance. *Forest Policy and Economics*, 67, 20-29. doi:<http://dx.doi.org/10.1016/j.forpol.2016.01.008>
- Yin, R. K. (1989). Case Study Research: Design and Methods (Second Edition). Retrieved from <http://www.madeira-edu.pt/LinkClick.aspx?fileticket=Fgm4GJWVTRs%3D&tabid=3004>
- Zagonari, F. (2008). Integrated coastal management: Top-down vs. community-based approaches. *Journal of Environmental Management*, 88(4), 796-804. doi:<http://dx.doi.org/10.1016/j.jenvman.2007.04.014>

## Appendix A: Checklist of sample research interview questions

### A.1 Interview questions prepared for Funa'afou and Tauba

Module: Social Aspects

Questions under the module: social aspects are formulated to capture responses that may answer the research question: What are the social constraints, challenges and empowering features that rural Solomon Islands communities face in facilitating sustainable marine resource management?

B.1 I'd like to open our discussion with the topic of daily living in your community.

What do people do every day?

How do people react to the daily activities in your community?

How do people relate to each other every day?

Do all people in this community see themselves as someone from this community?

B.2 As an individual, which group can you place yourself in?

Are you a:

..... Committee member

..... leader (community, church etc.)

..... youth

..... adult man/ woman

..... resource owner

..... fisher

..... village elder

B.3 Think about what are the social constraints, challenges and empowering features that different groups (e.g. committee youths, men, women, fishers, and leaders for example) in your community face in helping sustainable management of marine resources?

- What are the social constraints and challenges that people in your group face in helping sustainable management of marine resources in your community?
- What are the challenges that people in your group face in helping sustainable management of marine resources in your community?
- What do you think are the root causes to these social constraints?
- What do you think are the root causes to these challenges?
- How do these social constraints/ challenges affect the way of management of marine resources in your communities?

B.4 Why did your community stop management of marine resources?

B.5 Think about the different groups in your community and the different responsibilities they have for managing marine resources.

- Who do you think the different groups (youths, men, women, fishers, leaders for example) in your community consider as responsible for managing resources?
- Please describe who are the different groups in your community with responsibility to manage marine resources?
- Why do you think they are responsible for managing resources?

B.6 What do they (groups/ individuals identified in C.5) think are the different roles of people or different groups involved in resource management?

B.7 What do they think their own roles is or should be?

B.8 How active are these groups or individual in carrying out their responsibilities to managing resources?

Module: Forms of Interventions

Questions under the module: forms of intervention are formulated to capture responses that may answer the research question: Do interventions aimed at supporting the role of fisheries in providing food security to communities in the Solomons result in long lasting improvement in their livelihoods?

B.9 Please tell me about the how and why your community interact with outside partners. Tell me about your experience working with external partners.

B.10 What do people (youths, men, women, fishers, leaders for example) in your community think about the involvement of external partners or outside organizations to support communities managed their fisheries resources?

B.11 How do these external partners or outside organizations work with the different groups (youths, men, women, fishers, leaders for example) in your community in the management of your resources? What are their 'ways of working'?

B.12 What do different groups (youths, men, women, fishers, leaders for example) in your community think are the best 'ways of working' for external partners to support the management of your marine resources?

B.13 What kind of support do you think different groups (youths, men, women, fishers, leaders for example) in your community need in order to make CBRM long lasting?

B.14 Identify types of interventions used by previous partners, what worked and what does not worked.

Module: Community Engagement

Questions under the module: community engagement are formulated to capture responses that may answer the research question: What characteristics of places and interventions appear to improve the probability of a successful interventions?

B.15 Please describe the actions that your community (youths, men, women, fishers, leaders for example) undertake to look after your resources.

B.16 Describe how and what a successful CBRM community look like?

B.17 How well do people in your community interact with external partners?

B.18 How well do people in your community interact with community leaders, elders and chiefs? Or how well did community leaders, elders and chiefs interact with different people in your community?

B.19 Describe how and what a successful partnership programmes look like?

Module: Capacity to innovate

B.20 Did you see people in your communities as people who like to try out new ideas and things?

B.21 What factors encourage people to get involved in a new idea? Who encouraged them?

B.23 Do you all think CBRM is a new idea?

- Why [or why not]?

## **A.2 Interview questions prepared for Fumato'o**

Module: Social Aspects

Questions under the module: social aspects are formulated to capture responses that may answer the research question: What are the social constraints, challenges and empowering features that rural Solomon Islands communities face in facilitating sustainable marine resource management?

B.1 I'd like to open our discussion with the topic of daily living in your community.

- What do people do every day?
- How do people react to the daily activities in your community?
- How do people relate to each other every day?
- Do all people in this community see themselves as someone from this community?

B.2 As an individual, which group can you place yourself in?

Are you a:

..... committee member

..... leader (community, church etc.)

..... youth

..... adult man/ woman

..... resource owner

..... fisher

..... village elder

B.3 Think about what are the social factors that support different groups (e.g. committee youths, men, women, fishers, and leaders for example) in your community to be active in the management of marine resources and making sure that the programme is ongoing.

- What are the social factors that influence people in your group to make sure that management of marine resources in your community continues and does not stop?
- What do you think are the root causes to these attitudes? Or why do people in your group care about the management of marine resources?

B.4 Think about your experience working with external partners. What can you tell me about your experience working with external partners? Why did kind of social support did your community receive from external partners in the management of marine resources?

B.5 What kind of social support did your community receive from inside the community in the management of marine resources?

B.6 Think about the different groups in your community and the different responsibilities they have for managing marine resources. Who do you think the different groups (youths, men, women, fishers, leaders, for example) in your community consider as responsible for managing resources?

- Please describe who are the different groups in your community with responsibility to manage marine resources?
- Why do you think they are responsible for managing resources?

B.7 What do they (groups/ individuals identified in C.5) think are the different roles of people or different groups involved in resource management?

B.8 What do they think their own roles is or should be?

B.9 How active are these groups or individual in carrying out their responsibilities to managing resources?

Module: Forms of Interventions

Questions under the module: forms of intervention are formulated to capture responses that may answer the research question: Do interventions aimed at supporting the role of fisheries in providing food security to communities in the Solomons result in long lasting improvement in their livelihoods?

B.10 Please tell me about the how and why your community interact with outside partners.

B.11 What do people (youths, men, women, fishers, leaders for example) in your community think about the involvement of external partners or outside organizations to support communities managed their fisheries resources?

B.12 How do these external partners or outside organizations work with the different groups (youths, men, women, fishers, leaders for example) in your community in the management of your resources? What are their 'ways of working'?

B.13 What do different groups (youths, men, women, fishers, leaders for example) in your community think are the best 'ways of working' for external partners to support the management of your marine resources?

B.14 What kind of support do you think different groups (youths, men, women, fishers, leaders for example) in your community need in order to make CBRM long lasting after an external partner project with your community ends?

B.15 Identify types of interventions used by previous and current partners, what worked and what does not worked.

Module: Community Engagement

Questions under the module: community engagement are formulated to capture responses that may answer the research question: What characteristics of places and interventions appear to improve the probability of a successful interventions?

B.16 Please describe the actions that your community (youths, men, women, fishers, leaders for example) undertake to look after your resources.

B.17 Describe how and what a successful CBRM community look like? Did your community have these features?

B.18 How well do people in your community interact with external partners?

B.19 How well do people in your community interact with community leaders, elders and chiefs? Or how well did community leaders, elders and chiefs interact with different people in your community?

B.20 Describe how and what a successful partnership programmes look like? Did your community have these features?

Module: Capacity to innovate



B.21 Did you see people in your communities as people who like to try out new ideas and things?

B.22 What factors encourage people to get involved in a new idea? Who encouraged them?

B.23 Do you all think CBRM is a new idea?

- Why [or why not]?

## Appendix B: Research timetable summary

### B.1 Interview schedule

Figure 7-1 Interview schedule with research participants.

Community names	Research participants code	Date	Venue
Funa'afou	FUNC01	6/07/2016	Funa'afou
	FUNC02	6/07/2016	Funa'afou
	FUNC03	7/07/2016	Funa'afou
	FUNC04	7/07/2016	Funa'afou
	FUNC05	7/07/2016	Funa'afou
	FUNC06	8/07/2016	Funa'afou
	FUNC07	8/07/2016	Funa'afou
	FUNC08	8/07/2016	Funa'afou
	FUNC09	8/07/2016	Funa'afou
	FUNC10	8/07/2016	Funa'afou
	FUNC11	11/07/2016	Funa'afou
	FUNC12	11/07/2016	Funa'afou
	FUNC13	11/07/2016	Funa'afou
	FUNC14	11/07/2016	Funa'afou
	FUNC15	13/07/2016	Funa'afou
	FUNC16	14/07/2016	Lofoibebe
	FUNC17	14/07/2016	Niuleni
Fumato'o	FUM01	18/07/2016	Fumato'o
	FUM02	18/07/2016	Fumato'o
	FUM03	19/07/2016	Fumato'o
	FUM04	19/07/2016	Fumato'o
	FUM05	19/07/2016	Fumato'o
	FUM06	20/07/2016	Fumato'o
	FUM07	20/07/2016	Fumato'o
	FUM08	20/07/2016	Fumato'o
	FUM09	20/07/2016	Fumato'o
	FUM10	21/07/2016	Fumato'o
	FUM11	21/07/2016	Fumato'o
	FUM12	21/07/2016	Fumato'o
	FUM13	21/07/2016	Fumato'o
	FUM14	22/07/2016	Fumato'o
	FUM15	22/07/2016	Fumato'o
Tauba	TAU01	26/07/2016	Tauba
	TAU02	26/07/2016	Tauba
	TAU03	26/07/2016	Tauba
	TAU04	26/07/2016	Tauba
	TAU05	26/07/2016	Tauba
	TAU06	26/07/2016	Tauba
	TAU07	27/07/2016	Tauba
	TAU08	27/07/2016	Tauba
	TAU09	27/07/2016	Tauba
	TAU10	27/07/2016	Tauba

	TAU11	28/07/2016	
	TAU12	28/07/2016	
	TAU13	28/07/2016	

## Appendix C: Field procedures

### C.1 Field research timetable

Figure 7-2 Proposed schedule for the fieldtrip – May 2016

Date	When	What
1 <sup>st</sup> week June 2016		Researcher leaves Christchurch
1 <sup>st</sup> week June 2016		Researcher travels to research community from Honiara
1 <sup>st</sup> week June		Researcher begins fieldwork in Funa'afou
4 <sup>th</sup> week June		Researcher begins fieldwork in Fumato'o
1 <sup>st</sup> week July		Researcher begins fieldwork in Tauba
1 <sup>st</sup> week August		Researcher completes fieldwork
2 <sup>nd</sup> week August		Researcher returns to Christchurch and begins transcription and write-up

### C.2 Actual schedule during field research – for July 2016

Figure 7-3 The actual schedule during the field research

Date	When (as specific as you think necessary, by day or morning, afternoon, evening will often be enough)	What
1/07/2016	Evening – 6pm Solomon time	Researcher left Honiara to Auki via public shipping transport (MV Fair Glory)
	Midnight	Researcher arrived in Auki and left Auki to North Malaita via hired car (WorldFish vehicle) Team arrived at Kwai village where team was primarily lodged for Monday, Tuesday and Wednesday
2/07/2016	Morning	Researcher arrived in Uru'uru, North Malaita and waited for transport to her home village
	Mid-day	Researcher arrived in home village
3/07/2016	Afternoon	Researcher travelled to Funa'afou, Tauba and Fumato'o to drop cover letter to chief/ leader
4/07/2016	Afternoon	Received positive feedback from Funa'afou as well as request to answer few questions
5/07/ 2016	Morning	Researcher travelled to Funa'afou; held informal meeting; distributed recruitment letters to potential research participants
	Afternoon	Researcher received positive response from several people who wanted to be part of the research

6/07/ 2016	Morning	Interview in Funa'afou starts
14/07/2016	Afternoon	Interview in Funa'afou ends
		Researcher travelled to Fumato'o from Funa'afou to check on response to cover letter. Then travelled to home village.
16/07/2016	Morning	Researcher received positive feedback from Fumato'o Marine Resource Management Committee chairman to carry out study in their community. Researcher travelled to Fumato'o to identify and distribute potential research participants
	Afternoon	Researcher received positive respond from several people who want to be part of the research Researcher travel back to home village
18/07/2016	Morning	Researcher travel to Fumato'o (and stayed on the island until interviews ended) Interviews in Fumato'o starts
22/07/2016		Interviews in Fumato'o ends
24/07/2016	Mid-day	Researcher held focus group discussions with Fumato'o Marine Resource Management Committee members
	Afternoon	Researcher travelled to Tauba from Fumato'o to check on response to cover letter. Researcher received positive feedback from an appointed leader to carry out research in their community. Then travelled to home village.
25/07/2016	Morning	Researcher travelled to Tauba (and stayed on the island until interviews ended) Researcher travelled to Fumato'o to identify and distribute potential research participants. Researcher received positive respond from several people who want to be part of the research.
26/07/2016		Interviews in Tauba started
28/07/2016		Interview in Tauba ended
12/08/2016	Morning	Researcher travelled to Uru'uru to wait for public transportation to Auki and finally board public transport in the evening
	Mid-night	Researcher arrived in Auki and wait for public shipping transport
13/08/2016	Morning	Researcher travelled from Auki to Honiara
16/08/2016	Afternoon	Researcher left Honiara and travelled to Christchurch

## Appendix D: Copy of consent form

### CONSENT FORM

You are invited to participate as a subject in a project entitled:

Assessing the value of the Research in Development (RinD) approaches for Community Based Marine Resource Management (CBMRM) in Solomon Islands

I have read and understood the description of the above-named project. On this basis I agree to participate in the project, and I consent to publication of the results of the project now and use of the data in the future with the understanding that privacy will be preserved. I understand also that I may at any time withdraw from the project, including withdrawal of any information I have provided, up to 12<sup>th</sup> August 2016.

I consent to the interview being (please tick the box as appropriate):

(a) recorded on an audio device

(b) recorded by hand written notes

Name:

Community Name:

Signed:

Date:

## Appendix E: Copy of Research Information Sheet

### RESEARCH INFORMATION SHEET

You are invited to participate as a subject in a project entitled:

#### **Assessing the value of Research in Development (RinD) approaches to Community Based Marine Resource Management (CBRM) in Solomon Islands**

The purpose of this study is to investigate the success of community based marine resource management (CBMRM), particularly the 'ways of working' used in successful CBMRM communities. As I am also interested in looking into why community based resource management programmes failed. I will also be looking at finding examples of CBMRM failure and trying to see why they failed. Funa'afou, Tauba and Fumato'o are examples of successful and unsuccessful cases of community based marine resource management. Each of these communities (a) are managing fishing; (b) have a diverse range of involvement in the management of their marine resources (they receive different forms of support from outside and within the community and engage differently with external supporters); (c) use different ways of working and intervention to mobilise participation at the community level; and (d) have diverse experiences (in terms of success or failure) in managing their natural resources. Therefore Funa'afou, Tauba and Fumato'o in North Malaita provide an unstudied context to evaluate factors on success and failure on fisheries management in Solomon Islands. I am interested in hearing from you about how this is happening.

Since this study has different parts, your participation in this study is called the participatory diagnosis phase. This will involve a face-to-face interview or being part of a focus group discussion with selected community members about your involvement or non-involvement in decision making processes towards community based resource management at your community to obtain your opinions and experiences. The interview should take about sixty to ninety minutes and will be conducted in your community on the ..... 2016 to ..... 2016. This interview will include questions about: social aspects, forms of interventions, community engagement; and capacity to innovate. I am interested in hearing about your experience, personal views and opinions of community based marine resource management in your community.

The criteria for selecting participants will be based on: decision makers; people not usually involved in decision making although they attend community meetings; resource owners; range of ages; and both gender. Therefore a sample of participants selected from those groups would be (1) full members of the resource management committee or have a position in an informal management structure for focus group discussion; and (2) randomized quota of members of the community for interview.

If after receiving this Research Information Sheet, you have any questions about this study, or would like additional information to assist you in reaching a decision about participation, please feel free to talk to me or my supervisors. I would appreciate it if you could kindly provide me your contact details so I can contact you about your decision to participate in this study. I will also be visiting your village no less than three days after I



deliver this Research Information Sheet to you and other potential participants so you can also contact me face-to-face.

Your participation in this research is voluntary and you may decline to answer any question. You may withdraw from the project, including withdrawing any information you have provided by contacting me (Janet Saeni Oeta) through the contact details below by the 12<sup>th</sup> August 2016. If you are willing to participate in this research, you will need to sign the attached consent form (at the start of interview) and return it to me (at the start of interview). Ideally the interview will be recorded using a recording device with your consent. Interviews will be conducted at a time and place to suit you. If you are not comfortable with it, short-hand notes will be taken during the interview instead. In addition, potential follow-up meetings will be held by researcher with certain participants if and when there is a need for clarification or more explanation on certain parts of the interview conversation.

The results of the project will be presented and submitted for examination and publication in academic journals. You may be assured of your anonymity in this investigation and any associated publications. To ensure privacy and confidentiality, the researcher, research advisors (Associate Professor Hamish Rennie and Dr. Michael Shone), and the Human Ethics Committee in the event of an audit, will be the only people with access to the interview and focus group discussion recordings. The researcher will not provide or report any information which participants requested to be treated as confidential and to ensure your anonymity only general descriptors will be used in the presentation of any data in both verbal and written forms.

I would like to assure you that this study has been reviewed and received ethics clearance through a Lincoln University Human Ethics Committee. However, the final decision about participation is yours. Should you have comments or concerns resulting from your participation in this study, you can talk to me or contact my supervisors using our contact details listed below.

The project is being carried out by:

Janet Saeni Oeta, Lincoln University, Email: [Janet.Oeta@lincolnuni.ac.nz](mailto:Janet.Oeta@lincolnuni.ac.nz) / [janetoeta@gmail.com](mailto:janetoeta@gmail.com), Phone: (+677) 7447544

I will be pleased to discuss any concerns you have about participation in the project. As an alternative, you may contact my supervisors:

Dr Hamish Rennie, Associate Professor, Lincoln University, Email: [Hamish.Rennie@lincoln.ac.nz](mailto:Hamish.Rennie@lincoln.ac.nz), Phone: 64 3 42-30437

Dr. Michael Shone, Lecturer, Lincoln University, Email: [Michael.Shone@lincoln.ac.nz](mailto:Michael.Shone@lincoln.ac.nz), Phone: 64 3 42-30497

This project has been reviewed and approved by the Lincoln University Human Ethics Committee. The research is being funded by the Lincoln University Faculty of Environment, Society and Design together with the New Zealand Aid Scholarship programme.

## Appendix F: Copy of cover letter for permission

Chief, \_\_\_\_\_ Community

North Malaita

5<sup>th</sup> May 2016

Dear Sir,

I am a student doing a Master's degree program at Lincoln University in New Zealand. Currently I am doing research as part of my Master's degree program. This research is fully funded by the Lincoln University Faculty of Environment, Society and Design together with the New Zealand Aid Scholarship programme.

As you know, WorldFish has been doing some work in certain communities in the Lau Lagoon. Their work is about supporting small-scale fisheries communities to effectively manage their marine resources which contributes to improving fisheries and livelihoods. I worked with WorldFish in partnership with the Ministry of Fisheries and Marine Resources (MFMR), but neither organisation is funding my current research and they will not have access to raw data and no greater access to any other information gathered during this project than any other member of the general public. The current status of community based initiatives as successful and ongoing, and failed and inactive, has led to my interest in researching why these types of approaches to community based management succeed or fail, particularly how the 'ways of working' used in communities may have contributed to success or failure.

I am proposing to carryout face-to-face interviews with members of your and two other communities. The goal will be to understand how people participate in CBRM activities and decision making processes in the communities.

I am planning to conduct a focus group discussion with members of the natural resource management committee or leaders involved in the WorldFish projects between ..... 2016 and have identified your village as one of the case study areas in this research. I would like to come and spend 3 to 4 days and nights in your village to do that. I would also like to recruit certain people that I would interview 2 to 3 days after each group discussion (.....).The criteria for selecting participants will be based on: decision makers; people not usually involved in decision making although they attend community meetings; resource owners; range of ages; and both gender. Therefore a sample of participants selected from those groups would be (1) full members of the resource management committee or have a position in an informal management structure for focus group discussion; and (2) randomize quota of members of the community for

interview. On arrival I would like to sit down with the village committee members, leaders and elders and seek guidance and agreement on my approach to this work.

In addition to that, I would like to assure you and your community people that any people who participate in this research will be treated with respect and be comfortable with themselves throughout the research duration. In order for all participants to be comfortable with themselves and treated with respect, the researcher will ensure that the following ground rules are observed: participation in research is voluntary; participants to give their responses about their preparedness to participate will only be sought after I have provided a letter of introduction and information about the project to them and this will be before any group discussion or interviews take place; participants' understand what is written in the research information sheet; participant sign consent forms only if they do wish to participate and they will be under no pressure to take part; participants understand they can withdraw at any time; participants with questions and doubts will be able to discuss these with me before focus group discussions or interviews are carried out.

All of the information collected will be compiled and made available in summary form to all interested people. Respondents will remain anonymous. If you agree to your village participating in this focus group discussion and individual face-to-face interviews please let me know or you can also contact my supervisors using the contacts listed below.

Yours sincerely



Janet Saeni Oeta (Student Researcher)

**Principle researcher's contact details:**

Janet Saeni Oeta, Lincoln University, Email: [Janet.Oeta@lincolnuni.ac.nz](mailto:Janet.Oeta@lincolnuni.ac.nz) / [janetoeta@gmail.com](mailto:janetoeta@gmail.com), Phone: (+677) 7447544

**My supervisor's contact details:**

Dr. Hamish Rennie, Lincoln University, Email: [Hamish.Rennie@lincoln.ac.nz](mailto:Hamish.Rennie@lincoln.ac.nz), Phone: 64 3 42-30437

Dr. Michael Shone, Lincoln University, Email: [Michael.Shone@lincoln.ac.nz](mailto:Michael.Shone@lincoln.ac.nz), Phone: 64 3 42-30497

Postal address:

Lincoln University

PO Box 85-084

Lincoln 7647

New Zealand

## Appendix G: Copy of recruitment letter

Lincoln University

Date:

Dear Committee member,

I am a student doing a Master's degree program at the Lincoln University in New Zealand. Currently I am doing research as part of my Master's degree program. This research is fully funded by the Lincoln University Faculty of Environment, Society and Design together with the New Zealand Aid Scholarship programme.

This study focuses on community based resource management and is conducted as a Master's thesis project through the Department of Environmental Management at Lincoln University under the supervision of Dr. Hamish Rennie and Dr. Michael Shone. As you may know, community based resource management is one of the ways your community has used to manage your marine resources with or without support of outside partners. Because you are a member of your community's marine resource management committee in a community based management programme, your opinions maybe important to this study. Thus, I appreciate the opportunity to speak with you about this.

Participation in this study is voluntary and would involve a 60-90 minutes discussion in small groups of committee members in your community's meeting hall. The questions are quite general (for example, What are challenges that the committee members and the committee face in the course of leading activities? All information you provide will be considered confidential and grouped with responses from other participants. Furthermore, you will not be identified by name in any report or publication resulting from this study. The data collected through this study will be kept for a minimum period of 6 years by my supervisors at the Lincoln University.

The criteria for selecting participants will be based on: decision makers; people not usually involved in decision making although they attend community meetings; resource owners; range of ages; and both gender. Therefore a sample of participants selected from those groups would be (1) full members of the resource management committee or have a position in an informal management structure for focus group discussion; and (2) randomized quota of members of the community for interview.

If after receiving this letter, you have any questions about this study, or would like additional information to assist you in reaching a decision about participation, please feel free to talk to me or my supervisors. A Research Information Sheet about this study will also be given to you with this letter. I would appreciate it if you could kindly provide me your contact details upon receiving this letter so I can contact you about your decision to participate in this study. I will also be visiting your village no less than three days after I deliver this letter to you and other potential participants so you can also contact me face-to-face.

I would like to assure you that this study has been reviewed and received ethics clearance through a Lincoln University Human Ethics Committee. However, the final decision about participation is yours. Should you have comments or concerns resulting from your participation in this study, you can talk to me or contact my supervisors using our contact details listed below. The next steps after the interview would be: (1) student researcher to wait in the village till the 12<sup>th</sup> August 2016 in case any participants have any comments or concerns resulting from their participation in this study; (2) student researcher to analysis raw data and write up of report; (3) student researcher to present and submit final report to university; (4) student researcher to present and submit a separate report to your community regarding findings in this study.

Thank you for your assistance with this project.

Yours sincerely,



Janet Saeni Oeta (Student Researcher)

**Principle researchers contact detail:**

Janet Saeni Oeta, Lincoln University, Email: [Janet.Oeta@lincolnuni.ac.nz](mailto:Janet.Oeta@lincolnuni.ac.nz) / [janetoeta@gmail.com](mailto:janetoeta@gmail.com), Phone: (+677) 7447544

**My supervisors contact details:**

Dr. Hamish Rennie, Lincoln University, Email: [Hamish.Rennie@lincoln.ac.nz](mailto:Hamish.Rennie@lincoln.ac.nz), Phone: 64 3 42-30437

Dr. Michael Shone, Lincoln University, Email: [Michael.Shone@lincoln.ac.nz](mailto:Michael.Shone@lincoln.ac.nz), Phone: 64 3 42-30497

Postal address:

Lincoln University

PO Box 85-084

Lincoln 7647

New Zealand