TE WHARE WĀNANGA O
AWANUIĀRANGI

CLIMATE CHANGE: ‘THE RESILIENCE OF FIJIAN TRADITIONAL PRACTICES’

ECI TEKURU NAISELE
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A thesis presented to Te Whare Wānanga o Awanuiārangi in fulfilment of the requirements for the degree of Doctor of Philosophy in Indigenous Studies, Te Whare Wānanga o Awanuiārangi

(Na Drakiveisau: Na Qaqa kei na Tokoni ni iTovo Vakavanua ka Tutaka na Valuti ni kena Ravuravu)

A Moan (Na Osi Vutugu kei na Taginiyalo):

COCKADOOLEDO!! Buto na vuravura, tekivu me kasere ni sa kida na malawa ni mataka (Dawn breaks as the sun pears through the east horizon sky).

Sere na manumanu, mudre na cagi ka biliga na O kina veidelana (Birds signing, tree swaying as winds pushing clouds to the hills)

Tau na uca, drodro na uciwai ki wasawasa (Rainfall at the mountain and flow on rivers to the ocean)

E rikou na yaloqu! niu yadra cecekala, kau yadra mai na tadra (Surprised and I woke up from my night dreams)

Isa Noqu Viti! Oqo ko Viti!! Noqu Viti Lomani (My Fiji! Oh, My Fiji- my lovely Fiji)

E mositi au ni'u sarava na kena vakasabusabutaki (Deeply hurt by the ways nature has been disturbed)

Nai solisoli talei, na veikabula yau vakamareqereti (God's gift in life for people and nature)

Luluqa ka seavu tiko yani nai tovo vaka i taukei (My culture and traditions are diminishing)

Bolei nai vakarau vakavanua ni sa tekivu me sa veisola ka curuuciwai (Challenged by the way new culture and systems being pushed in)

Kei nai tovo vovou sa curumi Viti ena gauna edai (And other new culture entering my land today)

E baleta beka ni ra gu na vulagi!, duri bisinisi, bokoci na Viti kabani (Could it be that I maybe a foreigner on my land)

Sa bikai sobu ka beci na noqu vosa, itovo kau biligi me'u kawa ni vulagi (My language, my culture, traditional skill suppressed)

Tawase na vanua, na lotu, yali na matanitu ni koloni (The village, the church, the government separated)

Kakana na ua ni baravi, na bainiua lutudromu i takali (Coastal lands disappearing, seawals fell into the sea)

Dromu na yanuyanu ena ua lelevu ni sa basuki na lawa ni veiyalayalati (Island sinking, no respect for nature and habitat)

E bolei na bula, cokai na utoniyalo ka gu me vakasaqarai (My life is challenged, hurt my feeling as I hunt for the truth)

Me na vueti tale ka maroroi nai yau, mareqeti Viti, vakasameni (To protect, preserve, mitigate what is naturally mine)

Draki veisau sa ravuravu- draki, politiki, vuli, lotu kei na matanitu (Climate Change, in weather, politices, church and government)

Isa noqu Viti, Lomani, (Oh Fiji-My love!)

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The term 'Indigenous' refers to those peoples who are the descendants of those who inhabited a country or a geographical region at the time when people of different cultures or ethnic origins arrived in their lands. The new arrivals became dominant through conquest, occupation, settlement, or other means (Secretariat of the Permanent Forum on Indigenous Issues, 2009).

The term' iTaukei' refers to the native indigenous Fijians and owners of the land, sea and other resources in Fiji (Vitia) and their names (yacana), village (koro), sub clan (tokatoka), clan(mataqali) and tribe (yavusa) and are registered in the Register of Births (Volanikawabula- VKB).

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This thesis is composed of my original work and contains no material previously published or written by another person except where due reference has been made in the text. I have clearly stated the contribution by others to jointly authored works that I have included in my thesis.

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Eci Tekuru Naisele

Signature: 

Date: 03 March 2023

Climate Change: 'The Resilience of Fijian Traditional Practices' (Na Drakiveisau: Na Qaqa kei na Tokoni ni iTovo Vakavanua ka Tutaka na Valuti ni kena Ravuravu)

Eci Naisele

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TABLE OF CONTENTS

Abstract

My island home is shrinking and sinking. A portion of Qoma's coastland has been washed away into the sea. Sea waters penetrate through broken seawalls and flood the village green during king tides and ravaging storm surges. My people are being displaced and reallocated to distant land. The impacts of drakiveisau and rising sea level are a real threat to my people.

It is heartbreaking! Drakiveisau has threatened the traditional livelihoods of Itaukei Fijians. There is loss of spiritual connection once enjoyed and practiced as provided by mother nature. The essence of our rich cultural tradition and poetic records of practices handed down orally over many generations are slowly disappearing. Traditional art, intellectual knowledge and property rights are also lost along the path of modernisation. After decades of struggle, the dilemma of losing our Itaukei Fijian traditional and cultural identity has become a reality scare.

The main challenge therefore is to identify and strengthen the use of effective traditional practices that will help sustain our traditional environment and provide solutions towards the threats of drakiveisau and realise how best these can be revived and continued in practice. If such cultural traditional practices of Itaukei Fijians have sustained them in the past, then it is only right that we strengthen the use of such traditional practices that will help mitigate against the impacts of drakiveisau now and in the future.

This study will employ the assumption that it is vital to revive and incorporate traditional skills and knowledge alongside the modern scientific methods of mitigating climate change to sustain the livelihoods of Fijians and for the survival and continuity of the Itaukei Fijian traditional culture.

The purpose of the study is to present a practical solution to the devastating impacts of drakiveisau faced by Fijians using the traditional approach. It hopes to bring to the fore the severity of climate change effects on our island nation, its adopted mitigation strategies, the ability to be resilient, and the fight to restore traditional value systems, skills, and knowledge through education. Understanding and incorporating traditional knowledge and skills with scientific knowledge is vital for combating the issues associated with climate change. Traditional sailing practice using waqaniviti is a skill of interest for this study.

In our attempt to make sense of the world we live in and to understand the effects of climate change, and come up with strategies to tackle the problems it has caused in Fiji today, it is

important to consider the post modernism, religious and environmental worldviews where the knowledge and skills of the indigenous culture will help us value and preserve our environment and sustain the world from the impacts of climate change.

Research has proven that traditional knowledge complements the world's effort to tackle the problems associated with climate change. Increasingly scientists and businesses are beginning to believe in the importance of applying local cultural knowledge and skills to inform climate change mitigation and adaptation strategies (Pandey, 2013).

This research employs both qualitative and quantitative methodology as it attempts to highlight the importance for researchers and practitioners to use traditional knowledge and skills that have been practiced, sustaining the world's environment and daily survival of local indigenous people for so many generations.

While adopting a mixed–method approach, the research has drawn from qualitative, interpretive, phenomenological and interpretivism research methodologies. The study explores the perception, knowledge, and wisdom of indigenous Itaukei Fijian elders and young people focusing on villages of the selected provinces in Fiji. This included a mixture of storytelling (talanoa), ethnography (sema ni veiwekani vakavanua), traditional chants (vucu) and dance (meke) that are used to gather data which eventually bonded the knowledge and wisdom of the Vanua.

The Vanua includes the people, the land, the sea, and how all living creatures, including the spirits in the spirit world, are related to each other and responsible for each other. Itaukei Fijians are deeply connected to the 'Vanua' and their cultural heritage. It is the very heartbeat of Itaukei life, the air Itaukei breathe, the blood in Itaukei veins, the spirit to the soul, and the foundation of *'Itaukei being'*, nurtured, groomed, and moulded to be what an Itaukei is today. An Itaukei is always fascinated by nature, the sea, waves, the land, trees, the birds in the sky, the ocean and reefs, his tradition and his Itaukei culture. The mitigation strategy to climate change draws within the traditional inner strength using Itaukei epistemology.

The 'Drakiveisau Research Framework' (DVRF - Climate Change with Traditional Mitigation Strategy), aligned with the Vanua Research Framework (Nabobo-Baba, 2006), are employed to identify important traditional skills for climate mitigation while observing the Itaukei Fijian protocols, which are vitally important for this research.

The study is centred on the island of Qoma with parallel studies and findings of comparative analysis between the fourteen coastal villages selected from the five provinces of Tailevu, Bua, Macuata, Cakaudrove and Kadavu. The comparative findings show that of the 37 traditional skills tested, 16.2% are still being practiced, 32.5% have disappeared, and 51.2% can still be revived.

The findings concluded that education is the underpinning strategy for the restoration of traditional skills and culture of Itaukei Fijians, hence the need to document traditional knowledge and skills and teach it at home, church, schools, and on social media and networks.

The teaching strategy is to be designed, developed, and delivered using Itaukei traditional and cultural identity teaching pedagogies which are protected in the village and Vanua settings.

The Poem supporting the Abstract.

*Noqu Viti! My Fiji! (Na Osi Vutugu kei na Taginiyalo)**:*** I walk backwards into the future with my eyes fixed on my past! Tu ena sala ka vakararai!!Ka taroga nai lakolako lesu!!

Rooster Crows…COCKADOOLEDOOO!!!

Soaked in the morning rain to the dawn of a new day,

The sunlight complements the disappearing darkness.

Unifying palm trees dance to the south easterly wind breeze.

Birds singing for joy at the daybreak, protecting their young's.

Adding life to a newborn day

Trees stand tall as rolling mountains horizon smiles.

Meandering rivers, waters flow from the hilltop connecting to the vast ocean.

Fresh, sweet fragrance of nature undisturbed to this living environment

Sunlight providing life and photosynthesis essence to trees and nature.

Natural ecosystem support and live for each other.

The clock winds down tik-tok from dawn to dusk.

For days, weeks, months, years, decades, centuries life is for living.

Cannibals, they were my forefathers, heritage warriors.

Yes, they eat humans, but worse white people invaded my land!

Brought indentured labours to help the sugar industry.

Alas! My people, my ocean! My land! No more!

My island, my white sandy beaches, my coral reefs, my habitat!

My culture, my oral traditions, my skills, my life

They are dying, being eroded, sinking.

Am I dreaming! Sleepwalking! Hallucinations! Alas for this unhappy night!

Its reality, it's true as the dawn breaks over the coral reefs.

It's called in my mother tongue-Na Drakiveisau!!

Forced climate Change is it! It is real Oh My! Oh My!

Climate change in weather, politics, traditional culture, now COVID – 19!

Fiji my Fiji! Isa… I long for your return to paradise my island is your home!

My village is my home now at a distance …

Fiji in the Pacific and World Map

Figure 1:Map of North Pacific, with Fijis location (source: goggle maps 2020; worldatlas.com)

Figure1 shows Fiji as an island nation under the Melanesia grouping, an archipelago in the Southern Pacific Ocean, and part of the Oceania region. Geographically located in the Southern and Eastern hemispheres of the Earth, Fiji is often called the hub of the southwest Pacific, bordering Vanuatu to the west, the Solomons and New Caledonia to the northwest, Australia

to the southwest, New Zealand to the south, Tonga to the east, Samoa and Wallis and Futuna to the northeast, and Tuvalu to the north.

The Fiji Islands, now known as the Republic of Fiji Islands, is located between 15 degrees and 22 degrees south of the equator and between longitudes 177 degrees west and 174 degrees east. The Republic comprises of around 364 islands and atolls of which only about 100 are permanently inhabited. The aggregate land area is 18,333 square kilometres. The main islands are Viti Levu and Vanua Levu whose areas are 10,429 square kilometres and 5,556 square kilometres respectively, accounting for 85 percent of the total landmass, and inhabited by 93 percent of the population. The islands are mostly volcanic with rugged terrain while the small islands are mainly of coral limestone.

PERSONAL POSITIONING

The Approach

This research begins with the life of a young village boy in the island village of Qoma some fifty years ago with a case study at the heart of the matter.

Seeing and experiencing the intensity of climate change effects on my village; those environmental damages in terms of landscape inundation, coastline erosion, depleting resources, and loss of adaptation skills and traditional lifestyle, thus driving the urgency to search for amicable solutions that promote ways to resuscitate those effective traditional practices that once made Itaukei Fijians resilient to climate change challenges.

The research draws parallel measures of the different climate effects that challenge the traditional value system in Itaukei Fijian culture while at the same time reflecting on the political climate effect of a ‘hang loose’ masterpiece of colonialism in Fiji. The impacts of the Deed of Cession for the British Crown protection, the arrival of the early missionaries, indentured labourers and traders, the pre- and post-independence era, are current challenges facing the Itaukei indigenous people in Fiji. Even after forty-seven years after independence, the culture shock, the loss of Itaukei values, eroding native language, crafts, skills, and knowledge, blatantly boiled up the ‘inner guts with nerve wrecking disruptions which eventually exploded into the military coup d’état of 14th May 1987 by Military Commander, Lieutenant Colonel Sitiveni Rabuka. In the endeavour to find an alternative way to retrieve the lost Itaukei Fijian traditional skills and values, the research is inclined to capture the traditional

practices through a mixture of indigenous and modern and contemporary approaches in education.

With a modern shift in research findings and contemporary education approach, it is anticipated that the latter is best adopted using a modern education assessment tool of Competency-Based Training and Assessment (CBTA) model, to redress and restore the preserved traditional values and virtues of the indigenous Itaukei Fijians. It is presumed that the study will identify traditional skills that have disappeared with its revival techniques and approaches. The research will anchor on the development of a CBTA teaching material that will uphold the revival of traditional values and culture of the Itaukei using canoe sailing of the waqaniviti, with the ideology shift that diminishes and challenges the modern contemporary world; a value proposition that must be nurtured, re-groomed and revived.

The focussed areas below describe the resilience of Itaukei traditional practices towards climate change mitigation.

Case study: Qoma island village, Tailevu North, Viti Levu, Fiji.
Project Specific: Waqakau (wooden sailboat)
Parallel study location: Parallel study 1: **Tailevu**- Uluiloli village, Verata.
Parallel study 2: **Bua**-Navunievu, Nawaido-Solevu, **Macuata**-Mataniwai, Nakalou; **Cakaudrove**- Vusasivo, Vusa, Drekeniwai, Buca, Nagigi, Saqani, Tawake, Wainigadru-Vanualevu.

Figure 2: Map of Fiji with focussed study areas

Parallel study 2: Cakaudrove, Bua, Macuata and Kadavu

Figure 2: Map of Fiji. *Source: goggle maps 2020; world atlas.com*

A Quick Glance: The Itaukei Fijian Heritage

Briefly, the love and aspiration of Itaukei Fijian values and culture, traditional skills and knowledge have eroded. One can only marvel and reminisce at the way Itaukei parents and grandparents would solve a problem at home or in the village using the traditional approach. Whether it be healing a very sick person using herbal medicine or getting a traditional massage, giving birth to a new-born with the traditional midwifery technique or going fishing by paddling or rowing a canoe, or preserving food for longer days using the traditional preparation and cooking method, every young Itaukei native is taught and skilfully exposed to these traditional methods of solving problems and healing. The most daunting message, however, is that most of these traditional skills are on the verge of dying out.

A young man in the village is also taught at an early age how to perform the traditional Fijian welcoming ceremony of isevusevu, iqaloqalovi, veiqaravi vakaturaga / vakavanua, and perform war, fan, or spear dance (meke-i-wau, meke iri and meke wesi). Also expected is for a young Itaukei Fijian man to master the traditional method of fishing and farming, navigational techniques by studying signs and movements of the sun and moon, ocean current and tides, wind direction, rainfall, and cloud formations.

Most of these traditional skills are slowly dying as most Itaukei villagers do not practice them anymore. Traditional canoes have been replaced by fibreglass boats while tiles and carpets have replaced the traditional woven mats (ibe-vakaviti). Traditional dances have been replaced by modern and contemporary dances, and traditional fishing methods have been replaced using modern fishing techniques and new inventions. The young generation have opted for the modern and contemporary method of doing things. Sadly, most of these traditional craft skills and native dialects and language have been replaced by contemporary mixed mode and if not embraced now will soon disappear for good.

Key Words

Climate change, Itaukei, Indigenous, Culture and traditions, Revival, Sailing

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You suggested that I begin with a poem expressing my life story to reflect on my humble upbringing, the lost spiritual connection to mother nature, eradicating the growth and essence of our cultural oral traditions with rich poetic record of practice. This amazing approach opens the secret door into my sub conscious mind that unleashes energy wave within my inner brain cells (neurons) which further thrust critical and new ideas, one after another that reshaped my central theme and helped me keep focussing on the main topic throughout. Vinaka vakalevu, Tēnā koe, Professor Tai for your patience, love, professional advice, and support throughout this exciting journey.

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National Archives
Fiji Museum
Ministry of Itaukei Affairs
CATD, Nadave

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- Turaga ni koro Qoma, Nabulebulewa: Sailasa Vasua
- Turaga ni Koro: Uluiloli, Verata, Tailevu
- Tui-Kabara and the people of Kabara
- Turaga ni Koros and Chiefs:
    - Bua-Navunievu, Nawaido-Solevu,
    - Macuata-Mataniwai, Nakalou
    - Cakaudrove- Buca, Nagigi, Saqani, Vusasivo, Vusa, Drekeniwai, Tawake, Wainigadru
    - Kadavu: Muainuku, Levuka, Kabariki

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LIST OF TABLES

LIST OF FIGURES

LIST OF ABBREVIATIONS AND SYMBOLS USED IN THE THESIS

MEHA	Ministry of Education Heritage and Arts
RSMS	Ratu Sir Lala Sukuna Memorial School (RSMS),
QVS	Queen Victoria School
RKS	Ratu Kadavulevu School
GCC	Great Council of Chiefs
ACS	Adi Cakobau School
CATD	Centre for Appropriate Technology and Development
TLTB	iTaukei Land Trust Board
NLTB	Native Land Trust Board
ALTO	Agricultural and Tenant Ordinance
IPCC	Intergovernmental Panel on Climate Change
FQF	Fiji Qualifications Framework
FHEC	Fiji Higher Education Commission
FQC	Fiji Qualifications Council

IQA and ER –The Internal Quality Assurance system and External Review

CBT	Competency Based Training

ITAUKEI DEFINITIONS WITH ENGLISH TRANSLATION

Itaukei Native of the Fiji Islands

Fijians (Fijian: iTaukei, lit. 'Owners of the land') are a national and ethnic group native to Fiji, who speak Fijian and share a common history and culture. Fijians, or iTaukei are the major indigenous people of the Fiji Islands and live in the region informally called Melanesia.

The Vanua 1 (definition of Itaukei affairs regulation, established under the colonial government administration, as a legislative registration requirement)

A Vanua is an independent kingdom of its own, comprising one or several Yavusa that recognize, respect, and pay homage to a leader. Its head would exercise overlord authority over all Yavusa within the Vanua and would be referred to by Title as Tui or King, Vunivalu, Roko Tui, Sau. Examples being the Tui Vuda, the Roko Tui Dreketi, Ka Levu of Nadroga, Tui Ba, Momo of Nadi, Sau of Totoya, Sau of Mualevu, Tui Dravuwalu, etc. Under the colonial administration, Vanua boundaries came to be defined also as Tikina or District boundaries administered under the Tikina and Provincial administration. In some cases, a tikina may comprises of several Vanua.

Vanua 2 (definition as of this thesis, because of research conducted in villages and the perception of the people on the vanua)

Vanua includes the people, the land, the sea, and how all living creatures, are inter-related with each other and with their biodiversity.

Yavusa — A Yavusa may be described as a group of correlated Mataqali who have a generic name [A i Cavuti] by which they are known to other Yavusa and live together under a Chief who is the nearest lineal descendant of their common ancestors or Kalou–Vu. It had its beginnings in the Yavutu, the old village settlement establishment by the Kalou–Vu who was the founder of the Yavusa and to whom all the members, however remotely, are related by a bond or blood.

The Mataqali — Four or five mataqalis make a yavusa. The Mataqali unit was used as Land Owning Unit (LOU) for landownership in most of the areas. The Mataqali was composed of those closely related family groups that lived in proximity and were related to each other by ties of marriage, the bond that brought and held them together when the yavusa was first formed.

Itokatoka — A Clan within a mataqali

Each Mataqali was composed of two or more itokatoka, or family division. Every itokatoka was known under its own name and had a headman who was under the immediate orders of the chief of the Mataqali.

Koro — Village

Turaganikoro	the Village Headman appointed under Regulation 30 of the iTaukei Affairs (Tikina and Village Council) Regulation 1996.
Village name	a registered village name used by the iTaukei Land and Fisheries Commission.
Villager	any person who has settled in the village and has been engaging in its obligations.

Volanikawabula- (VKB) Register of Birth of iTaukei Fijians.

Drakiveisau	Climate change
Vucu	Traditional iTaukei chants
Talanoa	Story telling
Meke	Traditional iTaukei dance
Na Osi vutugu	Moan
Waqaniviti	Itaukei traditional canoe
isevusevu	ceremonial iTaukei chant
veiqaravi vakaturaga	traditional welcome ceremony
ibe	iTaukei woven mats
vinaka vakalevu	thank you very much.
Madrai ni viti	Itaukei food delicacy for the people of Qoma
Veibici, Suru, Veisole	alternative iTaukei night games
Solesolevaki	communal cooperative or teamwork approach
Gonedau	traditional fisherman
Vicovico	umbilical cord (placenta) of a newborn
Bete	Priest
Matanivanua	Herald
Mataisau	Craftsmen
Sauturaga	Chief Executive

Gonedau	Fisher folks
Matanitu Vanua	local governments
Lotu	Church group
Bure	Fijian iTaukei dwelling home or house.
i-rara	a central fireplace in a ‘bure’
yaqona	traditional ceremonial drink for iTaukei
meke	Traditional iTaukei dance
derua	bamboo drumsticks used during traditional chant and meke
lali	wooden drum used during traditional chant and meke
vucuvatu	traditional songs or chant
Koro	village
Clan	Mataqali
Sub clan	Tokatoka
Tribe	Yavusa

CHAPTER ONE

Climate Change: 'The Resilience of Fijian Traditional Practices' (Na Drakiveisau: Na Qaqa kei na Tokoni ni iTovo Vakavanua ka Tutaka na Valuti ni kena Ravuravu)

ABOUT THE RESEARCHER

There are five subtitles in this chapter outlined under 1.1, 1.2,1.3,1.4 and 1.5.

Chapter Introduction

1.1 The Philosophy of Growing Up in Qoma Island.

1.2 The Traditional Itaukei Ways.

1.3 Traditional Climate Effects versus Modernisation and New Technological Era.

1.4 Fiji During the Pre- and Post-Colonial Rules.

1.5 Fiji's Economic Status in Brief versus The Indigenous System.

Chapter Summary

Chapter Introduction

This chapter tells the world through the researcher and author, who with deep affection of his traditional origin and humble upbringing, is very proud and strongly connected to his cultural values and traditional protocols. The author, through his childhood experiences of village life on the island of Qoma, reflects on the village value system that was unique, priceless, and well connected to mother nature. The author discusses the challenges of pre- and post-colonial rules, technological advancement, modernisation, and economic development which have greatly contributed to cultural and environmental degradation, against the traditional iTaukei ways. Having being nurtured in a well-protected blend of traditional life teachings and well connected to the value propositions of the land, respect for the sea and fishing techniques, traditional etiquettes and food preservations, respect for language and cultural values, friendly climate and tranquil environment, the author is concerned about how all of these, intertwined in a cocoon of the unblemished reality, are now being challenged by climate change effects that have threatened life on the islands forever. This notion confronts the approach of Fijian consciousness education versus the modality of modern life! It depicts iTaukei

philosophies on how Qoma natives lived their lives on the islands which could be described as the most liveable tiniest democratic island in the world. However, increasing climate change hazards continue to threaten the livelihood of island iTaukei Fijians, hence the need to support the strategic directions and Itaukei philosophies plan for the way forward.

Tropical cyclones and associated climate hazards have become more frequent and severe in the last decade, and it appears that iTaukei Fijians are depending on the scientific and modern approaches of mitigating against the effects of climate change while the traditional adaptation methods are no longer favoured.

Purpose of Study

This study investigates the effectiveness of traditional climate change mitigation practices used by itaukei Fijians to sustain their lives in times of climatic hazards. The focus is to find out how much of these traditional mitigation skills are still in practice and how those that are dying or forgotten can be revived to build itaukei Fijians' resilience toward drakiveisau impacts.

The severity of the climate change effect now presents the need for an amicable solution to this challenge, hence the need to restore and retain mitigation strategies using the traditional approach. The study hopes to bring to the fore itaukei Fijians adopted mitigation strategies, their ability to be resilient, and the fight to restore traditional value systems, skills, and knowledge through education.

Research Questions

1. What traditional practices help sustain the livelihoods of itaukei Fijians in times of climatic disasters?
2. How do itaukei Fijians perceive traditional mitigation practices over modern scientific mitigation practices?
3. What mitigation skills are still in practice in itaukei Fijian villages today and which skills have disappeared?
4. How can the dying mitigation skills be revived? How can these traditional mitigation skills be handed down to the young generation?

Assumption

This study will employ the assumption that:

1. It is vitally important to recognise and incorporate traditional skills and knowledge with the scientific methods of mitigating climate change to sustain the livelihoods of Fijians, and for the survival and continuity of the itaukei Fijian traditional culture.
2. The best way to revive dying traditional practices and pass this knowledge down to the young generation is through education.

1.1 The philosophy of growing up in Qoma island.

Born and raised in a traditional village set-up for most of my childhood life was an exciting life learning experience. My home island of Qoma comprises three small islands: Qoma or Nabulebulewa, Qoma Levu and Qoma Lailai. Having a total land area of approximately twenty-two hectares, the island is in Tailevu Point on the northeast coast of Viti Levu, the main island of the Fiji group. The islands are located some sixty kilometres from Suva, the capital city of Fiji, and approximately seventeen kilometres northwest of Moturiki, seventeen kilometres west of Ovalau and eleven kilometres southwest of Naigani. The islands are generally low-lying with flat to gently undulating relief with a consistently high-water table. The soil types include a mixture of grey sandy soils and red and black soils which are mostly brackish to saline (Twyford & Wright, 1965).

Figure 3: Picture 1: Qoma, 1985

I still vividly remember while growing up as a child in my village how young, innocent and at a tender age, we were a close knitted family loving society and enjoying a simple traditional subsistence lifestyle. A new day would begin with our parents often predicting the weather forecast for the day by studying the cloud formations and wind directions the night before, prior to dawn. There was no regulated nor any fixed plan

for the day. Most houses in the village were thatched, made from local materials like reeds, timbers, bamboos, and vines. Our home was the only house that was tinned on the four walls, made from the unused empty forty-four-gallon drums that my dad used as recycled. Due to the communal nature of village life, every household in the village was a home for anyone simply because we were all related. I could have breakfast at our home, lunch at my uncle's place, and dinner at my grandmother's home. Having dinner at my grandmother's place was always preferable because of night-bed time stories. She would tell stories until all the kids went to sleep around her or we would run to our homes if it was a horror tale from the old woman whose teeth had all mostly fallen-off. She would relay stories about the history of our three islands, our people, our traditional gifts, our language, our culture, our heritage, and values in the Fijian translation known as 'i-tukuni'or storytelling. The tales were usually so engrossing and told with so much affection that it seemed she was reading from a story book well written by an indigenous author. This was the Fijian-itaukei way of archiving sacred information which was passed on from generation to generation. I presumed this was an opportunity she had waited for to relay important teachings and folk tales to the young people of the village. Because we were kids, there was no seriousness in capturing the importance of these village stories as these were taken only as pastimes activities.

I was number seven in a family of eight with five girls and three boys. Due to the big number in our family unit, sibling rivalry often thrived especially in the allocation of daily chores. My father worked as a carpenter at a nearby secondary school while my mother oversaw the household chores. My day often began at five o'clock in the morning with a hot breakfast prepared by mum, for me and my dad. The kettle of water was usually boiled on an open fire using dried woods that gave lots of black smoke and teary eyes to my mother. My father would be out of the house by 6.30 am every morning to catch the boat provided for workers on the island to get to the mainland. I usually accompanied my father on this trip to attend the elementary school on the mainland where I spent the first eight years of my education. During these early days, our people would paddle and row wooden boats to reach the mainland and other destinations. At times when dad was late to have his breakfast, mother would prepare him takeaways where biscuits were soaked in sweetened black tea served in a big enamel jug. I had no idea that diabetes is related to the high sugar level in the blood,

but despite my dad's high sugar intake, he lived long reaching the age of seventy-one. Water scarcity was a problem on the island as there is no river or streams. Rainwater was often collected in big empty drums and buckets or villagers would walk for twenty minutes to the nearby island of Qoma Levu to fetch fresh water from the spring-well called Waidradranu that was dug by our forefathers many years ago. *Waidradranu* is claimed to always have fresh water, even during long periods of droughts or torrid sunshine. Amazingly, this spring-well is only ten meters away from the mangrove swamp that is immersed in seawater. No one has ever explained the logic behind the freshness of this water even until today. Tales have been told and passed down for many generations that this was one of the two gifts to the island from the male spirit god named 'Rokomoutu' who visited Qoma and stopped over for some rest on the island of Qoma levu.

Within distance from the spring-well is another spring-well called *Tonitoni ni Madrai* (literally, to soak bread) that has brackish water or a mixture of seawater and freshwater. The spring was used by our forefathers to soak cassava for one week before they were mulched and wrapped in the breadfruit leaves and cooked in a pot, something I enjoyed doing with my mother during my childhood days. Commonly known as "madrai ni Viti," this was a delicacy for the people of Qoma. The food could stay edible for seven to fifteen days without getting bad. Our forefathers used this as their staple food when they travelled long distances in the sea or during their fishing and turtle hunting trips. Today, our villagers still use this pond to soak cassava roots for this food delicacy.

The second gift by Rokomoutu the spirit god was the magic bamboo tree known as 'bitu ni ceva', which he planted on the hilltop of Qoma levu before moving on with his journey to Verata, Ucunivanua. The stunted-bamboo tree stood at only two meters high and has never grown any taller. The tree if disturbed has the power to blow strong easterly winds to the three islands for seven days and nights. Both the spring well and the bamboo tree still have the 'mana' or magic power to date. Since our home garden was situated next to the magic bamboo tree on the hill plateau, my father and I used to take care of this tree and even as a young boy I was able to witness on several occasions the "mana" associated with this tree.

Beside the bamboo tree, one can see a war ditch-trap measuring five meters in depth, dug manually to protect the villagers during the tribal war rivalry and cannibalism days. The ditch was used by our warriors as the first line of defence by rolling down big boulders and rocks to counter enemy attack. The war ditches are still evident in both islands of Qoma levu and Qoma Lailai. Knowledge about these traditional historical sites have been passed down through many generations that has culminated to add to the rich traditional culture of my people.

My childhood upbringing in a simple traditional subsistence setup has taught me to freely live and enjoy life each day from dawn to dusk. There was no electricity nor running tap water on the island then. We would gather, hunt, fish, plant, and harvest daily. As night fell, we would have either kerosene lantern lamp or benzene lamp as our source of light in the night. During the cold winter season, a central fireplace or "irara", made up of selected dry logs of firewood was lit to give heat and warmth for the family. On some cold nights I would sneak quietly to my grandfather's thatched bure where I would listen to his stories around the central fireplace or watch village elders chant evening lullabies and serenade around the central fireplace with stories and jokes in between breaks.

Nightfall in the village usually come with a hive of activities to keep everyone busy before the night rest. I would watch the menfolk crowded in homes where the traditional kava or "yaqona" drink for itaukei was served while smoking their cigarettes or tobacco and serenading and chanting to the beat of the wooden bell or "lali". The lali and bamboo drumsticks called "derua" provided the melody for chanting traditional songs called "vucuvatu".

The youths on the other hand would be drinking stronger mixed kava and serenading the night away with contemporary Fijian itaukei songs using a guitar or ukalele, and a bass of homemade wooden box with one string attached to the base called "wadua". The ladies would have their womenfolk's tales in several locations in the village. The children would either spend time on the sandy beaches playing games under the moonlight during low tides or have alternative night games like "veibici, "suru", "veisole" and shells and pebble games.

The village's cooperative store which supplied villagers with basic food items and simple household goods for everyday use operated until 1970. It was managed by a committee and coordinated by the Fiji Cooperative Society where every household had a share in the business and received bonus pay-outs during the Christmas break. This has been replaced by two family-owned canteen stores serving the villagers until today.

Farming on the island was limited and for subsistence purpose only due to the small land area. Crop rotation was the traditional method used. Men would clear a bush by slashing and burning before crops like cassava, yams, taro, kumara are cultivated in between fallen logs. Tree crops like breadfruit and bananas and green vegetables like "bele" and "ota" were often grown alongside these main staple crops. There were no artificial fertilizers used on the land, but the soil remained fertile. During the school holidays and Saturdays, I would always look forward to accompanying my father to his mixed crop yam plantation either to help him plant or clear the weeds or harvest crops and vegetables for the family. Traditionally, fishing was the village's main source of income and protein for the villagers. To earn some cash, part of the day's big catch would be bundled up and sold at a reasonable price to the teachers at the nearby secondary school. I still remember knocking from door to door at the school's staff quarters selling fish at five dollars per bundle. Money from the sales of fish would be used to buy basic household items such as kerosene, sugar, soap powder, flour, rice, and cooking oil. Smaller fish and leftovers of fish baits were taken home to be cooked for evening meals for the family.

The people of Qoma are well known for a unique traditional fish-drive method called 'Silitikawa'. The fish "tikawa" was the only fish that could be caught by this method. Believed to have been passed down to our generations until the early 1980s, this traditional fishing method used forest vines or "walai" and coconut leaves known as "lawavau", which were weaved smartly into a rope-net type pattern to trap this fish. According to the traditional ritual of Qoma, the head priest or "bete ni lawavau" and his delegation would carry the 'lawavau' in the first boat to lead the fish-drive entourage into the reef, while other boats followed closely behind. Once the fish trap or "lawavau" was placed underwater close to the reef, the fish would be attracted to it

and get trapped inside the lagoon. While swimming close to the reef, long wooden poles known as “male” would be used by our fishermen to drive the fish close to the lagoon and into the ‘lawavau’ before the fish were dragged onto the boat of canvas sail. Meanwhile, those fishermen holding the traditional net ‘lawavau’ would be chanting; “veimaroroi”! “veimaroroi”! meaning be careful! Be careful! Certain traditional ‘taboo’ or protocol like no yelling, no throwing of rubbish in the sea, must be strictly observed and respected otherwise the schools of fish would suddenly disappear.

The joy of watching this fish drive lingered on for years as I reminisced about my young days in the village where I used to accompany the fishermen to the sea for this special catch. Sad to note this traditional fish drive with its knowledge and skill is fast dying out in my village today.

Our village men were also known to be traditional turtle fishermen. In the olden days, coconut husks or “magimagi” were weaved together to make turtle nets, but this has now been replaced by using nylon ropes. The net-weaving skill or “teilawa” and net-repair skill or “onelawa” are both on the verge of dying out. The ritual before going out to catch turtles in the sea included the presentation of a kava ceremony known as ‘vakasobulawa’ in the belief that our ancestral spirit god would be present to allow for a good turtle catch for the day. Kava must not be served in the house back in the village where the ritual was performed otherwise the spirit gods would return ashore to drink kava, leaving the fishermen to struggle by themselves in the sea. Upon returning from the sea with their catch, the kava ceremony of ‘i-sevusevu ni vonu’ was usually presented to the elders in the village as an appreciation for the day’s catch. I still remember the hard drills at the sea when my father would yell at me when a turtle was spotted and my reaction to respond was slow. Today, this ritual is seen as evil and against Christian teachings and principles.

One of my favourite fishing methods while growing up in the village was the use of bow and arrow or “moto kei na dakai titi” to spear small fish in nearby mangrove swamps that stretch for miles in between the three islands. During low tides, we would wade knee-deep into the sea fishing for small fish, sea eels, crabs, and prawn along the mangrove ridges. The day’s catch would supplement meals for either lunch or dinner. Over the years, our mangrove trees are either decreasing in numbers or dying

slowly due to excessive cutting of mangroves for firewood and construction purpose and from the effects of drakiveisau. The planned replanting scheme of mangroves on the island of Qoma has just started.

Due to the absence of modern food preservation technology, perishable food items could not be stored for too long and had to be consumed within a day or two. However, some traditional ways for preserving food for longer days that were commonly used by our forefathers are still practiced in my village today. The technique of fish smoking for instance was used to dry and preserve fish for more than seven days. This was done by placing fish on the green branches above the open fireplace to cook and dry out moisture in the fish. Similarly salted fish was dried in the sun and could last for weeks. The use of an earth oven or "lovo" was a popular method and still is, where stones were heated red hot before food items wrapped in leaves were placed on the hot stones and buried in the earth for about two hours.

Over the years the effects of drakiveisau have been evident on the islands of Qoma. Extreme high tides and swift ocean surges scavenging the foreshores caused by strong easterly winds often developed into severe storms and devastating the coastal landscapes of Qoma. As a mitigation strategy, the village has a constructed sea wall made by piling and cementing big boulders and rocks to safeguard the coastal land from storm surges causing erosion of land into the sea. To maintain the sea walls beside our home, my father and I would dig for the black-mortar soil beneath the roots of the mangrove trees and patch the gaps between the rocks of the sea walls to help cement the boulders and rocks firmly and help prevent floodings. The soil material has a sticking glue effect that would last for months before they could be replaced.

The village traditional chief titled 'Tuinabulebulewa' commands great respect by all the people of Qoma. The village has a headman or 'turaganikoro' who looks after the general welfare of the villagers. Like every other Fijian traditional village set-up, Qoma has the matanivanua or chiefs herald, the "bati" or warriors and "bete" or spirit god intercessors, each of whom carries out expected traditional responsibilities to the chief as well as the people. The main tribe of Qoma is known as the 'Batinisala' and the two subtribes are 'Tunabulebulewa' and 'Rokotuiloma'. The villagers have lived harmoniously over the years, caring, and sharing with one another.

1.2 The Traditional itaukei Ways

Spending all my childhood life with my parents and grandparents on the island of Qoma has helped me realize my inner values which are rooted in the Fijian culture and traditions as an itaukei and owner of my home islands. They were my role models, mentors and my first teachers. My father was an untrained carpenter but very skilful, something he must have acquired from my grandfather while growing up in the village. He was a man of integrity and respect and throughout our upbringing in the family, these were important traditional moral values he wanted us to uphold in life. He held the title of turaga ni mataqali or tribal leader in my village clan during his time. He would reaffirm the traditional teachings by enforcing the importance of key values of itaukei in our lives as his children as well as to everyone. The teachings would include respect for the elders, no matter whether what they said was right or wrong; respect for the village unwritten by-laws like descent clothes to wear, no disturbances or loud noise always, protocols in entering a village or a house, protocols in ceremonial culture presentations and traditions and a high level of discipline and support for one another. He was an advocator of keeping alive important traditional values and skills that help sustain the traditional culture of Qoma and sustain the livelihoods of his own people. My grandfather had really taught my father well in terms of traditional skills unique for the people of Qoma and these have been passed down to my generation.

Dubbed as an old man with skilful traditional intelligence, my grandfather single handedly built a Fijian canoe with sails by using available traditional local materials. Having witnessed first-hand the whole processes that saw the complete construction of this rare Fijian canoe back then, it became the epitome of this deep interest in trying to promote the revival of our traditional knowledge, skills, and values in combating the many environmental and cultural challenges that we face nowadays. The duration to complete the canoe building was dragging but with great care and skills as I recalled, he guided me through step by step in this art and skills of canoe building with dedicated craftsmanship. Consciously, he had the patience to spend as much time as possible to perfect and complete building the various components of the canoe, and it was the same for every part of the canoe until it was completed. Even at a tender age

of eleven years, this lifelong traditional teaching and experiences with my grandfather could have been the main driving force behind my career pathway that was directed towards carpentry studies when I went into high school and tertiary education. My passion towards the art of craftsmanship finally saw me become a technical teacher majoring in woodwork, metalwork, and technical drawing at various high schools in Fiji. The knowledge and skills passed down from my grandfather to my father and to me was not only confined to the construction of the Fijian canoe, but it was a whole package of the rich itaukei traditional skills, values, knowledge, and customary habits that a true Qoma native male was expected to have. As a young boy growing up in Qoma, I had learnt about my ascribed traditional status and its expected obligations from my grandfather and my father. My grandfather would relate stories and teachings of traditional-itaukei way of life of our forefathers of Qoma. These included food preservation methods, fishing methods, traditional names, dialects, and languages associated with our province, respecting mother nature, and preserving the land and the sea through traditional mitigations, the values and 'taboos' of the land and ocean, traditional navigational signs when sailing in the sea, and the joy of sailing in a Fijian canoe or "waqavakaviti" using all the traditional navigational signs. This was in no way compared to the modern-day sailing of using fuel powered motorboats.

Qoma is made up of three tiny islands that are part of three hundred islands of the Fiji Group. Qoma islanders are traditional sailors and skilled fishermen. In the olden days, sailing by boat or canoe was the fastest mode of transportation from the island to reach nearby islands like Ovalau, Motoriki, Naigani and Vanua Levu. Apart from set-sailing, rowing, and paddling was also common since the distance sailed to reach the mainland was short. Traditionally, on a long journey, our elders would chant 'vakalutuivoce 'or night chants to call on their spiritual gods to help and allow the wind to blow their sail and direct them to reach land safely. In most sea journeys I had, my father and I would start off by rowing the boat until the wind blew the sail to speed up our trip. We would be in a jovial mood with clapping and shouting as an appreciation to the gods for this provision and protection in our sea journey. The modern-day sea journey for my people across the ocean has been replaced by fiberglass boats powered by fuel releasing exhaustive carbonized fumes into the atmosphere and spilling oil into the sea, hence contributing to warming ocean temperatures and climate change. A day-long fishing trip nowadays is no longer adventurous and enjoyable because it is now

done with great speed and noise. There is lots of noise from the outboard motor when in full throttle rushing across the ocean with great speed and forcefully gliding its way forward breaking strong headwinds and rolling waves to reach the mainland quickly. In the French Polynesian Islands for instance, outboard motors have almost entirely replaced canoe and sails and they would have vanished entirely if perhaps there were no tourists who find pleasure in sailing. These islands group once famous for their sailing canoe construction have been inspired by the challenges in the use of the outboard motorboats. The boat craft seldom ventures outside the lagoon except in fine weather. Just as the automobile has become a status symbol in the Western world, so are the canoes been a status symbol in the islands (Powel, 1968).

Looking back now, I long for that time when our sea journeys were more peaceful, jovial, enjoyable and more environment friendly. In our traditional sailing canoes, we would marvel at the fizzling sound of the wind slamming smoothly onto the big canvas sail with waves crashing friendly on the sides of the boat spraying seawater on everyone in the boat to ensure that everyone was enjoying the canoe ride back to the village. The smooth yet slow pace of the sail often saw birds flying as low and above the canvas in search of food from the catch of the day as clouds tailed beneath the blue skies on the never-ending horizon and the sun slowly disappearing for the end of another great day. What an experience! These changes in sea travel and its challenges have caused a new travel dimension with technological shifts on the island of Qoma. This has become a great concern for the village elders now who feel threatened by the loss of traditional itaukei skills and knowledge of canoe sailing.

Extreme sea-level rise has become a common sight on the coastlands of Qoma. The island of Nabulebulewa has been worst hit by these extreme high tides causing seawater to flow into the village green hence affecting the livelihoods of the people on the island. Frequent and severe tropical cyclones over the past ten years have impacted the islands greatly adding to the calamity and wrath of storm surges causing inundation and erosion of coastal areas without much traditional mitigation strategies applied. The contrasting ideology remains a priority in alleviating today's fight to better mitigate climate change effects by reviving traditional knowledge and skills.

Briefly, over the past fifty years, the love and aspirations of i-taukei values and culture, traditional skills and knowledge have been endangered. One marvelled and reminisced at the ways our parents and grandparents would resolve a problem at home or at village level using the traditional way, whether it be healing a very sick person using the herbal itaukei medicine and traditional massages or giving birth to a new-born baby by our traditional midwife-technique or preserving food for longer days using the traditional preservation and cooking method. Every young Qoma native like me was taught and skilfully exposed to these traditional methods of solving problems and healing methods. The most daunting reality however is the fact that these traditional skills are on the verge of dying out. Every young man in my village is taught to perform traditional welcoming ceremony known as" isevusevu or iqaloqalovi", traditional war dances, fan and spear dance, traditional methods of catching fish, knowing the weather by studying the signs in ocean currents, moon and sun settings, tide movements, thunderstorm settings, and wind directions with cloud formations. All of these are fast disappearing, and my people are slowly losing out on practicing these traditional rituals. The traditional canoes have been replaced by fiberglass boats, tiles and carpets have replaced the traditional ibe-vakaviti or mats and the traditional dances have been replaced by modern and contemporary dances. Traditional fishing methods have been replaced by modern tools and navigation techniques with new technological equipment like GPS, fish finders and reef findings. Our younger generations are now adapted to the modern and contemporary methods of doing things and sadly to note that most of these traditional craft skills, native dialects and itaukei languages have either being replaced by a contemporary mixed mode which if not embraced will all soon disappear for ever. The real challenge now is how to teach and engage our people with the notion of consciousness education of our traditional value systems, skills, and knowledge against the modality of modern western life.

1.3 Climate Effects versus Modernisation and New Technological Era

The three-hour bus drive along the unsealed dusty road from Suva to Nukuvuto landing is what I still vividly remember as part of my growing up in my island village of Qoma. The journey to reach the village would be completed by rowing or sailing in a wooden punt or canoe. With a population of 287 people, the islands symbolize a trilogy of culture, identity, and tradition. The three tiny islands of Qoma are

surrounded by the ever-surrounding ocean. The islands are spiritually and culturally connected to the people in terms of its land, water source, surrounding seashore and reefs. Our people had been toiling the same land, drinking water from the same spring and fishing in the same nearby reefs for years yet are still very productive today. Our people who have passed on to the next life are buried on Qomalevu. The chiefly clan has their burial site called 'Sautabu' next to their sacred hill where the chiefly clan of the "Tuinabulebulewa" dwells. Their spirits are believed to be alive all year around providing protection and support to the people. The burial sites are treated as a village for the dead and are cleaned twice in the calendar year, usually accompanied by traditional rituals of feasting and kava driving to show appreciation for the dead's spiritual support.

Our people were skilful sailors and traditional fishermen to the chief of Verata who have paternal links to the spiritual god "Rokomoutu" who visited and gifted Qoma with the spring wells and the magic bamboo tree. In the past, Qoma fishermen would present a turtle and selected big fish to the chief of Verata as the first harvest or 'i sevu'. This ritual is no longer in practice today.

The natural serenity of the island of Qoma has disappeared along the way and this has altered the balance between nature, culture, contemporary lifestyle, and modernisation as captured in the words of the poem below (Naisele, 2019):

My island, my white sandy beaches, my coral reefs, my habitat!

My culture, my oral traditions, my skills, my life

They are dying, being eroded, shrinking, sinking.

We have lost part of Qoma's coastal heritage to the sea. With the loss of coastal land, we have lost our spiritual, cultural, intellectual connection to this part of Qoma, a loss of connectivity to mother nature, cultural identity, art, land, and language. Intellectual knowledge of property rights is no longer with us. The islands are shrinking in size and my cultural identity and traditional value system have both been challenged and losing out rapidly.

Our Fiji is now exposed. We are vulnerable! We are in the pathway of increasingly more hazardous and frequent climate hazards. Increases in global ocean temperatures have caused extreme high tides, swift ocean currents and strong south easterlies

bringing severe and frequent flooding to our coastal shores. The increase in human activities like urban development, mechanized farming, deforestation, and industrialization have all pushed the boundaries of nature on my islands, and climate change has altered the equilibrium!

This research hopes to highlight the importance of understanding the severity of drakiveisau on my island and the significance of restoring traditional values, skills, and knowledge in mitigating climate change impacts. Climate change is one of the most pressing political, economic, and environmental issues of our time. It demands honest and timely collective global actions. If the global community does not take drastic measures now, climate change could result in many of the Pacific Island nations being wiped out from the map of the world in the not-so-distant future. The small island nations of the Pacific region are more vulnerable to the acute effects of climate change than any other regions in the world. Most of these volcanic islands are barely a few meters above sea level. The rising scale and the intensity of storm surges, saltwater intrusion and coastal destruction of the past decades have decimated coping capacities, leaving island populations with failing crops, crippling water shortages, and an uncertain future (Salem,2020).

It is envisaged that through this study, the itaukei philosophies of traditional values, skills, and knowledge, together with our embedded belief system can be restored. Our skills and knowledge were passed down through many generations by the ‘word of mouth’ process and I strongly believe this must be preserved, restored, and captured through education, proper recording, and archiving. This research has undertaken the process of compiling data on heritage knowledge through interviews and ‘talanoa’ sessions.

Over the years, my unique village traditional experiences have been impinged due to eroding village identity, cultural heritage, art, and intellectual knowledge of property rights.

The resulting impact of continuing climatic effects are distinctive on the three islands. For this research, planning and engaging for the future requires urgent attention to the shifting challenges in weather patterns caused by climate change on Qoma with its traditional culture and identity to support and restore itaukei cultural capital

knowledge. This study seeks to find amicable solutions of restoring and retaining traditional itaukei skills that helps mitigate climate change effects. Modern technology continues to push traditional identity aside often seen as obsolete with little written materials developed and archived. Torn between the push of modernization and the pull of traditionalism, we have struggled to live in a dual world system within our local communities. Modernisation represents the new foreign life that leads many itaukei to view their traditional ways cynically and question whether traditions are worth retaining. The dilemma of losing itaukei traditions and cultural identity is evident, especially with the younger generations. The more we are aided with foreign aids to make us modern, the more we are lost in the new types of psychosocial challenges that baffled everyone, young and old alike (Tarabe & Naisilisili, 2006). Climate change has accelerated land losses, eroded traditional practices, and now threatened our identity and livelihoods.

1.4 Fiji During the Pre- and Post-Colonial Rule

With much focus on the island of Qoma in the first part of this chapter, the research was extended to compare key findings in selected provinces in Fiji. This subchapter shifts to link colonial supremacy against the suppression of traditional and cultural practices that undoubtedly challenges itaukei protocols. The chapter further reflects on the researchers' feelings of the dilemma facing his people during the pre- and post-colonial rules. With the introduction of Christianity through the early missionaries, the itaukei Fijians are faced with the challenges of the new revolution of change. In addition, the itaukei had a rich sea travel history capped with tribalism, itaukei traditional village structure, population growth, economic survival, and cultural challenges. The researcher, with mixed reactions, tries to describe a broader scenario on the impact of the different climate effects: physical, environmental, political and social together with the dilemma facing the itaukei on their land while living in harmony with other ethnic groups in Fiji; the precolonial proposals; colonial intervention and post-colonial hangover, that baffled the undecided subconscious mind of every itaukei as whether the past is right so be it and who cares or the past is right but gone and forgotten forever.

At a crossroad of uncertainty with a bleak future of regaining the lost values, the researcher in this sub chapter tries to unveil a travel history of how itaukei travelled from afar, believed to be from the continent of Africa, crossing the high seas and eventually landing in Fiji. Tribal warfare and cannibalism were thriving during the early days of the pre- Christianity period. The arrival of early missionaries shifted the spiritual perspectives of itaukei people and changed them from idol worship and practices to converted Christians.

The introduction of Christianity to Fiji in the second half of the 19th century led to massive changes in indigenous culture, something aided by the huge loss of life from introduced disease and land purchases by settlers (McNeill 2007). The uptake of Christianity among indigenous Fijian itaukei was almost in total by the 1880s and their pre-Christian history was comprehensively rewritten (Geraghty 1977). Nineteenth century European settlers found that Fijians had no knowledge about where they had lived before reaching Fiji so as a result of courses taught at the Methodist training institution and a newspaper competition in 1892, the improbable story that they came from East Africa in a canoe named Kaunitoni led by a warrior named Lutunasobasoba was born and is still widely believed in modern Fiji (Janif, Nunn, Geraghty, et al, 2016).

Fiji remained a colony after it was ceded to Great Britain in 1874 under the British Crown and gained independence in October 1970. Fijian history tells us that early Fijians settlers braved through hundreds of miles of uncharted waters from the African continent, crossing the Atlantic Ocean to the Pacific Ocean with nothing but guided by ocean currents, wind directions, sun and moon movements, cloud formations and star locations to act as their global positioning system. The handmade, mighty dug-out outrigger canoe called 'Kaunitoni' was their only means of transport boarding a family of people who were closely related and led by their leader and captain named 'Lutunasobasoba'. History tells us that the main reason for leaving Africa was to search for new land and for a new life due to the global missile virus that was spreading quickly and killing people across the African continent (Fiji Times, 26 August 2017). The lyric of this Fijian song below describes the story behind the extensive canoe sailing journey by our forefathers from East Africa through the Pacific to Fiji (Baleinamau, 1976):

"O ira na vuda meu tukuni ira (The story of my ancestors)

Ena nodra lako mai Sauca Aferica (Believed to have come from South Africa)

Isa ko Verata na nodra koro dina (Verata is the name of their village in Africa)

Na batinidrano levu mai Taqaniika (Verata is situated at the banks of lake Tanqanica)

Lutunasobasoba e liutaki ira (Their leaders name is Lutunasobasoba)
Ena nodra lako mai Souca Aferika (their journey from South Africa)

Vata kei Nai oqori na watina (with his wife named Nhai)

Marama ni ceva dina mai Ijipita (She hails from Egypt)

Vuni nodra lako mai Taqaniika (the reason why they left Tanganica)

Ena mate lila levu e tauvi ira (because of the pandemic meseales that was sweeping the African continent)

Ra soko sivita na wasa Atalanitika (they sailed past the Atlantic Ocean)

Ra qara vanua ena was Pasifika (looking for new lands in the Pacific Oceans)

Sa labati ira e dua na cagilaba (a hurricane struck them along the way)

Era tiko leqaleqa e loma ni wasa (they were terrified by the strong winds and storm)
Na Kainitoni vata kei na Duibana (on their outrigger canoes names Kaumitoni and Duibana)

Na Kaunitera na yaca ni nodra waqa" (Another canoe named Kaunitera)

They battled ferocious seas and stormy weather to find land among the three hundred scattered islands that would later become their island home of Fiji. This was an extraordinary ocean expedition using natural sailing talents and skills which took place at least 2000 years before the Vikings and the early European settlers and traders navigated their longboats to the Pacific (Gillett, 2017).

The creativity of the traditional Fijian boat constructions which began with Lutunasobasoba is a testimony of the skills passed on to my people for many generations. Smaller outrigger canoes that thrived until a few decades ago were commonly used as the 'pickup trucks' to ferry locals to fishing grounds and

transporting trading goods such as coconuts, dried sea cucumbers, sandalwood, and hardwood from island to island. A much fewer number of these boats are still seen around today but with contemporary rebuild using modern technology like outboard motor on a fiberglass hull. A good example is the Fijian designed drua called 'Utoniyalo', that has recently been sailing around the Pacific to retract and capture traditional and early migration routes across the Pacific.

The indigenous name "Viti," translated to Fiji, was a borrowed Australasian word meaning "east" or "sunrise," the very reason indigenous Fijians call themselves "Kai Viti", meaning the people of Fiji and owners of the land. The population of Viti Levu, the main island of the Fiji group, was divided into hierarchically organized coastal communities while the few highlanders remained in the interior until the arrival of colonial rule in 1873. Tribalism and tribal warfare by then were still common amongst the itaukei while cannibalism was quickly disappearing. The arrival of missionaries amidst the dark ages of warfare and cannibalism was a welcome gesture which changed the lives of itaukei, especially our Chiefs. Christianity marked the dawn of the new era of civilisation where idol worship and spirit god worship started to cease and were overtaken by Christianity due to the hard work of the early missionaries. The early missionaries not only brought to halt tribal warfare and cannibalism but also witnessed the early Fijian civilisation pathway where early Christian churches helped build roads and established mission schools and hospitals around the country (Derrick, 1951). The early missionaries brought with them important changes and developments in terms of formal education, health facilities, roads and house constructions and proper hygiene to name a few.

The researcher lamented the way itaukei were ill-treated and segregated by the colonizers for not being given the priority to work in the sugar industry resulting in the importation of the indentured Indian laborers. Colonial Fiji, under British rule, saw itaukei Fijians largely contained under an inflexible system of administration and laws which blocked them from being full and active participants in the mainstream of the country's economic life (Graham, 2020). The Indians were brought into Fiji by the British government under the indentured labour system to work the sugarcane farms as laborers. Most of these Indians, once called Indo Fijians and now called Fijians under the 2013 Constitution, chose to remain, and stayed on in Fiji after the expiry of

their terms of contract. Some remained on the land and continued to farm their lands commercially while others became merchants and successful businesspeople. The early Asian immigrants were later joined by freely migrating Indians mostly from the Gujaratis merchant castes of the state of Gujarat. Early European immigrants came primarily from Australia, New Zealand, and Great Britain. An epidemic that broke out in the early nineteenth century destroyed the indigenous itaukei' s population and witnessed the arrival of South Asian workers beginning in 1879 which caused Fijians to temporarily become a minority in the islands from the late 1930s to the late 1980s (Derrick, 1951). The itaukei number picked up again from the late 80s and 90s after the mass overseas migration of non-Itaukei Fijians due to political upheaval, insecurity and instability caused by the two coup d'états of 1987 and 2000. There were a small population of Europeans, Pacific Islanders, Rotuman, Chinese, and persons of mixed European-Fijian ancestry (Lal, 1992).

After the 1970 independence and election, the first Fijian government was established under the leadership of Fiji's first Prime Minister, Ratu Sir Kamisese Mara. A new Head of State and Governor-General who became the Queen's Representative in Fiji was elected by the Great Council of Chief or Bose Levu Vakaturaga. However, at the turn of events of 14th of May 1987 military coup-d'état, a new government was formed under a new Constitution that inclined much on the protections of indigenous ownership rights and care for other races living in Fiji. This political shift also changed the new look legislated government structure where the President became the Head of State, replacing the title and status of the Governor General in Fiji. Racial imbalance continued to grow after independence in 1970. The 2013 Constitution tried to address the racial imbalance and ethnicity impasse by having all races in Fiji who are Fiji citizens called under a common name 'Fijians'.

The 2017 census saw Fiji's total population standing at 884,887 compared to 837,271 in the 2007 census. This was an increase of 47,616 or 5.7 per cent. The average annual population growth was 0.6 percent due to low birth rates and out-migration. The median age of the population was 27.5 years. This meant that half of our population fell below the age of 27.5 years. 69 percent of Fiji's population dropped below the age of 40. Men made up 50.7 per cent of the population while women 49.3 per cent. While the proportion of males was higher below the age of 59 years, the female population

was higher in the age groups above 60, indicating greater female longevity. Fifty-one per cent of the population was indigenous itaukei and 44 per cent were Fijians of Indian descent (Fiji Bureau of Statistics,2018).

With mixed feelings, the researcher reflects on the history of the political landscape of the island nation after independence. It was made to believe that the minority races, Indians and Chinese, who have become owners of most businesses were quickly gaining power both in the economic and political realm and have become a dangerous element to indigenous identity and ownership. The dissatisfaction amongst most indigenous Fijians in seeing the post-independence surge in development and wealth of the migrant's minority as a threat to their land and qoliqoli ownership saw the first military *coup d'état* staged by the former military Commander of the Fiji Military forces, Lieutenant Colonel Sitiveni Rabuka on 14th of May 1987. The political crisis was not only between the Indian migrants and the itaukei but there were conflicting issues within the itaukei communities and provinces. There was the subtle relationship between the East, North and West confederacies or 'Matanitu Vanua' referred to as Kubuna, Burebasaga and Tovata. There were disagreements and clashes by the chiefs and their people regarding itaukei leadership (Indigenous World, 2002).

The Fiji Islands is a multicultural South Pacific nation rich in a mixed cultural tradition of Oceanic, European, South Asian, and East Asian origins. Over the years, immigrants continued to arrive and have kept their cultures, belief systems and some have integrated aspects of the indigenous culture and languages into their own, but a national culture has not evolved much. Early settlers, missionaries and British colonial interests imposed western ideologies and infrastructural improvement on the native people and Asian immigrants that facilitated the operation and rule of a British colony which eventually ended after Fiji gained its political independence on 10th October 1970 (Lal, 1990). The researcher feels that the notion of identity and the fight to retain and reclaim what is truly itaukei values and ownership were slowly sliding away and away. Through government initiatives, itaukei institutions, nationalist itaukei groups and individuals who have Fiji and Itaukei traditional culture at heart were regrouping to address some of the lost skills and knowledge like traditional itaukei dances or meke, the teaching of culture and heritage, strengthening itaukei institutions, to name a few. For this study, the researcher is proposing the use of Fijian canoes as the focus

research area, now a dying art and skill that needs reviving as it is a mitigation factor against climate change. The traditional skill of sailing canoes was common to most coastal villages and islands in Fiji as it was the main means of transportation from one island to another and for fishing.

According to Teaiwa (2003), the canoe sailing simile emphasizes the idea of "a journey" or a process of learning over "the destination." The canoe sailing is a symbol of traditional ideology thus allows for this research to discuss the following:

a) a cooperative or teamwork approach to learning referred to as "solesolevaki"
b) fosters shared responsibility between the captain and the passengers allowing for respect of leadership or "rokovi na veiliutaki"
c) ensures younger generation's safety and future ambitions are secured - "veivakadeitaki" d) ensuring that the canoe and the younger generation are well-taken care of and will safely reach their destination together, holding on to their rich traditional culture- "toso ki liu ena vuli, veivakatorocaketaki, ia me maroroi ka vakamareqeti na yavu, tovo, ivalavalava vakaitaukei"

e) Climate effects in terms of traditional and cultural losses, social, political, and environmental deterioration were evident as itaukei continued to struggle to grasp the type and scale of changes and challenges enveloping their land and its people. At a juncture of realization, to reflect on the history, values, culture, and the arrival of immigrants with their push to be part of and have a share of the piece of land called Fiji, it's a dilemma to realize and accept the changes in the existing environment at the same time preserve and uphold what is rightfully of traditional and cultural importance. Apparently along the way and after fifty years of independence, the indigenous Fijians have lost a significant aspect of their cultural values and traditional skills despite the attempts by the Ministry of Itaukei Affairs and other itaukei champions to revive and retain some of these lost traditional skills, values, and culture. The researcher proposes that this study will supplement existing traditional research findings and hopes to explore more on identifying traditional indigenous mitigation approaches to combat the environmental climate change effects on my home island and to the whole of Fiji.

1.5 Fiji's Economic Status in Brief versus the Indigenous System

The scope of this research is inclusive of studying Fiji's coastal villagers on the islands of Vitilevu, Vanualevu and Kadavu who use boat sailing as their means of ocean travelling. The study informants are mainly village elders or "qase ni vanua", village craftsmen or "mataisau" and traditional fisherman or "gonedau". Individuals from several localities, villages and tribes who used to sail traditional canoes in the past were identified around Viti Levu and Vanua Levu and have been sources of information that helped establish the groundworks of the research study. The findings of the research undertaken have been collated, sorted, and analysed to establish a baseline of the status of boat sailing as a key mitigation strategy in Qoma and in Fiji as a whole.

The researcher noted that a critical component of this study was to reflect briefly on the blended relationship between the preserved itaukei traditional culture and the natural landscape with the climate, ocean, reefs, forests, vegetation, and soil of Fiji that influence the economic development of itaukei and the economy of the nation. Fiji has a land area of 18,376 square kilometres with Viti Levu and Vanua Levu accounting for 87 per cent of the landmass. Of the 332 islands that make up the Fiji Island, only about 106 islands are inhabited. The two cities of Suva and Lautoka on Viti Levu contain the major seaports, airports, roads, schools, tourist facilities, and the main administrative centres while Savusavu town on the island of Vanualevu is a developing port of entry for tourists (Derrick, 1951). With a tropical maritime climate, Fiji experiences high humidity and heavier rainfall along the south easterly windward coasts and a drier climate in the interiors and along the leeward coasts where savanna grassland is the natural vegetation with thick native forests covering the interior parts of the islands. Much of the original grassland was turned into sugarcane plantations during the colonial period where sugarcane farming became the driving force for our national economy. Over the decades, sugar cane remained the major priority and an economic driver for the nation but slowly declining towards the post-colonial era due to two key reasons; the unsanctioned fluctuating global prices in sugar and the expiry and non-renewal of land leases used for sugar cane farming. Decline in sugar and garments exports worsened the imbalance in merchandise trade. Tourism slowly took over the national economy and with the increasing construction of hotels around Viti Levu and Vanualevu tourism boomed over the decades accompanied by a massive

surge of employment opportunities for Fijians along the Coral Coast area and Western Viti Levu where hotels are concentrated (Culture of Fiji Selection, 2015). Fiji's economy has been growing at around 1.5% to 2.5% a year. Earnings from the growing tourism sector and remittances from the increasing number of Fijians working overseas have become the two most important foreign exchange earners. The need for more hotels to cater for tourism fuelled a significant rise in construction activity in the past few years (Richard, Paul, et al, 2007). Additionally, Fiji's economy has recorded six years of growth from 2011-2016. The economy expanded by an estimated 2.0 per cent in 2016, a provisional 3.6 % in 2015, and a revised 2.4 per cent in 2014, and confirmed growths of 4.7%, 1.8%, and 2.7% in 2013, 2012, and 2011 respectively. This economic growth is seen as the best continued growth of the national economy since gaining independence in 1970. It is estimated that the economy will continue to grow by an estimated 3.8% in 2017 (National Development Annual Plan, 2014). The employment survey released by the Fiji Bureau of Statistics showed that overall, unemployment had dropped from 7.1 per cent from 2010-2011 to 5.5 per cent in 2015 and 2016 while the number of employers increased by 37 per cent for the similar period (Fiji Bureau of Statistics Journal, 2017).

Fiji's economy was slowly and steadily growing until the end of 2019, when the sudden economic fall due to the impacts of COVID 19 pandemic predicted for an unforeseen bleak future. The beginning of the year 2020 marked the raging COVID 19 world-wide pandemic that called for a national and international border closure and lockdowns for all countries in the world. Travel restrictions were implemented as the pandemic swiped through the countries claiming thousands of human lives.

According to the World's Economic Forum's Global Risk Report 2021, youths of today bear the scars of a debatable long financial crisis, an outdated education system, and entrenched climate crisis as well as increasing violence. With the calamity of the global pandemic, lockdowns in most countries and increased unemployment, ILO says that the effects -induced economic harm was widespread with output emerging for developing economies estimated to have declined by 2.2% in 2020 compared to 4.7% decline in advanced economies.

Fiji was not spared as private sector businesses and government machinery were buckled and halted. Tourism was directly affected as no visitors entered the Fiji shores due to the travel ban leaving thousands without employment. The tourism sector and related businesses suffered the most as workers lost their jobs and were forced to return to their villages. The worlds' economy had gone on a sudden decline. As a survival technique, people were forced to think and do things outside the box. Little priority for the revival of the traditional skills and culture of the itaukei was mentioned despite the growing economy prior to 2020. However, the downturn of events after 2020 brought the urge for survival of the fittest, mental realization with creative capability on indigenousness to itaukei through traditional skills and knowledge awakening.

The pandemic caused various stress and adversity to the people which had an undeniable impact on public health and economies. The global shutdown of the tourism industry affected the livelihood of thousands of Fijians with key economic challenges as in unemployment. In Fiji, thousands of people lost their jobs and thousands more worked on reduced hours because of the pandemic (Singh, 2020). More specifically, most job losses were from the tourism industry. The tourism industry as been widely known, is one of the sectors most affected by the Covid-19 pandemic, impacting economies, livelihoods, public services, and opportunities on all continents (UN World Tourism Organization, 2020). For Fiji, the tourism industry is the country's primary industry, contributing around 38 per cent to GDP (UNDP, 2020). Many engaged themselves in traditional itaukei lifestyle in communities or 'solesolevaki', farming the land, fishing, and selling handicrafts and food. A 'new normal' was born with people adapting to the new era with entrepreneurial skills in using the wireless technology, iPhone, and networking access to buy and sell goods, products, and services. According to Raisele (2021), one of the ways to cope with the economic challenges during this unprecedented time is through 'solesolevaki', the traditional system of working together to achieve a common goal for the benefit of the community. It is an itaukei social practice that was a driving force of development for itaukei communities in the past, even before indigenous people encountered the early traders of the West. It was the practice that held each community together and strengthens their social relationships with other groups and communities. Through solesolevaki, itaukei were able to accumulate wealth and overcome poverty. It is in

this approach that solesolevaki has helped build resilience in Fiji by overcoming the issues of unemployment and poverty brought about by the Covid 19 pandemic.

It was heartening to see the move where itaukei becoming engaged easily in a created social media website to buy and sell goods and services online. This website, known as "Veivoli vakawa i Taukei", is a platform that allows indigenous Fijians to access online buying and selling of goods and services like traditional handicrafts, drinks, and foods. Furthermore, the Ministry of Itaukei Affairs and its officials have been visiting villages and capturing indigenous Itaukei skills and knowledge from the people through recorded video shooting, storytelling, and practices of dying but significant traditional Itaukei skills.

This study is significant for several reasons. First, it will extend the current research findings on traditional and indigenous skills set in mitigating climate change for the case study used in sailing a wooden boat by early researchers in Fiji, regionally and across indigenous societies in the world and more importantly understanding the challenges faced then with recommendations to the strategic approach for the skill revival. Additionally, it will explore ways to improve a formal delivery within its teaching and research in the village set up, school or higher education institutions by having unit standards that will eventually give an award to a certificate qualification in sailing. "Maybe the huge drawback of indigenous knowledge is rooted in oral traditions and is not systematically documented in written form; the real challenge to this ideology is that indigenous knowledge is largely held in the custody of the village elders in a community and usually not shared across communities", according to Dr. Sibisi, President and CEO of the Council for Scientific and Industrial Research (CSIR), South Africa. To cope with the challenges posed by harsh environments over the centuries, local communities have relied on their indigenous knowledge and expertise. There is no question that colonization has had a devastating impact on the indigenous people around the world. Generally, colonizers invaded countries in their quest for resources and land with little regard for indigenous people. However, to understand how the colonizers were able to ignore the concerns of indigenous people, they had to reduce the status of indigenous people to a subordinate, servanthood, and inferior being. This process involved the racialization of indigenous peoples to a place where they were viewed as less than human by the colonizers (Cote-Meek, 2010).

Colonization is conceptualized as having three dimensions in the Fijian context; first, it will extend to research on the precolonial era, then the colonial and postcolonial era. On specific ideology, the first tier of the pre-colonial era depicts a primitive Itaukei society, full of traditional natural life with high respect for the white colonizers. The second tier of colonial era marks a huge shift from the traditional ways to modern and faster ways of doing things and delivery of services with foreign rule. The third postcolonial era shows a continued shift away from the traditional ways to a modern and contemporary Itaukei approach with the sudden boom in technology invention from the 1980s onwards. The momentum was uncontrollable. During the post-colonial era, several meetings took place between indigenous leaders and government to identify possible strategies to address these issues.

Now 50 years after Fiji gained independence from Great Britain, the deteriorating state of Itaukei tradition and culture remains unresolved and a huge concern amongst the Itaukei people. There are still positive vibes to challenge the promising future of Itaukei traditional value systems against the unpredictable political will, implications of a series of the coup culture, impetuous government directives and priorities, sanctioned global participation, fluctuating economy and business entrepreneurship, land tenure system and natural resources ownership, Fijian identity, the silent voice of the church, living in harmony with racial imbalance, COVID 19 pandemic- 'the new normal' and travel restrictions, climate change adopting traditional mitigation techniques, to name a few.

The effects of globalization, climate change and multiple military coups over the past thirty years, have reformed the Fijian landscape. The *'lines in the sand'* around issues of land ownership, rising tides and Fijian identity have complicated the relationship between the Fijians and the land which grounds its culture. The historical fissures between the majority indigenous church and Fiji's large Indian population continue to place the rights of indigenous people in tension with rights of ethnic and religious minorities, even as the country's secular government stresses the possibility of harmony. In recent years, the people's primary responses to these demographic, political and environmental changes have been homiletic and hermeneutic (Neal, 2016). In view of the above, the urge to capitalize on the strength of traditional knowledge and cultural values is critical to mitigate the challenges for Itaukei on their

land. This must be the priority focus for Itaukei not only towards political, social, and economic challenges but to incline towards the environmental climate change and its effects. This research hopes to enforce the revival of the traditional skills to help sustain its values as a strategy towards mitigation. Therefore, traditional practices such as traditional canoe sailing, mat weaving and making fire must not be seen as primitive, native, old, and obsolete practises but a way forward in mitigating climate change impacts.

The revival tasks begin with revisiting traditional Itaukei skills and knowledge before identifying the sources to help rekindle skills to mitigate the effects of climate change. For example, the revival of sea transportation using the canoe with a sail would mean abstaining from the use of fossil fuels in outboard motor diesel engines which pollutes the environment and threatens the world we live in. In addition, the use of sail to move the boat also has mitigation implications to climate change effects.

Chapter Summary

The researcher displays his rich traditional upbringing from a humble beginning on his home island of Qoma, that had a typical traditional set up with so much affection for his land, the sea, his family, his culture, value and belief system and traditions. The love of the land and sea that we believed in were gifts from God to our forefathers. Qoma island natives are traditionally skilled fishermen acquired from our forefathers with a high level of navigational skills and sailing. They knew the behaviour of the ocean, sea, reef's location, next wind direction by studying the sky, the clouds, the winds, the bird's movement, the ocean currents, the sun and moon movements and stars which determined their daily activities. The effects of climate change on the three islands have impacted the ecosystem and have washed away the land into the open sea. The urgent need to find a solution is critical but the solution remains within the people of Qoma, on how best they can revive their cultural heritage, value system, traditional skills, and technical know-how. These are the grounding principles of life which is '*look after nature and nature will take care of you' (*Naisele 2019). The level of abuse at all aspects of traditional village life and modern Qoma and Fiji is alarming. Fiji's history is rich in tribal warfare and cannibalism, Christianity, indentured labour system, tribal inclined population, economy, and cultural systems that colluded to

have impacted the physical territory, environmental topography, political landscape and social terrain of the country, Fiji. Additionally, it has reshaped our society with a 'neo-colonialism attitude' where people are still brainwashed with belief in white supremacy control by the colonizers, over the less-developed countries like Fiji through indirect means. This has strangled the decolonising process over the past 50 years after Fiji's independence, leaving the three tiers of 'colonial handover' scenarios:

- The Pre-Colonial Era - a primitive Itaukei society, full of traditional natural life with high respect for the white colonizers.
- The Colonial Era - a huge shift from the traditional ways to modern and faster ways of doing things and delivery of services with foreign rule. This has baffled the undecided subconscious mind of Itaukei, whether the past is right so it, and who cares, or the past is right and wrong but gone and gone forever.
- The Post-Colonial Era - a continued shift away from the traditional ways to a modern and contemporary Itaukei approach and with the sudden boom in modern technology invention between the 80s, 90s, 2000s the momentum is uncontrollable. However, the traditional protocol and system is almost forgotten.

Then came the early 2020 global challenge of COVID 19 forcing a 'new normal', travel restrictions, revised health care system, home isolation, unemployment, vaccination, economic shut down, social harassment, power hungry of a few, political will, World Health Organisation (WHO), increased e-communication and forced online learning. These also impacted on population status, political landscape, and the socio-economic development of the island nation.

The urgency to wake up to this 'necessary evil' is now before it is too late. The blitzing effect of coastlines washing into the sea, land sliding into the rivers, regular extreme high tides breaking the seawalls, off-seasonal tropical cyclones ravaging the islands, the prize of paying the cost is unexpectedly life threatening. The fight to champion traditional skills and knowledge as a mitigation strategy is not only critical but for the revival of traditional and cultural Itaukei practices.

Having all these in mind, the research hopes to fulfil the following purpose as a gateway into mitigating climate effects in Qoma and possibly increase the awareness in Fiji.

1. Investigate the effects of climate changes in selected villages around Fiji-Vitilevu and Vanualevu
2. Identify what past traditional practices the elders used to apply as mitigation to the environmental changes in climate
3. Qoma Island, as a case study, focuses on climate effects with one traditional mitigation approach – preferably sailing.

3.1 develop the competency required and packed these into unit standards which will eventually formulate into a national certificate qualification at level 1.

3.2 to evaluate the effectiveness of the national qualifications and the teaching of the standards by conducting a competency-based assessment to the learners.

Chapter 2 outlines the literature review with primary publications and unpublished oral & written literature which will support the research questions with a summary on key publications in order of importance. The chapter has the ten top level publications that give evidence-based sources for my thesis with brief summaries targeting the value of each publication in terms of evidence-based sources.

This integrates into three level publications to support cultural perspective and traditional practices in mitigating climate change effects on the islands of Qoma.

Figure 4: Map of Qoma, 1986, as viewed from the Northwest. *Source: Naisele, 2012.*

CHAPTER TWO

LITERATURE REVIEW

This chapter outline has four sub-titles under the following subheadings: 2.1, 2.2, 2.3 and 2.4.

Chapter Introduction

2.1 Key literature topics

2.2 The International literature

2.3 Regional Literature

2.4 Local Literature (Fiji)

Chapter Summary

Chapter Introduction

The previous chapter introduced the thesis and explained the writer's intimate feeling and experience of changes that took place over the fifty years on his home island and the effect of the climate change on the three islands, which has also impacted on the depletion of traditional mitigation skills and technical knowhow well known for the islanders.

Chapter two reviews the literature of indigenous people's resilience and how they relate well to their local environment with its species. This results in their conscious habitat in relation to the surrounding environment and how best to protect them. As a source of sustenance and well-being, indigenous people depend on local biological diversity, ecosystem services and cultural landscapes. Their simple lifestyle with "low carbon" traditional living has little to contribute to climate change. However, they are the most vulnerable and unfavourably affected by it. Inseparably linked with their lands, the indigenous peoples are mostly located at the social-ecological margins of human habitation such as, tropical forests, high-altitude zones, coastal frontage, small islands, desert margins and the circumpolar Arctic. At these margins, the consequences of climate change include

effects on agriculture, pastoralism, fishing, hunting, and gathering and other subsistence activities, including access to water, is evident.

The chapter further looks at different scenarios with focuses in Fiji, selected Pacific Island states and other countries around the world on the issues on indigenous identity versus contemporary with climate change effect and how indigenous people adapt to protect the environment using indigenous approach.

2.1 Key Literature Topics

Resilience, according to the Oxford dictionary, is the ability to bounce back to normalcy after something difficult or bad has happened or the ability of a situation to return to its normal status after being exposed to a tough encounter or the quality of being able to quickly return to a previous good condition after problems.

Psychologists define resilience as the process of adapting well in the face of adversity, trauma, tragedy, threats, or significant sources of stress such as family and relationship problems, serious health problems, or workplace and financial stressors. Resilience in summary is the ability to bounce back or return to normal functioning after adversity. Many humanitarians adapt to challenges in the short term by drawing on natural strengths.
Other authors say that Resilience is the ability to rebound from challenges in everyday life and to recover from and survive adversarial conditions (Esquimaux, 2009). Fleming & Ledogar (2008) call it a positive adaptation to life despite harsh conditions and describe resilience as a positive lens through which to view Aboriginal communities while exploring resilience based on community strengths but caution that resilience can also be based on ideas about survival of the fittest.

Indigenous communities around the world have been adapting and adopting traditional knowledge and skills techniques with inbuilt accommodative traditional value systems to bounce back to normalcy after disasters with many faces. This is resilience at the highest level.

Indigenous communities around the world have close spiritual relations and networks with nature including forest, land, birds, animals, rivers, ocean, fish and other sea creatures, sky, stars, moon, and sun. Through them, they can forecast and foretell what's coming in terms

of weather change and patterns. Indigenous communities have traditional calendars that are aligned to the activities. Indigenous communities are also spiritually connected to mother earth and the spiritual beings in the spiritual realm. As such, they firmly believe in spiritual intervention of their own people that have passed and are believed to be spiritually alive in the spirit world. Through dreams, traditional rituals and vision, indigenous communities can still communicate to the spiritual world.

Indigenous spirituality is a more complex phenomenon than the term spirituality alone, as the term implies. Spirituality requires a more holistic or comprehensive research approach and is closely bound up with culture and ways of living in Indigenous communities. There are two conceptual frameworks that could help to position Indigenous resilience research within the spiritual preferences. The first one is called the enculturation framework. This refers to the degree of integration within a culture, which can be protective in social behaviour, academic achievement, alcohol abuse and termination, substance abuse, externalizing behaviours, and depressive symptoms. Instruments for measuring enculturation generally have three components: traditional activities, cultural identification, and traditional spirituality.

A second conceptual framework is cultural spiritual orientation which distinguishes between cultural spiritual orientations and tribal spiritual beliefs. Enculturation and cultural orientations are protective against alcohol abuse, suicide ideation, and suicide attempts. New tools are emerging for measuring the multidimensional nature of culturally rooted spirituality in Indigenous communities, tools that are context-specific and often the product of collaborative design processes. As the ability of researchers to measure these complex processes advances and Indigenous communities take increasing charge of their own research, it should become easier to design interventions that take advantage of the cultural/spiritual dimension of Indigenous traditions to promote individual, family, and community resilience (Fleming & Ledogar, 2008).

The readings on resilience for this chapter cover a wide range of literature with focus on indigenous knowledge, skills and sustainability that have over the years supported the livelihood of indigenous people to mitigate and protect their local environment and have helped sustain them for decades and centuries. This literature review is reflected into two main categories:

- indigenous knowledges and skills

- sustainability

This literature review reflects how indigenous people relate to their local environment and its natural ecosystem, being greatly conscious of their importance and how best to protect them. As a source of sustenance and well-being, indigenous people depended entirely on local biological diversity, ecosystem services and cultural landscapes. Their simple lifestyle with low-carbon traditional living had little contribution to environmental effects. However, they were and are still the most unfavourably affected by it. Inseparably linked to their lands, indigenous people mostly resided at the social-ecological margins of human habitation such as the tropical forests, river valleys and plains, high-altitude zones, coastal frontage, small islands, desert margins and the circumpolar Arctic. At these margins, the consequences of environmental impacts including effects on agriculture, pastoralism, fishing, hunting, and gathering and other subsistence activities including access to water, were evident.

The scenarios for Fiji and Pacific Islands nations on the issues of indigenous identity, sustenance of indigenous knowledge and skills adaptation to help protect their environment using indigenous knowledge with skills and practices are always paramount.

The review is categorized into subsections to help demarcate and understand better the notions of indigenous knowledge and skills and how these are sustained over the years, The sub sections include international, regional, and local literature.

2.2 The International Literature

The literature reviews below give a brief overview of how indigenous communities live their lives using their indigenous skills and knowledge for the three sub sections: international, regional, and local.

The first category is a range of selected international literature on indigenous communities with their indigenous knowledge and skills that have lived in harmony with the environment and have utilized and sustained resources without impairing nature's capacity to regenerate them. Their ways of living were sustainable over the years and the survival skills they learnt from their forefathers helped them overcome the challenges encountered.

The section further explains how significant this has sustained the lives of indigenous people, for being resilient and how it could be incorporated into formal education curriculum and health programmes which will help recognise and sustain the use of indigenous knowledge in our modern societies as evident in nations as highlighted with their detail stories from pages 56-65 below.

Pacific Literature

This category focuses on the Pacific regional research that support and explain how native islanders have been resilient over the years adopting traditional knowledge and skill supporting their environments grounded on years of living close to. This is achieved while interacting with their natural surroundings and their wildlife, with an understanding of how they behave in response to the ecosystems and using the right traditional skills to manage them. Examples have been drawn from the island nations of Vanuatu, Tonga, Kiribati, Samoa, Tonga, and Nauru. Selected case studies are presented to supplement each country's position on the importance of traditional knowledge and skills in protecting and sustaining mother earth.

Local Literature (Fiji)

The local literature looks at Fiji as a nation with selected itaukei villages highlighting how itaukei Fijians have been resilient over the years and lived through the detrimental effects of natural disasters using Indigenous knowledge and skill for sustenance.

2.2 International literature

The indigenous people of the world do possess an enormous knowledge of their surroundings based on many years of living close to and interacting with nature. Living in and gaining from the richness and variety of complex bionetworks, they understand how plants and animals behave, in tune of and in response to the ecosystems and the techniques for using and managing them are often detailed. Many people in the rural communities in developing countries rely on locally occurring species for foods, medicines, fuel, building materials and other products. More importantly, people's perceptions and knowledge of the environment's eco-system, their relationships with and how they behave are often critical and tied to cultural identity. This establishes ownership and creates a relationship

with care that ensures lifespan, sustainability and suitability of the surrounding environment are protected (Mayor, UNESCO). Indigenous communities today are prey to stereotyping by the outside world. Some communities idealized this as the embodiment of spiritual values while others view it as a degraded obstacle to economic progress (William, 1996).

There are those who cherish their own distinct traditional and cultural values who are the victims of past and present-day colonialism and colonial hangover and are determined to push the boundaries for survival and sustenance for their future generations. Some live according to their traditional orientations while some receive welfare; others work in factories, offices, or the professions. Additionally, there are some shared values and experiences among indigenous people where they cherish their cultures and have maintained a close living relationship with the land and there exists a co-operative attitude of give and take, a respect for mother earth and the life it supports, sustenance and a perception that humanity is but one of many species (Burger,1990).

Accordingly, nations of indigenous communities are those who are having a historical continuity with pre-invasion and pre-colonial societies that developed on their terrains. They consider themselves isolated from other human sectors of societies now prevailing in those territories or parts of them. Because they are determined to preserve, develop, and transmit to future generations their ancestral territories and their ethnic identity as the basis of their continued existence as peoples in accordance with their own cultural patterns, social institutions, and legal systems, they form a non-dominant sector of society (Global Issues for the 90s, 1993).

Indigenous knowledge and skills are passed from generation to generation, usually by word of mouth and cultural arts and rituals through many generations and has been the basis of formation for any indigenous society in their life skills, as in agriculture, food preparation, health care, education, conservation, and the wide range of other activities that sustain societies in many parts of the indigenous world. Indigenous knowledge and skills are the local knowledge that is unique to a culture or society. Other names for it include: *'local knowledge', 'folk knowledge', 'people's knowledge', 'traditional wisdom' or 'traditional science'*.

At a much broader spatial and temporal scale, indigenous knowledge and skills offer valuable insights, complementing scientific data with chronological and landscape-specific

precision and detail that is critical for verifying climate models developed by scientists. With prior knowledge of the land, sky and sea, indigenous peoples are good observers and therefore can interpret a possible change in the environment. Furthermore, indigenous knowledge and skills provide a crucial foundation for community-based adaptation that sustains resilience of social ecological systems at the interconnected local, regional, and global scales (Pörtner, et al,2022).

The increase in global human development has disturbed the earth's dynamic systems and has resulted in unpredictable and unfamiliar weather patterns like stronger winds, intense heating from the sun, higher humidity, extreme droughts, and heavier rainfalls.

The last century has recorded an average temperature across the globe being increased by over 1.3°F with a double increase in the Arctic (Bates, Kundzewicz, et al, 2008).

Increasing global temperatures, sea level rise and precipitation patterns are changing, while storm surges, floods, droughts, and heat waves have become more frequent and severe (Raygorodetsky, 2013).

The rapid rise in the world's population and the heavy dependence on fossil fuel-based modes of production has played a considerable role in the growing concentration of greenhouse gasses in the atmosphere. Additionally, agricultural production is decreasing, freshwater is becoming more scarce, infectious diseases are on the rise, local livelihoods are being degraded and human well-being is being challenged. The ability to bounce back to normalcy is unpredictably slow or even zero. Resilience is a real challenge.

Indigenous people account for only four per cent of the world's population, making approximately 370 million people in total. This number covers around 5000 different groups of indigenous people, living in over seventy countries. As such, they utilize 22 percent of the world's land surface with 80 per cent of the planet's biodiversity in approximately 85 percent of the world's protected areas. The world's industrialised nations have sought to secure significant carbon stocks as a mitigation strategy and have gradually recognised that indigenous lands contain hundreds of tons of carbon on their lands (Raygorodetsky, 2013).

While unmitigated environmental change effects pose a growing threat to the survival of indigenous people, more often they continue to be excluded from the global processes of decision and policymaking that are defining their future.

Studies showed that indigenous communities have lived in harmony with the environment and have utilized resources without impairing nature's capacity to regenerate them. Their ways of living were sustainable over many years and indigenous knowledge with skills and attitudes of indigenous people towards the environment have guided their actions and made them sustainable. Subsequently, indigenous knowledge can help to develop sensitive and caring values and attitudes and thereby promote a vision for a sustainable future.
(Prott & Bridgewater, 2000).

At the centre of this internal cocooned relationship between spiritual belief system, perception, awareness, the natural environment, they are inseparably interconnected. It is believed that they support each other, talk to each other and relay messages with one another. The earth's plants and animals usually give warning signs that a hurricane is approaching through the birds, fruit of certain trees and appearance of certain fish in the oceans, which will eventually be relayed to the people on the land to prepare for the better or worse. This is Resilience at work, with rich undocumented traditional knowledge and skills. The spiritual worlds and material worlds are interwoven together in one complex web where all living things are infused with a sacred meaning. Apparently, the living sense of connectedness grounds indigenous people in the land but has all disappeared among city dwellers in the name of modernisation, urbanization, isolation, and despair.

According to a study conducted in Suriname and Guyana (Bynoe, 2012), many respondents concluded that weird climatic conditions has resulted in temperature increase and decrease in rainfall which had triggered low farm yields, frequent and severe flooding, long droughts, and an increased number of health problems which eventually forced people to change the way they lived. As a result, coping and sustenance mechanisms to alleviate these were adopted, like multi-cropping techniques and relocating crops that mature early. However, these coping strategies have limitations which limit the people from predicting the weather patterns, knowing that geographic location of the countries limit their alternative lifestyles.

Additionally, the Mexican indigenous group Zoque, who normally based their local perceptions of their environment on their daily agricultural and weather experiences, found that the decrease in rainfall and a temperature increase has affected their corn yield in each planting season. As a result, they have introduced new crops suitable for hotter and drier climates. The effect of weather change has forced the people to be resilient, adopting a new agricultural method to support the traditional lifestyle (Cortes & Chavero,2011).

With regards to health, traditional medicine has been widely used until today despite the lack of scientific proof of its claim that indigenous medicine is effective, and many are healed through various traditional means. Over decades, communities where indigenous knowledge of herbal medicine has worked, have resorted to indigenous medicine for medical cases of almost fatal sickness like cancer, heart diseases and HIV- AIDS. Such an example saw four thousand HIV- AIDS patients of Tanga, Tanzania who were without access to modern antiviral drugs were saved by local healers and their traditional treatment (Nakashima, Prott, et al, 2000).

With prior knowledge of the land, sky and sea, indigenous peoples are good observers and therefore can interpret a possible change in the environment. Traditional knowledge and skills provide a crucial foundation for community-based adaptation that sustains the resilience of social ecological systems at all levels of development in our communities today.

Indigenous knowledge should be integrated into our education policy which will therefore help revive and sustain indigenous knowledge and skills into societies. This will also encourage teachers and students to gain higher respect for our local culture, its ethics and wisdom and provide ways of teaching and learning locally relevant knowledge and skills for everyone. In order to sustain this, it's critical to understand the role of 'modern' education in undermining indigenous knowledge and skills ways of teaching and learning, identify opportunities for integrating relevant aspects of indigenous knowledge and approaches to teaching into the school curriculum, appreciate indigenous perspectives on ways of living together and using resources sustainably, and appreciate the role of indigenous knowledge and traditional ways of learning in maintaining the sustainability of a community.

Benjamin Mkapa, as President of the United Republic of Tanzania, remarked that formal education and it's systems were often introduced by colonial governments in the 19th century to many developing countries to produce government officers like administrators, clerks, teachers, medical workers. This education system was based on an abstract knowledge approach where scientific knowledge that evolved in the western industrialized world drives the teaching and learning model based on research. Formal education systems had little place for indigenous knowledge or indigenous methods of education but can be used in a mixed contemporary mode to complement both the formal and indigenous methods.

The formal education system has to some extent disrupted the practical everyday life aspects of indigenous knowledge and skills and ways of learning. With this new contemporary approach to education, they have replaced indigenous knowledge and ways of learning with abstract knowledge and academic ways of learning. They have no idea that the indigenous people have a much broader knowledge of how to live sustainably and maintain their daily chores. Today, there is a high risk and huge worry that much indigenous knowledge, and skills are being lost and along with it, valuable knowledge about ways of living sustainably (Nakashima, Prott, et al, 2000).

Traditional knowledge and skills are powerful resilience tools that work best with traditional natives of a country. The case of this socially marginalized woman in rural India creates interest in which she gained acceptance within her community by challenging the local context through her traditional technical creativity and her capacity to be an adviser of external knowledge in the communities. She managed to convince her communities to adopt some traditional measures for the improvement of their lifestyle. She did this by introducing improved land and dairy cattle management using traditional protocol and traditional respect; first to her own landholding family unit, then to her community, before going out through the wider region. Government officials had failed to achieve similar outcomes mainly because the community perceived the extension agents as outsiders who could not understand and appreciate the local context and conditions these people work best in. Having lived in conditions like or even worse than those of the other community members provided the woman change agent not only with the credibility to promote change and enhance sustainable capacity, but with the critical knowledge of where to start, and how to get broader acceptance of new ideas. The notion and the impact of self-paced

learning which is linked to traditional learning can be easily realized when studying adult education in rural areas. This has played a significant role for community members to become actively engaged, to organize, and to start addressing social problem based on what is readily available locally. In his address (13 September 2007), the President of the UN General Assembly describes this issue as a major step forward to recognising indigenous knowledge and skills.

Indigenous people do not consider the land as merely an economic resource. Their ancestral lands are literally the source of life, and their distinct ways of life are developed and defined in relation to the environment around them. Indigenous people are people of the land, and their values and belief systems are centred around these values. The western world view is different in that, nature must be studied, researched, dissected, and mastered and progress measured by the ability to extract secrets and wealth from the earth, in terms of raw materials, minerals and oil resources. Because indigenous people do not necessarily physically demarcate their lands, many have assumed that they have no sense of territory. However, indigenous people know the extent of their lands, and they know how the land, water, and other resources need to be shared and sustained. Indigenous people understand only too well that to harm their land meant their survival was at stake (Burge, 1990).

Interestingly indigenous people globally use more than three thousand different species of plants to control fertility alone. For instance, the Kallaywayas wandering healers of Bolivia use around six hundred medicinal herbs while traditional healers of Southeast Asia may employ as many as six thousand five hundred of plants for drugs. It is assumed that almost all trees and many plants have a place in medicinal tradition. Additionally, scientists now believe that indigenous knowledge may help them to discover important new cures for diseases such as AIDS and cancer. Many developed countries are now beginning to realize the potential and effectiveness of indigenous medicine to be used scientifically and on a commercial basis. Moreover, it is locally available, culturally acceptable, and cheaper than imported drugs and is still an important component of traditional lifestyle and survival.

A botanical survey in India revealed that tribal peoples of the north-east state use plant drugs to cure fevers, bronchitis, blood and skin diseases, eye infections, lung and spleen ulcers, diabetes, and high blood pressure. Knowledge of their use is passed on by the Indian herbal medicine doctors called the *'vaiyas'* and is widely practiced by rural Indians. About two hundred and ten types of medicinal plants have been found to have healing powers in

a single area in rural India. The Kameng and Lohit peoples in Arunachal Pradesh crush a bulk of fritillaria cirrhosis to a paste to relieve muscle pains and medical research has now confirmed the presence of a chemical like cocaine in a related fritillaria plant that brings relief to muscular pain. Similarly, growing evidence of plant-based contraception is available among many tribal and indigenous peoples. Studies show that over three thousand plants are employed and used for contraceptive purposes worldwide. The western coast of India Karjat tribe of Maharashtra is known for this native herb taken twice a year and said to be effective. The Karjat study also confirms that traditional health practices in India can provide up to half of the local primary health needs. Health-care workers are beginning to re-introduce traditional plant remedies where allopathic drugs have become common-place. If properly researched and studied traditional knowledge could revolutionize the world of medicine (Burge, 1990). Additionally, the 'slash and burn' technique in traditional agriculture is a sustainable farming technique that also supports the economic system of indigenous people with little or no harm to their environment. This farming technique is the most used among the indigenous people of Asia and lowland Latin America including the volcanic islands of the Pacific and provides them with a high degree of economic independence and cultural integrity. It is a highly successful way of using the forest, given sufficient land and low population density.

The traditional Karen people of Thailand normally practiced this shifting cultivation system. The economy of the Karen people is based exclusively on subsistence dry rice production. For this farming approach, a farming area is cleared of trees and forests, undergrowth is burned, land is further prepared and cultivated, rice planted, weeds cleared, rice growth is monitored and later harvested. Each year a new site is chosen, and the cycle takes seven years to return to the site first cleared. The system allows regeneration of the forest, vegetation, and recovery of thin tropical, topsoils. It does not expose the steep slopes to heavy rains, which would eventually wash away the soil in a fixed-field system. Money virtually is important but has no place in a Karen community. If a village has enough food, it means that it is prosperous. When villagers say that they have enough rice for the family, it means not simply that they will survive, but that they have everything they need until the next harvest. Where shifting cultivation is not able to provide for the entire needs of a village, the locals grow chilly or bamboo shoots, or they may collect and sell honey or other forest produce to sustain their food needs. Nearly all the income raised is used to buy rice, their main staple food (Burger,1990).

To kill a fertile female animal was a serious offense in the Upper Zambezi Valley of Barotseland, in central South Africa. The killing of animals was restricted to only older animals and male ones. Additionally, as a taboo during certain seasons like breeding and mating season, certain animal species could not be hunted. This is to avoid the risk of depleting the resources in the wild. This system is like the culling practice for the sustainable harvesting of wildlife, practiced in other parts of Africa. With this approach, the communities were able to ensure continued population growth of their wildlife resources, while at the same time benefiting from the protein, which was usually lacking in their surroundings, where livestock keeping was difficult because of the pest; tsetse flies.

Fishing for the tribes of Barotse and the Bemba of Luapula Province of Zambia had a tradition and ritual of avoiding the catching of very small fish. Communities observed the fishing seasons by usually going through a set of traditional ceremonies. Such a ceremony would usually open the fishing season for a given period. These practices ensure sustainable fish supply and avoid resource exploitation (Ofir, 2005).

In the context and study of social and human development domains, indigenous knowledge is also considered relevant, as of today. The contribution of indigenous knowledge is either underestimated, or not acknowledged in science and technology. Or if there are some contributions, it is often neglected and seen as irrelevant to modern scientific and medical thinking. The pastoral farmers of the Maasai tribe of Africa would immunize their sick cattle herd by using the traditional method of actively vaccinating healthy animals with the saliva foam from freshly deceased cattle.

Similar practice was done in England by the midwives when immunizing the delivery utensils and clothes using stored in bread moulds. This is a traditional English practice that may no longer be used today because it may be seen as obsolete and unsafe. Yet, Pasteur received recognition for pioneering vaccination and Fleming for the discovery of penicillin. Allowing for and supporting substantial progress of knowledge including paradigm changes, science and medicine thrives on a cycle of verification, falsification, improved models, and experimental verification in an environment of global sharing and critique. Today, technology allows innovation prosperity on the protection of property rights and legislated laws at least during the initial years of production. Unfortunately, traditional

practitioners prefer sharing their knowledge within their families, producing only incremental improvements of knowledge and practices, especially in the health sector.

Coping with the challenges over the centuries and being posed with harsh environments, local communities have relied on their indigenous knowledge and skills like extended droughts, flash floods, epidemic pests, or infertile soils. Farmers have developed their own systems of weather forecasting by observing cloud formations**,** bird behaviours and migration patterns, seasonal winds and other seasonal or a-seasonal factors, or worked out complex, sustainable land use systems (Ofir, 2005).

Native Americans were known for their traditional subterranean roundhouse, an underground house that served as a storm shelter or hideout as well as a storage cellar to keep all their food and water reserved for the year.

In Zimbabwe, termites are the major destroyers of gum and orchard trees, especially during the early stages of growth. For such situations, some farmers prefer to use local remedies to combat pests like termites and ants rather than using the commercial remedies. These are not only expensive but at most times are not readily available. The traditional farmers discovered that either ashes or a mix of a small smelly plant ground together with onions and paraffin or used oil repels termites and ants, through their informal experiments (Mlambo &Hebinck,1996).

The men fish for halibut to feed the villagers of St. Paul and St. George in the Pribilof Islands of Alaska where they would spend long hours in small boats, weathering storms and strong winds. They know the sea bottom for at least ten miles around their islands, because they know their environment and sea so well. Through close observation and experience over many years, they know where to find the rocks- the homes of the halibut using traditional bearing skills, the sandy and rocky bottoms, and the boundary zones where the fish would stop-over on a given weather. They know all these things and how to get safely home as well, even if it is night-time. As a testament to their at-sea skills, there has only been one drowning in the last hundred years (Merculief, Roderick, 1984).).

2.3 Regional Literature

The Pacific Region with its small island states, surrounded by the biggest and vast Pacific Ocean, and being the most vulnerable to rising sea level, must adapt themselves to the consequences of different climatic conditions. Their adaptive capacity is limited and is further eroded by external factors such as the internationalization of economic activity and internal population pressures. People in these small islands have historically adapted to variability in land and sea conditions. These valuable experiences are vitally important in dealing with the longer-term effects of changes in climate and sea level rise, especially since traditional mechanisms for coping with environmental hazards are being lost in many islands.

A few decades ago, the ever-increasing number and strength of forces affecting coastal ecosystems like mangroves, required coastal managers to respond and adapt to ensure the sustainability of valued ecosystem services and products. One of the major challenges in the Pacific Islands region is adjusting to the responses of coastal ecosystems to the climate change-induced rise of relative sea levels by developing and implementing appropriate, affordable, and cost-effective adaptation measures with limited resources. Pacific Islanders value mangroves as a resource for a wide range of goods and services, including their role in supporting seafood important for their diets, protecting coastlines and development from coastal hazards, supporting good water quality, and providing natural materials used in traditional practices (Gilman & Lavieren, 2006).

According to Allison (2001), mangroves support traditional activities conducted by Pacific Islanders. They are a source of clams; crabs, fish, and Tahitian chestnuts which are collected for consumption; wood used for construction, handicrafts, and fuel; ceriops tagal wood used as part of a wedding dowry in the Central Province of Papua New Guinea; materials used for fishing equipment; dye from pigments in mangrove bark used in tapa in Polynesia and dye in Rhizophoraceae mangrove bark used to treat textiles, nets, and fish traps owing to its fungicidal properties; thatch used for mats and roofs; and plants used to make traditional medicines, such as infusion of Tahitian chestnut bark to treat stomach-aches.

Pacific islanders use mangroves to protect coastlines and development from erosion and damages by tidal surges, currents, rising sea level and storm energy in the form of waves,

storm surges and strong wind. For coastlines where relative sea level is rising, protecting mangroves is one way to slow anticipated erosion. Protecting mangroves sustains natural protection and is less expensive than seawalls and similar erosion control structures, which can increase erosion in front of the structure and at adjacent properties (Gilman & Lavieren, 2006). Roots bind and stabilize the substrate and so help control erosion.

When adapting to coastal threats such as sea-level rise and associated impacts there are three typologies of adaptation measures employed. These are: to accommodate, to protect, and to retreat. It is important to make the distinction between autonomous retreat (or relocation) of communities, as opposed to planned relocation, which usually involves the coordination and management of the process by an external entity. The causes and evolution that have led to the increase in the latter form of relocation are worth exploring briefly. First, it is important to recognise that internal migration within PICs has occurred throughout history and has been a vital aspect of island communities' livelihoods, resilience, and survival with people and entire communities moving in response to changing environmental conditions, as well as in search of improved resources. The change towards a less mobile lifestyle, a consequence of colonization and globalization has resulted in communities that have become increasingly permanently attached to a place. As such, an inherent adaptation strategy of intentional impermanence common in oceanic island societies has been largely lost (Campbell & Bedford, 2014; Gharbaoui & Blocher, 2016; Janif et al, 2016). Interestingly, indigenous people are totally different from the other groups due to their diverse culture, belief system, and social and economic organization. However, Barnett & McMichael (2018) highlighted that due to mass migration for better opportunities in urban centres, several indigenous communities have very close or similar social systems with other tribal groups in other countries. However, study shows that due to mass migration for better opportunities in urban centres, several indigenous communities have very close or similar social systems with other tribal groups in other countries. For example, Indians in India and Indians in Fiji have a lot of similarity and commonalities. However, the Fiji Indians have over the past years, since their arrival into Fiji, have lost most of the native Indian language. Surprisingly, they have kept their traditional rituals in weddings, death, Hindu belief, and diets and dress codes.

Vanuatu

Two of the key areas identified that could empower the local people and spearhead by the government are food and nutrition, and water security. These components contributed towards strengthening the communities' overall human security with a target of up to 40,000 people to benefit from the project, according to the Vanuatu Plan of Action for Food and Nutrition (1999-2003). Three quarters of Vanuatu's population live in the rural communities and practice subsistence agriculture to sustain their livelihood. It is a matter of having to secure food for tomorrow and whether those agricultural practices are sustainable practices or not. The use of energy sources is insignificant in subsistence agriculture since commercial level agriculture uses minimal technology and chemicals. Nevertheless, subsistence agriculture in Vanuatu still uses the common traditional method of "slash and burn" which sees the burning of foliage as a means of clearing the land for cultivation. Energy from foliage in this case of slash and burn is being wasted, as there is no point in harnessing it, as it is not practical to do so. However, fallowing allows for the soil to regain its fertility and secondary vegetation to grow back into the land revitalizing the natural environment. Agricultural wastes from livestock manure could be encouraged for biogas production for cooking and lighting to cut down on the heavy reliance on fossil fuels.

Tonga

The overarching guidance for the Tonga Strategic Development Framework (TSDF) 2015-2025 has its motto, 'God and Tonga are my inheritance, established by Tupou I. This means that "Tonga is our inheritance and our wealth in the form of our people, our land, and our strong Christian and traditional values that underpin our culture. This inheritance must be passed on to the Tongan children at improved rating as projected in the TSDF 2015-2025, designed to achieve the national impact of a more progressive Tonga, supporting a higher quality of life for all *(*Combes, 2017).

The people of Eua in Tonga use canoes and paddles as a means of transportation instead of fuelled outboard motors. The vital resources and ecosystems of the sea and land which the islanders depend on are under increasing pressure due to extreme weather conditions (Anthony, 2020). However, the simple act of carving wood is the answer to the problem since the elders of Eua are traditional craftsmen and fishermen and have taught their youths

the skills in carving out canoes for sustainability. It also helps keep the environment healthy, provides employment to young islanders, and gives them a cost-effective way of catching fish. Fishing is a vital source of revenue on Eua, but its coral reefs have suffered widespread damage due to increasing ocean temperatures, salinity levels, and the number of fuelled fishing boats.

The canoe building programme by the Tongan Government has helped unemployed youths of Eua and has given them much needed new skills. Youth representative Okusi stated that he learnt a lot of things during the training and would like to encourage the youth to attend because this could be a way to make a living for them, not only as fishermen but also as craftsmen. The canoe carving lessons are taught by the village elders who continue to pass down traditional knowledge such as this. Fishing remains as a source of revenue for most of Tongan rural communities, but it also has its health benefits as a source of protein food (Anthony, 2020).

Kiribati

Rising sea level is a major threat to villages and settlements of Kiribati. The Kiribati Development Plan (KDP) 2012–2015 is the overarching national development plan detailing national priorities. The Kiribati Joint Implementation Plan for Climate Change (KJIP, 2014- 2023) is a key policy document. The KJIP is building on and strengthening existing implementation, financing, and monitoring functions by integrating them with climate change considerations.

The Kiribati Adaptation Program (KAP) is a project of the Office of the President, Government of Kiribati aims to reduce Kiribati's vulnerability to climate change, climate variability and sea level rise by raising awareness of climate change, assessing, and protecting available water resources and managing inundation. Two key items of development on Phase III of the KAP aim to protect against coastal erosion by investing in protection such as mangrove planting at priority sites and adoption of a national Coastal Management Policy as well as the development and implementation of locally managed Adaptation Plans.

The workshop conducted by Donner (2017) on Coral Reef Monitoring in Tarawa in November 2007 where participants concluded with a high level of coral bleaching in

Kiribati. Coral bleaching is when corals are killed due to changes in ocean temperature, light, or nutrients, resulting in corals expelling the symbiotic algae living in their tissues. The training included an introduction to coral reefs and coral reef monitoring, a discussion of traditional knowledge and skills of the Kiribati coral reefs preservation methods and an explanation of coral bleaching. There was also focus on the design of the coral reef monitoring system for Kiribati, including site selection, long-term monitoring methods, coral bleaching protocols and some benthic identification practice.

Samoa

The Samoa Climate Change Policy outlined the integration of traditional knowledge into data knowledge information facility with the expected outcome of documenting the use of traditional knowledge with scientific investigation applied on peer reviewed climate change research.

Additionally, providing guidance on how civil society in Samoa can be engaged and empowered towards building long-term resilience is their overarching goal. While there is a good understanding of vulnerability in Samoa there is a relatively poor understanding of resilience. This is evident through the current Samoan language definition of resilience which has the same meaning as adaptation. While there has not been a comprehensive assessment of vulnerability at the village and at district scale, a lot of valuable knowledge and expertise has been developed at the national level.

The Aiga ma Nuu Manuia programme, through the Ministry of Women, Community and Sustainable Development, provides an excellent example of the benefits of an on-going programmatic approach. The main gaps that need to be addressed to build resilience relate to understanding what resilience means in a Samoan context, in language and in practice. The value of working from current resilience baselines is highlighted in a case study that is consistent with the proposed ridge-to-reef, ecosystem-based approach.

On Sili village, on the island of Savaii, the villagers have been very active in using traditional methods in protecting their forest, water, and land. Such initiatives provide an opportunity for development of genuinely participatory approaches that can foster long-term ownership. Special attention is required to build capacity in the areas of contemporary methods to local communities, ensuring their active and productive participation in the

design and implementation of climate resilience initiatives. These include capacity building on climate resilience; better integration at local level; Capacity building on climate resilience needs to involve community representatives, government ministries, and the private sector. There is a lot of information going out to local communities, leading to a call for better integration and streamlining of activities (Kenny, 2012).

Nauru

Nauru has struggled with the challenges of ensuring sustainable social and economic development. A scarcity of arable land and freshwater resources, geographic isolation, dependence on imports for meeting basic food and energy needs, environmental degradation, and the emergence of chronic health problems all make achieving sustainable development a difficult task, and at the same time also create vulnerability to other stresses, such as those brought on by climate change and disasters. Against this background, climate variability and climate change have the potential to make Nauru's efforts to secure sustainable development even more challenging.

Sea level rise threatens to increase saltwater intrusion into precious groundwater reserves as well as to exacerbate coastal erosion and flooding during storm events. Changes in rainfall patterns will likely affect water scarcity, while important fish resources may be affected by changes in ocean temperature and acidification.

Nauru is among the eleven Pacific Island countries with indigenous mangroves that are parties to the United Nations Framework Convention on Climate Change (UNFCCC) and have discussed general considerations and guidelines related to coastal ecosystem vulnerability and adaptation for future sea level rise and climate change. The Republic of Nauru was one of the Pacific Island nations to revegetate the coastal strand to reduce erosion in 1999 alongside Samoa in 1999; Republic of Palau in 2002; Solomon Islands in 2004, and the Kingdom of Tonga in 2005. These Pacific countries have been adopting the mangroves planting and replanting method as a traditional method to mitigate coastal erosion and shielding off strong cyclone winds over the years.

Similarly, in 1999 **t**he Republic of Nauru, together with Samoa and Tuvalu, was one of the Pacific nations to raise public awareness of the problems and strategies to adapt to sea level rise and climate change and the value of mangroves (Gilman & Lavieren, 2006).

2.4 Local Literature (Fiji)

Fiji

It is vitally important to keep our forefather's knowledge alive and include them in our present development plans for our own well- being and for the sustainability of our natural environment.

Incorporating traditional knowledge and skills with existing knowledge is our way of saving our forefathers skills; skills in surviving through times of food shortages or widespread epidemics or bad stormy weather or in defending the village from bandits and enemies or providing underground shelters and hideouts or skills of sailors and fishermen or preserving food and water over long periods of time.

Climate change effects in Fiji have loomed at the loss of traditional climate in the form of eroding skills, loss of culture and heritage. Fiji has a rich traditional travel history which comes in many forms and is passed down from one generation to another through various mediums. In keeping the sailing tradition alive over the years, canoe sailing competitions were organized by villages, districts, NGOs, Ministry of itaukei affairs as a form of entertainment and sport. The legends and information for its significance were passed down, from generations, especially to young Fijians. On an annual basis and coinciding with the school holidays, a canoe sailing competition known as the 'Veitau Waqa' competition was held at the Suva foreshore. Surprisingly, many Fijians would take time off and in anticipation to watch this annual event. This event provided an opportunity for many to experience centuries-old craftsmanship demonstrated in the building and sailing of traditional canoes, with the purpose of helping revitalize and revive this once dwindling art and skill down through the family. The three boat sailing competition categories were firstly; bakanawa, a race for children to enjoy and learn the skill about sailing and the children were supposed to build a one-meter boat and the material for the hull was timber. The second category camakau was a double sailor canoe where two adults competed. The third category was a triple sailor with three adults on the camakau boat to compete (Narain, 2017).

The notion of canoe sailing as opposed to powered outboard engines is proposed as a way of resilience to the increasing use of diesel fuel and with its glaring high cost has

detrimental effects on the natural environment. More constructively, sailing has helped revive the itaukei traditional skills in boat sailing.

This level of high dependency on imported fossil-fuels, and related issues of price and security of supply makes the region's use of fossil-fuels critical, without much consideration of the consequences of their incineration on the environment. Paradoxically, reducing this dependency around sea-transport where all current options are fossil-fuel based, by adopting alternatives as a cost and dependency cutting measure appears likely best achieved through the adoption of low-carbon vessels and technologies like the traditional sailing canoes. Currently, global sanctioned mitigation pressures to reduce sea-transport emissions are likely to ultimately penalize Fiji and Pacific islands countries and hence the need to revive sailing (Nuttall, 2013).

Additionally, mangrove coverage in Fiji is among the highest of all Pacific Island nations. These ecosystems store disproportionate amounts of carbon, provide critically important resources for communities, and protect coastal communities against the impacts of tropical cyclones. This knowledge about the importance of mangrove forest and its conservation helped our forefathers through stormy weather conditions and as a major source of food security, hence the growth in cultivation of mangrove forests projects in most of our coastal shorelines now.

Therefore, an improved understanding of both the scale and drivers of mangrove loss in Fiji can underpin sustainable management strategies and adaptation goals towards resilience. Combined historical and contemporary datasets reveal that Fiji has lost an estimated 5447 hectares of its mangrove ecosystems or 7.7% of original extent since 1896. The historical loss of 4,313 hectare of mangroves between 1896 and 1986 was driven primarily through conversion to sugarcane plantations and in contemporary times this has been exceeded by losses resulting from tropical cyclones. This considerably changed our understanding of landcover dynamics in Fijian mangrove ecosystems and indicates opportunities for restoration and conservation (Lal, 1992). Similarly, native Fijians have in the past never really had an issue of food insecurity because they were skilled with traditional food storage and preservation methods which were significant ways of resilience. The traditional Fijian food system was a highly diversified hybrid mix of domesticated and wild plants and animals coupled with similarly diverse and sophisticated foraging and fishing strategies drawn from both Polynesian and Melanesian traditions" that

can be stored for longer duration (Thaman, 1990). In the traditional system, intercropping was often adopted, and it offered not only diversification and yield augmentation but also resilience of food supply to hazards. Traditional food preservation techniques were adopted such as drying and the pit-preservation methods. Food was hence available during and after cyclones, floods, and droughts.

Chapter Summary

The chapter further provide relevant publications that have given evidence-based sources for the thesis with the project title '*Climate Change: 'The Resilience of Fijian Traditional Practices' (Na Draki veisau: Na qaqa kei na tokoni ni tovo vakavakavanua ka tutaka na valuti ni kena ravuravu)*

It summed up the philosophy that indigenous cultures of the world have established volumes of knowledge through the centuries by directly interacting with the environment. This knowledge system could easily be translated through formal education with suitable measures taken to preserve indigenous knowledge, which in most cases remains in the memory of local elderly people.

The chapter also outlined the value of the land as the source of life, with a heart, spirit, and soul. Indigenous people treasure this as a gift from God that nourishes, supports, and teaches the people. They believe that the land with its natural habitat will return the favour if it is preserved, respected, and protected or otherwise it can retaliate for the worse. Moreover, the planet earth according to most indigenous communities is like a parent. It has always been referred to as 'mother earth', the centre of the universe, the core of the culture, the origin of identity. Mother earth connects the people to their past as the home of ancestors, with the present as provider of their material needs, and with the future as the legacy they hold in trust for their children and grandchildren. This way, indigenousness carries with it a sense of belonging, identity, and stewardship to a place.

Additionally, chapter two anchors on other specific case studies around the Pacific Island state and other indigenous practises in selected countries in the Asia Pacific region, Africa, Latin, and South America Pribilof Islands in Alaska, on indigenous knowledge and how this may be integrated into the formal education, its contribution to the medical field which therefore helps to sustain and recognize indigenous knowledge in societies.

The next chapter, chapter 3 examines the theoretical frameworks of the research. It is about the validation of itaukei knowledge, to see itaukei ways of viewing research, and looking at Fiji theoretical platforms as it undertakes & validates itaukei knowledge, wisdom, and traditional skills.

The chapter looks directly at Fiji theories from within the village structure and systems, processes, and protocols within the village, and how this is related to and interconnected to the "tikina" or a group of ten to fifteen villages clumped together, "yasana" or several eleven to fifteen districts, and "vanua" or the nation of Fiji.

Lifestyle changes are imperative if we are to save the world from climate change effect. The need to aggressively protect the land, forests, reefs, and ocean are critical and will enhance sustainability of the earth and its ecosystems. The traditional and indigenous practices supplement this and hence the need to revive and enforce traditional knowledge and practises.

It was suggested that the traditional Kiribati approach to coral reefs preservation due to excessive reef fishing and diving was to observe a red zone taboo to allow natural healing and restoration of the coral reefs with close monitoring for a duration of eighteen months.

CHAPTER THREE

FIJI THEORETICAL FRAMEWORKS IN RESEARCH

Chapter Introduction

The previous chapter reviews some literature on the use of indigenous knowledge relating to climate change adaptations and traditional mitigations used by indigenous people as well as how the people relate to their local ecosystem and how best to protect them. Their simple lifestyle contributed almost no effect to climate change, yet they are the most vulnerable. With their subsistence lifestyle, they rely heavily on their land and sea with its local biological diversity and ecosystem for their survival. Finally, it tries to look at different scenarios of indigenous identity versus contemporary changes in climate conditions and how indigenous people adapt to the changes at the same time protecting their environment using indigenous methods, focusing on Fiji, selected Pacific Island countries and few other countries with indigenous populations around the world.

This chapter outlines the different theoretical frameworks in research that support this thesis. It has five sub-titles under the following: 3.1, 3.2, 3.3, 3.4 and 3.5.

3.1 Fijis' Theoretical Frameworks in Itaukei Fijian Research

3.2 Tools and protocols used to conduct the research.

3.3 Fijian Vanua Research Framework

3.4 Research Methodology

3.5 Selected questions for the vanua participants and adherence to the itaukei protocols

Chapter Introduction

Chapter Summary

This Chapter looks directly at Fiji's Theoretical Frameworks in Itaukei Fijian Research which underpins the 'Drakiveisau Framework' that will be employed in this research. It also supports the validation of itaukei knowledge to see itaukei ways of viewing research very much looking at Fiji's theoretical platforms to undertake & validate Fiji-itaukei knowledge, wisdom, and traditional skills. It also looks at Fiji theories from within the village; the traditional social structure, traditional systems, processes, and protocols within the itaukei Fijian village.

Several theoretical approaches found to be most applicable, and which helped bring out participants' perceptions and behaviour towards climate change adaptation and traditional mitigation factors used in selected villages were adopted for the development of this thesis. These include Qualitative, Phenomenological, Interpretive, and Indigenous research approaches and they will be further explained in detail later.

The chapter also discusses the research design, the process, and the methods of data collection, as well as the selection of study participants, and the analysis of data collected.
The section further describes the tools and protocols used to conduct this research which is the process of preserving traditional itaukei protocols in applying and mitigating climate change effects and the shift to regain the lost traditional art for mitigation. This is outlined using both qualitative and documentary research data to give a more comprehensive view of colonisation effect and decolonisation principles at the expense of itaukei traditional skills and culture. Outlined with reference to attaining data is the actual mechanics of attaining the interviews that can be presented and analysed. This can determine a direct comparison of climate change effects and the itaukei traditional mitigation strategy applied in a narrative framework. Fundamental to the validity of ethnographic research is the ethical considerations, where the researcher observes, interacts with participants in their real-life environment with guided policies by the researcher in the collection and management of the data. This is also outlined with the chapter ending with a summary of the methodologies used.

Methodology Overview

A few Pacific Research Frameworks on indigenous knowledge research have been developed over the years and closely tied to this research and used by various Pacific researchers and scholars. They include the Kakala Framework by Thaman in1992, Fa'afaletui by Tamasese et.al in 1998, Tivaevae by Maua-Hodges in 2000, Vanua Framework by Nabobo-Baba in 2006, and Iluvatu by Naisilisili in 2011. The most relevant and useful framework for this thesis is the Vanua Framework which has been successfully used by researchers like Mataitoga (2009) and Vudiniabola (2011).
For this research, the 'DrakiVeisau Research Framework' (DVRF) on climate change with traditional mitigation strategy is inclined to the Vanua Research Framework developed by Nabobo Baba in 2006. This study has alignment with inclination to the Vanua Framework where systems of itaukei Fijian protocols were strictly followed and observed.

According to Nelleke (2016), 'theoretical framework' sets up key concepts, interpretations, approaches, claims, foundations, principles, in terms of which the writer design the structure, sort the information and analyse the findings of a thesis. Unless proper review of literature in relation to this framework is done, it will be hard to develop a focus in the literature search. In other words, the theoretical framework provides the researcher a guide while reading (Kumar, 1994).

3.1 Fijis' Theoretical Frameworks in Itaukei Fijian Research

The Fiji Theoretical Frameworks in itaukei Fijian research is similar in many aspects to the Kaupapa Maori research and evaluation as it is done by itaukei Fijian with itaukei and for itaukei-by-itaukei ways of doing things. Kaupapa Māori research and evaluation is done by Māori with Māori and for Māori by tikanga Māori. Researchers and service providers working with Māori need to acknowledge the Māori ways of being and perspective in their work (Walker, Eketone & Gibbs, et al, 2006).

The Kaupapa Māori Research Methodologies are therefore relevant for this research study because it is closely mirrored to itaukei Fijian research context for this research methodology as itaukei Fijians benefit in terms of climate change, decolonisation effects and traditional itaukei mitigation strategies used.

The Kaupapa Māori Framework is important because the Kaupapa Māori approaches do give another option for working with something, understanding something, and researching something (Jones, 2012). Kaupapa Māori research predates the publication of decolonising methodologies in 1998, with the first paper presented in 1996. It stresses the in-depth of the Kaupapa Māori research and further depicts a historical shift of research to where they were then and where they are now (Smith 2015) . Like other third world countries, the Kaupapa Māori Framework and the Fiji Theoretical Framework provides a baseline to the Drakiveisau Framework that supports the indigenous itaukei-Fijians who are experiencing fast transformation through a shift in urbanisation and globalisation effect. As a result, traditional indigenous knowledge and skills are being viewed by the modern itaukei generation as being obsolete and outdated compared to western world knowledge and values systems (Varani, 2017). Further, it is noted that itaukei Fijians are experiencing rapid social transformation through urbanisation and globalisation. Indigenous knowledge is being quickly eroded by its conflicts with modern western knowledge and values. To counter this, it is proposed that school curriculum with its teaching methods are designed to help accommodate both indigenous and non-indigenous concepts, where students can achieve an understanding

between modern values and expectations with the emphasis on the importance of preserving traditions and culture.

Modernisation represents the new foreign life that leads many itaukei to view their traditional itaukei ways cynically and question whether traditions are worth hanging on to. With decades of these struggles, the dilemma of losing itaukei traditions and cultural identity is evident. The more we are aided with foreign dollars to make us modern, the more we are lost in new types of psychos - social challenges that baffle everyone, young and old alike (Tarabe & Naisilisili, 2006). Both the Ministry of Education and Ministry of Itaukei Affairs have placed a lot of emphasis in the school curriculum and through close village monitoring to maintain and preserve these traditional skills and culture for the itaukei. This paper proposes an innovative itaukei pedagogical research framework based on the traditional mitigation strategy used to be adopted by our forefathers that can be revised and used for mitigating climate change effects.

It is critical to understand the itaukei theoretical frameworks in Fijian research from the governance level to the village structure, processes, and protocols within the itaukei Fijian village system. For ethical consideration, the research comes with a request letter with justification on the purpose of the research and the benefits to the people and the nation. The framework begins with the approval of the Ministry of Itaukei Affairs, then at the provincial level where the RokoTui or provincial heads and provincial administrators coordinate with the village headmen of the selected villages within the province where the research is to be conducted. For traditional itaukei protocol requirement, tradition requires the researcher to present ‘i-sevusevu’ in the form of dried kava or yaqona presented in a chant to the chief of the village or the village headman as a mark of respect when entering a village. Once approval is given by the village chief through the village spokesman and turaga ni koro, the research may then commence in the village. The research approach can either be one to one or a group of people gathering in a common place, preferably the village community hall.

3.1.1 Indigenous Research

By using the Indigenous Itaukei Research Framework, the researcher and the participants construct the process of knowledge sharing from a range of approaches like storytelling or talanoa session, songs, riddles, chants during night sailing or ‘vakalutuivoce’ and day chant or ‘vucu vanua’, and dances or ‘meke’. These are important sources of information for indigenous people (Chilisa, 2009). These approaches allow for the use of indigenous

traditional itaukei Fijian knowledge and epistemology. The participants' perceptions are central to this process and therefore suitable to use the qualitative and phenomenological approaches. Phenomenological research is a qualitative research approach that seeks to understand and describe the universal essence of a phenomenon. The approach investigates the everyday experiences of human beings while suspending the researchers' preconceived assumptions about the phenomenon.

These methods enable the researcher to gain an in-depth understanding of the participants' opinions, experiences and feelings about climate change and adaptation. The Interpretivism method is used to better understand participants' behaviour and perceptions. This method, however, allows the researcher to interpret the participants' behavioural patterns through examining data that has been collected using qualitative and phenomenological approaches. It is anticipated that the data gathered is the results of participants' perceptions which had been embedded in an indigenous knowledge system. Therefore, the 'Indigenous Itaukei Research Framework' is the foundation of this research approach with its protocols strictly observed.

Itaukei Fijians, like any other indigenous tribe in the world, have so much respect for the land or vanua, with all traditional protocols well observed. Itaukei always believe that the 'vanua' has eyes and ears and must always be respected or else the vanua or 'land' will retaliate in the form of natural disasters if protocols are broken.

The word 'vanua,' as defined by the village headman of Qoma, is inclusive of the land, animals, fishing ground, people, village and how all living things relate to each other. It also includes the behavioural patterns of living things within their natural habitat. (*Qo e wili kina na tamata, qele, manumanu, tamata kei na veiwekani ni veikabula kece; na veikabula ni ra solia mai na ivakatakilakila ni draki kei na gauna ni vuata, teitei, qoli keina gauna e cava kina na yabaki)*. He also highlighted that respect for the vanua must always be always observed and it is disrespectful and rude to disturb the vanua. Making loud unnecessary noise is not only disrespectful but discourteous. (*E tawa tiko na koro ka tabu na vakakosakosa ena loma ni koro se vanua)*. Therefore, silence, honour and respect are to be maintained for every part of the vanua. ('*e bibi na vakadirorogo, vakarokoroko kei na doka na veiyasani vanua kece'*) (Vasua, 2018: pers. comm).

This knowledge of the "vanua" is passed on through generations using itaukei language. Traditional knowledge is transferred via stories, chants, songs, meke or 'traditional dances' and by parents being role models. According to Mr. Tuirara, the spokesman from Uluilolii village in Tailevu, 'vanua' means the people and their traditional roles and how they use their titles to serve their chiefs better. (*Na Tamata, eka bibi kei na rokovi ni veiliutaki vakavanua kei na itutu ni veiqaravi)* (Tuirara, 2019: pers. comm).

Another interview that was held at Nagigi village in Vanua Levu, highlighted that "vanua" stands for traditional status, dry land, and fishing grounds (*itutu vakavanua, qele mamaca kei na iqoliqoli*) (Tukaivunoka, 2019: pers. comm). Similarly, a participant from Buca village of Cakaudrove defined "vanua" as the people who are the caretakers of the land (*tamata taukena na vanua sai koya na tamata ga e na qarava na vanua*) (Rea, 2019: pers. comm).

From the responses of the participants interviewed, "vanua" can be summarised as people who are dwelling on land with spiritual links to the ocean and sea, and who have their own traditions and customs, with traditional status and leadership, relationships, space, spirit, silence, respect, and honour that is accorded to every part of the land and every relationship among all living things.

3.1.2 Itaukei-Traditional Roles

The "vanua" or land in a village set up is divided into yavusa or tribe, mataqali or clan, i tokatoka or extended family. Every member of the vanua in the village falls into one of these family classification systems. Members of a yavusa or tribe are expected to play their traditional itaukei roles to honour and protect their vanua. The seven majors traditional itaukei titles which comes with their roles in a vanua include, the Turaga or Chief, the Sauturaga or Chief Executive, the Matanivanua or Herald, the Bete or Priest, the Bati or Warrior, the Mataisau or Craftsmen and the Gonedau or Fisher folks. Vanua elders understand that these roles are ascribed and therefore cannot be passed on to another clan or tribe unless the holder of the title is extinct or 'kawaboko'. In Fiji, all the records of the vanua title with their roles for all villages are recorded in the 'Vola ni Kawabula', the itaukei ni vanua title register. These roles are passed down from generation to generation and the younger members learn of their roles through observations and experience until it is their time to take up these roles.

The notion of the Vanua is well described by itaukei writer and author, Ravuvu (1983) stating that the Vanua has four dimensions that are interconnected: the physical, cultural, social, and

spiritual. The spiritual connects the people to the Vanua through the spiritual realm of the spiritual world. The social and cultural systems are set up as a foundation for a harmonious, prosperous, and unified society. They provide members of the Vanua, the people, and ecosystems an identity and a sense of belonging to the Vanua. The Vanua functions as a source of mana-sau or power with a strong belief system where one's ancestors and elders spirit keep an eye on what their descendants are doing, and they have preserved and maintained the sacredness of their Vanua. This is cascaded through visions, dreams or in person through elders for the purpose of protecting the Vanua where ancestors advise their descendants accordingly. When descendants disobeyed instructions, they often received signs and signals of warning that the Vanua spirits were disappointed. This is referred to as 'na kudru ni Vanua or anger of the land. Offenders are punished, usually in the form of either a sickness or an attack by wild boars or beaten by a shark while swimming or even death.

3.2 Tools, protocols, and methods used to conduct the research for this study.

Research tools include questionnaires in handouts written in both itaukei language and translated into English. Seven research questions were posted after the approval from the itaukei Affairs Ministry. As mentioned in 3.1 above, both Qualitative and Phenomenological approaches were used in this study.

3.2.1 Qualitative Research

This study uses qualitative methodologies because opinions, experiences and feelings of research participants are expressed. Qualitative research is usually used for exploring the way humans behave and respond to their environment. In this way it assists in developing reasons for why things are the way they are. Consequently, qualitative research helps researchers understand the social and ecological features of our world which form opinions, attitudes and inquiries that are formed, and these raise the following questions: why do people behave in certain ways? how are people affected by the events that happen around them? and why and how cultures have changed the way they have? Qualitative researchers are interested in the opinions, experiences, and feelings of research participants.

Cohen (2011) argues that a quantitative research approach in its epistemological and ontological orientation regards human behaviour as an object that can be controlled, thereby ignoring opinions and contributions as opposed to a qualitative approach. Qualitative research approaches help to define what needs to be studied when there is no theory on the topic and

variables are not known as opposed to quantitative approaches that use theory to generate data (Leedy & Ormrod, 2014).

Additionally, qualitative research depicts social phenomena as they happen in a most natural way (Hancock, 2002). A qualitative approach is used for this research in selected villages in Viti Levu, Vanualevu and Kadavu. This is because it is a relevant approach to be used when conducting a study that enquires about the Indigenous itaukei Fijians' perception about climate change, the indigenous itaukei' knowledge and traditional mitigation method, and how this knowledge is passed down to the younger generations. Data was collected through direct interaction with the participants through personal and/or group interviews alongside personal observations. As the process of collecting data through observations and interviews is very time consuming, only a representative sample of people could be used in the fieldwork for this study (Hancock, 2002). In the first phase of the research, the main case study village of Qoma with its village headman plus two elders were selected for the research interview. The talanoa which initially began with a question from the researcher followed into a storytelling format outlying their own personal observations and experiences. Their perceptions, attitudes, and behaviour towards climate change effect and how they used traditional mitigation and adaptation methods known well by the villagers could be clearly understood through the talanoa sessions. 'Talanoa' is a process in which two or more people converse, or where one person tells a story to an audience of people who are largely listeners. This may be conducted in either a formal or informal context (Nabobo-Baba, 2006).

Talanoa was chosen for this research as it is the appropriate approach used for sharing information about traditional itaukei knowledge and skills as in canoe sailing by the people of Qoma and the other selected villages in Fiji Islands. An audio recorded version of the talanoa session was also done to verify the information given by the storyteller. In the second phase of the research, group discussions involving parents and elders from the selected villages across the Fiji group of islands was used.

- Pararalel study 1: Uluiloli village in Verata, Vit Levu
- Parallel study 2: Vanualevu:
    - Bua Province-Navunievu, Nawaido;
    - Macuata Province-Mataniwai, Nakalou;
    - Cakaudrove Province-Buca, Nagigi, Saqani, Wainigadru and Tawake
- Parallel study 3: Kadavu - Levuka, Kabariki and Muainuku

Similar questions were asked for phase two of the study by the researcher. The questions were based on their traditional approaches to climate change mitigation. For all the interviews conducted, a consent letter was prepared and signed by the participants as their formal individual consent to the interview. This approval followed the blanket approval by the village chief to conduct the research after presenting the traditional 'isevusevu' ceremony.

3.2.2 Phenomenological Approach

The category five monster tropical cyclone Winston stormed the Fiji Islands in February 2017 with the cyclone track passing close to the island of Qoma, sweeping through the whole village, damaging almost everything on its tract, including the village sea wall, houses, trees, crops, and coastal areas. The destructive cyclone was accompanied by a tsunami which eventually washed away the damaged house structures, trees, and part of the island into the ocean, leaving virtually nothing behind, except debris. During the interview with the Turaga ni Koro of Qoma, there were long pauses as emotions crept in as he recalled the terrifying nightmare, they faced that night of the killer cyclone winds which claimed the life of his late wife, Eleni. While relating his story, there were pauses of silence in between his story as he reminisced about the solemn experience of cyclone Winston. He concluded that it was a great learning experience and villagers must always be proactive and work with the community and the government in setting clear and effective mitigation strategies, especially by restoring the use of traditional methods of mitigating climate change which saved our forefathers for many years.

The Phenomenological approach is used to understand the specifics of phenomena from the perspective of an individual by studying the experiences of the participants during the interview. In the process, observations must focus on profound insights into the participants' actions, non-verbal languages, and purposes. By observing and interacting with the participants the researcher can gain understanding of the participants' actions and purposes (Lester, 1999). This method is unique in that it tries to gain a deeper insight of the participants' experiences as faced by the participants of Qoma and how those experiences influenced their perspectives and behaviour. In view of this, it is vital to have a thorough understanding of the purpose of the participants' perception of climate change with explanations for adopting the itaukei traditional mitigation methods and why this knowledge and skills must be relayed to the younger generation.

3.2.3 Interpretivism

Instead of having a predetermined concept, the interpretive technique allows the researcher to develop an understanding of the subject matter during the research. One of the challenges and dangers in research is to have preconceived ideas with summary assumptions on the expected outcome. To rule out precepts, interpretivism permits the researcher to be independent of the outcome of the research instead of pre-determining it, therefore validating the outcome (Yanow & Schwartz-Shea, 2006). Additionally, both Bevir & Kedar (2008) discuss that interpretive methodologies encompass an experience-near orientation that sees human action as meaningful and historically contingent. This research study is about people interacting with their social setting with what they do in diverse contexts and therefore vital that the interpretive approach is adopted. The researcher, when interacting and sharing knowledge with experiences learnt from the study, can better understand the participants' perceptions and behaviour. More so, being of an itaukei origin and speaking their dialect, the researcher could relate to information relayed by the participants. Some of the varieties of interpretive methods are participatory action research and case study analysis. These varieties are used in this research to allow for a clearer understanding of the concept being studied. In the second phase of the research, the focus shifted away from the case study and away from Vitilevu to Vanualevu where adults and parents took part in the interview, to compare and find out the similarities and differences in attempting to answer the seven questions on climate change effect and traditional mitigation used. Their participation enabled the researcher to understand the differences in perceptions, attitudes and behaviour towards climate change and traditional mitigation methods used.

3.3 Fijian Vanua Research Framework

The actual mechanics of attaining the interviews aligning to the itaukei-Vanua research framework is also outlined with reference to attaining data that can be presented and analysed in a direct comparison of climate change effect and the itaukei traditional mitigation strategy applied in a narrative framework.

Indigenous Fijian academic and researcher, Unaisi Nabobo-Baba (2011) developed the 'Fijian Vanua Research Framework (FVRF)', an indigenous research framework that is grounded in the indigenous itaukei-Fijians' world views, knowledge systems, lived experience, representations, cultures, and values. It argues that research among Fijians should be grounded in and set up around the Vanua identities, cultures, languages and ways and philosophies of

knowledge. The word 'Vanua' in the FVRF 'refers to that universal whole, which is inclusive of a chief or related chief, their people and their relationships, their land, spiritualities, knowledge systems, cultures, and values' (Nabobo-Baba, 2008). Nabobo added that the Vanua is essential for a Fijian as it is the essence for their identity and existence. The FVRF is based on the indigenous Fijians' values of 'interconnectedness of people which are interwoven to their land, environment, cultures, relationships, spirit world, beliefs, knowledge systems, values, and God(s). Furthermore, in Fiji, itaukei traditional practices of planting of a baby coconut tree (vara) with the umbilical cord (placenta) of a newborn (vicovico) depicts the traditional itaukei ritual in the reality practise of tying together person and place (vanua), at birth. For itaukei Fijian, these are believed to be a ritual of allegiance which is rooted in identity, spiritual reformation, and ownership. It ensures that indigenous itaukei- Fijians will not only remain objects of research but are part of the decisions and processes of defining frames, methods and principles within which research knowledge is handled and filtered, processed, and disseminated. The FVRF, according to Nabobo (2011) is bound by principles that are derived from the itaukei- Fijians' Vanua value system. The framework stresses that the 'vanua' must give consent for the research with considerations on itaukei- Fijians' cultural values, protocols, knowledge processes and beliefs. As a governing principle, research carried out in indigenous itaukei-Fijian vanua must focus on the indigenous itaukei-Fijians' needs and be beneficial for the 'vanua'. The researcher must be an itaukei Fijian who is fluent in the itaukei-Fijian language and traditions and must acknowledge the elders and the vanua by reciprocating them. Furthermore, the researcher should encourage and involve the participants to be actively involved in the research so that they can also learn in the process. Finally, the researcher must report the collected data responsibly to the vanua before disseminating the information to a wider audience. In carrying out research using the FVRF, Nabobo (2011) concluded that there are several procedures that need to be followed. All procedures are based on the indigenous Fijian vanua protocol.

The procedures involved are:

First, '*Na navunavuci'* the theorizing and conceptualizing of the research.

Second, '*Na vakavakarau'* the preparation and planning of the research.

Third, *'Na i curucuru / i sevusevu'* is the entry protocol.

Fourth, '*Na talanoa/ veitalanoa* the talanoa or veitalanoa' (multilogue) stage where the 'rules of engagement' are discussed.

Fifth, '*Na i tukutuku'* the reporting and analysing of information collected.

Sixth, 'Na vakavinavinaka' the gifting or reciprocation of the research that was carried out.

Seventh, '*I tatau'*, the departure or temporary departure protocol where the researcher requests to temporarily leave the research site. Finally, *Vakarogotaki lesu/taleva lesu* the reporting back or revisiting of the research site to honour the vanua by informing them of the completion and outcome of the research.

The research framework used in this study is the 'Draki Veisau Research Framework' (DVRF) that is derived from and aligned with the Vanua Framework. Further description on the DVR Framework can be found in the next chapter. The following theories were considered useful and relevant in conducting this research study and selecting research methods to be used to gather, document, analyse and disseminate information collected, understanding Fijian ways of knowing, ways of being, ways of doing things and local ways of living. These however should allow and support the researcher to comprehend the participants' standpoint, ecological, socio-cultural, and social learning systems, and processes (Barnett (2009).

It is important to understand the social standpoint of the participants in conducting research within a 'Vanua'. The different ascribed roles of itaukei Fijian usually determine their standpoint views. For example, the standpoint of a 'Matanivanua' or Herald will be different from that of a 'Bete' or Priest because of the different expected experiences and roles ascribed to them. The Herald performs the role of being the spokesperson for the Chief to the people and vice versa while the Priest performs spiritual rituals for the chiefs and the people for the vanua. Naturally, the Herald or Matanivanua would have a loud deep voice compared to the Priest who would have natural skills with soft voice of intersession and negotiating, standing in between the gods and the people or between the chief and his people and the researcher. The Mataisau or Craftsmen would naturally have the gift of art and craft and they hardly talk in meetings unless requested so by the Chief or Matanivanua. The Sauturaga or Chief Executive on the other hand, who is the next in line to the chief, would also possess gifts of speaking out loud. The Batis are the warriors and would stand by their chief to provide security at all levels. They would be masculine with aggressive attitudes which are often reflected in their aggressive behaviour and loud voice. The Gonedau or Fisher folks have mediating skills in weathering storms and strong winds during discussions which are critical when there is disagreement. These unwritten inbuilt behaviours are interwoven within the role clusters of people in itaukei village set up.

In the itaukei-Fijian's world, everything is interrelated and contributes to their behaviour, survival and overall development. For example, children interact with their environment, and learn from it. The children's environment includes physical, social, cultural, and spiritual phases. The children also learn skills and knowledge from their elders, parents, siblings, and

members of their community. They learn from reading the changes in the land, the sea, the cosmos, and they learn from socialising with others, and from their spiritual connections with people and their environment, all of which help them to understand who they are and know their place in their community and vanua.

The itaukei-Fijian vernacular language is a major tool for conveying information and understanding the world better. Language and knowledge in a variety of forms including songs, plays, dances, chants, and stories is transmitted through the indigenous itaukei-Fijian people around their environment. Such cultural tools are important for the teaching, maintenance, and sustenance of itaukei -Fijian traditional knowledge in general.

The significant role of adults in children's learning process is also highlighted in Socio-cultural Theory. The elders in itaukei societies play a critical role in facilitating and supporting children to know and practice their traditional roles that enable them to use the knowledge of the Vanua for their long-term survival.

The Vanua have high expectations from the elders and adults who have a critical role of being good role models so that children can learn good behaviour and show and practice culturally acceptable ways. Children learn quickly through observing and imitating their parents and older siblings. This is also applicable in the itaukei Fijian's world, in which elders must show good behaviour so that their children will behave like them when they grow up. Therefore, when children behave well like their father, itaukei- Fijian would say, 'ucui tamana na gone qo' (He takes after his father) and this brings pride to the child's family and 'Vanua'. It is the expected role of the elders of the 'Vanua' to ensure that these virtues are portrayed and taught to the children.

Finally, it can be concluded that the itaukei Fijians' traditional roles form a framework, which guides the daily existence of itaukei children in an itaukei community towards their ultimate traditional roles. These roles need to be lived daily with experiential support from parents and elders. In the long run, this knowledge is expected to build within their systems and effectively use for society. The Standpoint Theory is a valid epistemological grounding for this research because the traditional skills and knowledge explored in this study is rooted and interpreted through the daily lived experiences of the participants, which only adds to the validity of this knowledge (Borland, 1990).

3.3.1 Drakiveisau Research Framework (DVRF)

The details on the Drakiveisau Research Framework in relation to the Vanua Research Framework is explained with an illustration in Table 1 below.

Na Drakiveisau Framework aligned to the Vanua Framework

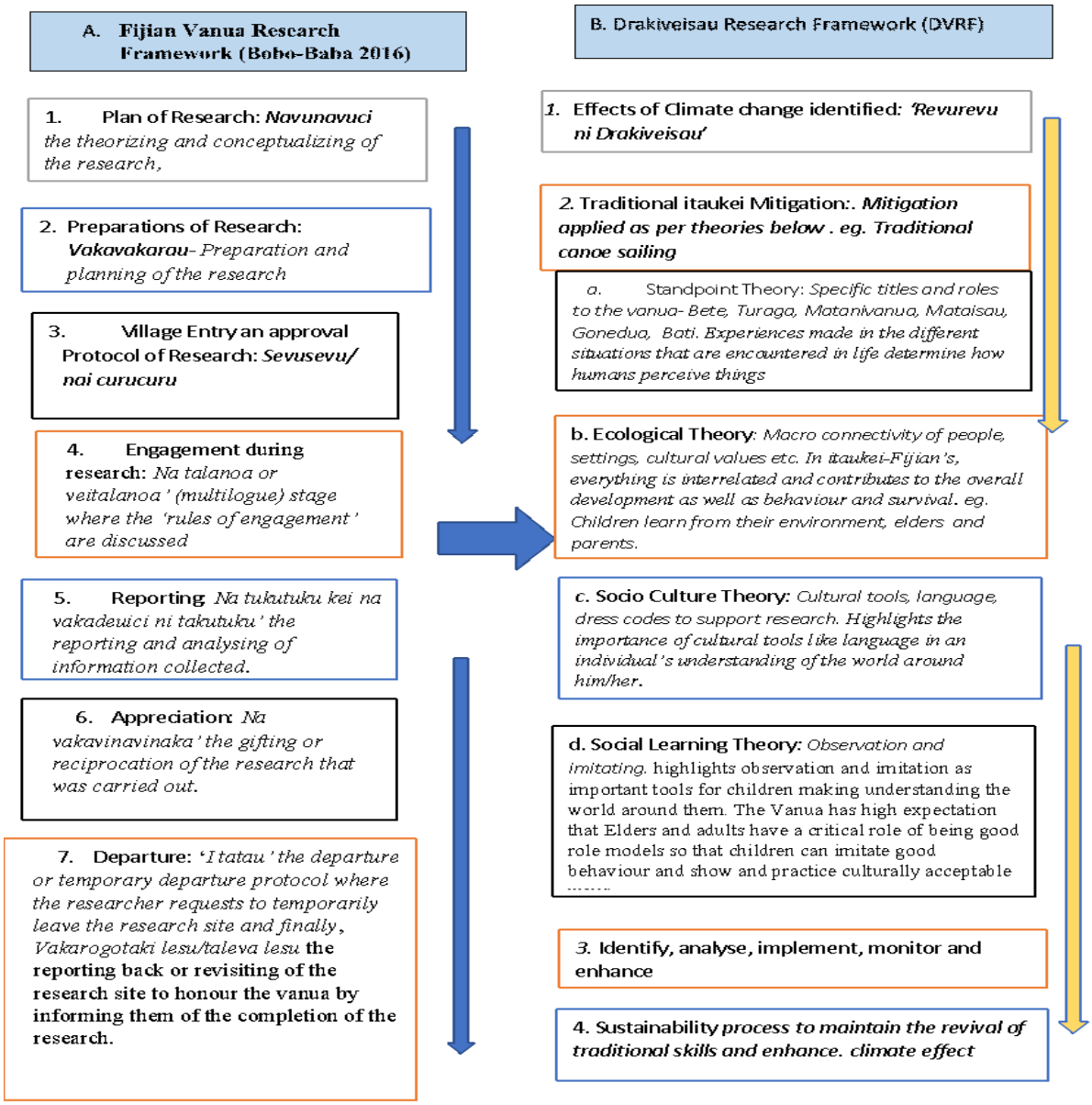

Table 1: Vanua Research Framework and the Drakiveisau Research Framework

The Drakiveisau Framework observes the traditional protocol of identifying the effect of climate change and knowing the traditional methods of mitigating climate change effect, and for this study the traditional skill of canoe sailing. This framework further describes the traditional approach based on the four theories of standpoint, ecological, social cultural and social learning. These theories support the DVRF alongside the Vanua Research Framework protocol which upholds the status and respects for the vanua and its people drawing attention to address the need to mitigate climate change.

The traditional canoe sailing case study which is identified as a mitigation strategy to combat climate change, promoting the use of wind energy instead of fossil fuel is guided by the four theories discussed below.

*Standpoint Theory***:** These are the specific titles and roles of individuals in the vanua and how different situations that are encountered in life determine how itaukei Fijians perceive things. The role and title of the Mataisau or craftsmen and Gonedau or fishermen are identified for the construction and sailing of the traditional canoe. Again, the Fijian protocols outlined in the Vanua Research Framework (VRF) is observed while formal request is made to the tribal leader of both the Mataisau for purpose of construction and the Gonedau for the sailing of the canoe focussing on the Drakiveisau Framework (Allen, 2017).

Ecological Theory: This involves the macro connectivity of people, settings, cultural values, systems, and processes. In itaukei-Fijian's systems protocol, everything is interrelated, and it contributes to the overall development as well as behaviour and survival of the people. For instance, children learn from their parents, elders, and surroundings. They learn from parents guiding them to read the physical changes on land when there is a long drought, fish and birds migration pattern which signifies approaching extreme weather conditions. They also learn through their socialisation process and from their spiritual connections to people and their environment, all of which help them to become responsible and respond well to situations accordingly. In the Qoma case study, children learn from their parents at a young age how to excavate the black sticky mortar soil beneath the roots of the mangroves trees to cement the boulders on the seawall, a known village practice done to hold the seawall to protect the village from rising sea level and storm surges. This practice is not destructive because the villagers are mindful of the importance of the mangrove swamp ecosystem to their everyday life (Craft 2016).

Sociocultural Theory: These are the cultural tools used to convey a message in the form of language and dress codes to support the research and highlight the importance of an individual's understanding of the world around him or her. Knowledge and language in a variety of forms including songs, plays, dances, chants, and stories is transmitted through the indigenous itaukei-Fijian people around their environment (McLeod, 2020). A craftsman or 'mataisau' when building and carving a canoe would chant a 'vucu vatu' which is a traditional lullaby while his children or grandchildren watch over his artwork as illustrated below (Naisele 2019).

Tukuni tukuni cacabulivuli, (sing a story of the sea)
cece i cakau o ra tukituki, (the fish swimming in the sea)
tatasela o ra egaega (the fish behaving strangely)
soki na uto ni vakasorena, (due to the seed in the breadfruit)
mekei cei, me kei leka (who will eat the fruit)
leka! leka na dena (who will eat-and excrete)

Social Learning Theory: The observations and imitations highlight these important tools for people to understand the world around them. The Vanua have high expectations from elders who have a critical role of being good role models so that children can imitate good behaviour and show and practice culturally acceptable ways. In the Qoma case study, adults do not cut the mangroves trees unnecessarily and children understand this behavioural ethic that mangroves provide shelter and seawall to the tides, waves, ocean currents and strong winds. They also understand that mangroves are the breeding habitats for their supply of small fish, sea prawns and crabs.

During the whole process, the traditional mitigation strategy is applied with traditional engagement rules implemented, analysed, monitored, and enhanced. This is to eventually provide the sustainability of reviving traditional skills and possibly have a measurement control to mitigate climate change effects (Bandura, 1969).

3.4 Research Methodology

Outlined below are the key activities involved in the research methodology using the itaukei Fijian Vanua Framework. The research approaches are further highlighted in chapter 5 where these methodologies were applied in detail.

Indigenous Itaukei Fijian and 'Vanua' Protocol

3.4.1 The Vanua Protocol

Indigenous protocols and the culture of research participants were valued in this study. The Vanua protocol was strictly observed throughout this study as it directs the process and determines the outcome of the research (Nabobo-Baba, 2006). This research begun with the traditional protocol of 'isevusevu' presentation as request to enter and to research in Qoma and in the thirteen parallel study villages. This request required a presentation of dried yaqona or kava to the chief through the chief's herald or 'matanivanua'. According to Ravuvu (1983),

the isevusevu is a ceremonial offering of yagona or kava by the host to the guest, or the guest to his host, done in respect of recognition and acceptance of one another.

The ethnographic research methodology was used in the case study for the island of Qoma. Having lived on the island for years, the researcher spent time researching the people and culture through a process of sustained observation and participation.

According to Nabobo-Baba (2006), the 'Vanua' is important when researching on indigenous itaukei Fijians since it forms the process and the product of the research. The generated research reflects the knowledge of the people in the 'Vanua'. As such, it is critical to observe the ethical procedures within the itaukei traditional systems and protocols that need to be followed. Similar research culture and ethics are parallel to the western research ethics. Hence, there is an integration of the Vanua for itaukei Fijians ethical procedures with the Western research ethics system. This itaukei Fijian research focuses on a case study and selected villages across Viti Levu, Vanualevu and Kadavu with a slight shift in research technique applied to cater for the slight variation in culture, dialect, and customs to accommodate these differences. In Fiji, the 'Bauan' language is commonly used by itaukei Fijians as a means of communication. With about 110 inhabited islands out of the 330 islands, Fiji is divided into 14 main provinces which are local governments or 'Matanitu Vanua'. The fourteen provinces in Fiji are built around the tribes of similar and related blood lines that make up the vanua (people land and sea), tikina (district), yavusa (tribe), mataqali (clan) and koro (village). These provinces form the basis of the fourteen main itaukei dialects in Fiji. The researcher for this thesis, however, speaks three dialects of the selected researched villages in Bua, Macuata, Cakaudrove, Kadavu and Tailevu, and this made protocols in communication quite easy and accessible to the Vanua and the people while at the same time allowing participants to be more open and not holding back any piece of information that the researcher may not have thought of before, hence providing new and additional data for the research.

The Vanua itaukei Fijian ethical procedures are paramount and must be observed for this research. This includes culturally appropriate procedures such as presenting the i-sevusevu to the Chief when entering the Vanua for approval to conduct the research. The benefits of the research for the Vanua must be clearly explained to the Vanua and there is assurance that no damage is done to the physical, social, emotional, and spiritual aspects of the Vanua. An

example is itaukei Fijian's respect for Sunday as the sacred day of worship or 'siga ni so Kalou' where Christians in Fiji attend church services and rest and taboo is observed for certain manual activities like conducting research interviews. In another example, publishing of vanua approved information is only authorized by the Vanua. Information that seems to incline towards damaging relationships is discarded. The ethical protocol procedures include entering the village where the researcher is expected to wear appropriate attire such as suluvakatoga (sarong) or sukuvakataga (pocket sulu) for men, jamba (long skirt and blouse) for women. Additionally, the researcher must use appropriate Fijian language or speak in their dialect with an appropriate tone of respectful voice. In itaukei culture, it is rude behaviour to have direct eye contact with elders or chiefs. As such, the researcher must make correct gestures such as not making eye contact with the elders or chief during research and interview. This type of research approach may be regarded in itaukei Fijian protocol as a formal activity, as the researcher is a visitor and guest to the Vanua. In view of this, the researcher must use the itaukei word 'kemuni' as a formal way of addressing elders and chiefs. The informal pronoun 'you' or 'iko' is used when referring to someone of lower or same status as the speaker or the use of 'o ira' instead of the use of the word 'o koya' with reference to making remarks to the elders or chiefs. Moreover, upon entering the house or 'itaukei bure', the researcher must sit next to the main entry door or 'katuba levu' which is the door where commoners enter the house in the Vanua house, vale vakaviti or 'thatched bure' and move up only if and until the researcher is asked to do so (Ae! ni toso cake mai!). Lastly, gifting of exchanged items is a customary itaukei Fijian culture when someone has done something good for you. This is reciprocated in many forms based on the occasion, whether it be newlyweds, new births, death of a family, celebrating birthdays, wedding anniversary, death ritual after ten nights to name a few. According to Nabobo-Baba (2006), the correct gifting methods should be used when invited to a Vanua function such as roqoroqo, presenting gifts for newborn babies, or reguregu, presenting gifts to the family of the deceased. As highlighted in the definition of Vanua, culture and tradition are encompassed in the concept of Vanua. Hence, in conducting research in the selected villages with the Qoma case study, the Vanua itaukei protocol must be closely observed. The Vanua itaukei Fijian protocol includes isevusevu and ikerei, which is a request for entry to do research which is expressed while presenting kava in a solemn private ceremony.

The 'isevusevu' ceremony includes the serving of kava in a coconut bowl and it is a sign of respect for all visitors to accept one bowl of kava. Upon accepting the bowl of kava, a

handclap or a ‘cobo’ is done before receiving from the bowl bearer and one is expected to drink this in a single gulp. When finished drinking the kava one must clap three times as a sign of respect to show that the bowl is empty. According to Thaman (2009), there are two other important protocols or rituals which are related to the traditional request to enter the village and to collect and use information. It includes wearing appropriate attire, adhering to social linguistic rules, observing communication etiquette, and understanding the va-Tongan culture for personal space and space between the self and others, knowing whom you can speak to and to whom you cannot speak, understanding tabu and restrictive relationships, especially between parallel cousins, cross aunty, and uncles and in laws. It also includes knowing where you can sit or stand or walk, and appropriately reciprocating what the Vanua has done and provided for you. Additionally, proper, and respectful sitting style must be adopted which is the ‘dabe vakatoga for men while sitting on the floor with both legs folded inside in a lock position and dabe vakamarama’ for women where both legs are folded, crossed, and pointing towards the rear with both hand with palms crossed and folded in a hunched back and respectful manner.

At the end of a visit, the important itaukei protocol called itatau, which is the traditional request for permission to leave, is presented back to the vanua. This is necessary for the Vanua to give its blessings to the researcher and for any future development. Apparently, the responsibility of the researcher does not end when the research is completed. After the study is written and documented, the researcher must return to the Vanua for the reporting or ‘vakarogotaki se savunirogo’ to the Vanua. When the report findings are presented, the researcher may publish the findings with a copy presented back to the vanua. After the publication of the research findings, the Vanua may celebrate the success of the study by feasting and kava drinking to show appreciation for everyone’s contributions in the research. As such, the research outcomes do not only belong to the researcher, but it is shared with the Vanua.

In all the ‘talanoa sessions’ conducted for the Qoma case study and selected village elders, it was critically important that the Vanua Framework of the itaukei protocol was strictly observed and followed. Before entering a house, the researcher must do a ‘tama’ by chanting ‘duooo!! which is a traditional chant to show respect that he is about to enter the house. The people inside the house will reply by returning the chant ‘Oi dua’ which means that approval has been granted for the researcher to enter the house. The researcher then enters the house in a hunch-back and respectful approach from the ‘katuba i sue’ or the door at the lower deck of

the house. The side door on the other hand is only reserved for the chief and the male head of the household. Additionally, the researcher is allowed to sit at the lower end of the house until the chief or chiefs herald or 'matanivanua' insists that he moves up to the upper deck of the house.

Prior to the talanoa session, the tradition of 'isevusevu' and 'ikerei' ceremony is performed to all the villages visited. This includes the serving and drinking of the kava for the final approval to engage in the talanoa session. The kava is also served continually during the talanoa and interview sessions.

As a mark of respect for the vanua, it is taboo for the researcher to raise his voice loudly during the talanoa session. This protocol must be strictly observed throughout the talanoa session of the research period in all the villages surveyed. Information gathering technique and data collation will be in order once the vanua customary ritual and protocols are observed and respected. The vanua participants would feel comfortable releasing information without reservations once the researcher has been accepted as part of the vanua.

3.4.2 Data Collection Methods

The methods selected to collect data for this study was based on the purpose and the main research questions underpinned by itaukei Fijian traditional epistemology, with the key proposal to revive traditional mitigation strategies against drakiveisau to save our land from shrinking and sinking. The researcher's observations and experiences during the research were also major sources of primary data for this study. The stories and responses of selected participants, photographs and field notes were transcribed and translated, analysed, coded, triangulated, interpretated and presented as results.

a. Talanoa or Story Telling

Talanoa was chosen because it is a key communication method in itaukei Fijian villages and was therefore appropriate for this research. Nainoca (2011) emphasized that important decisions, negotiations, dialogues, and teaching in an Indigenous Fijian community is done through talanoa. Furthermore, talanoa is a research tool that has been commonly used by Pacific researchers in academia like Nabobo-Baba (2005), Vaioleti, (2006), Johansen-Fua, (2007), Latu, (2009), and Mataitoga, (2010). The method is based on an open style process of deliberation that is distinctive to Pacific people (Latu, 2009).

b. Awareness Trainings

Awareness trainings was conducted for each of the selected villages. This was organized by the village headman, but facilitated by the researcher and it involved the whole village community. Information on the devastating effects of drakiveisau happening worldwide, regionally, and locally was provided to direct the discussions and responses of the participants.

c. Learning Through Observation and Experience

Traditional culture and skills are passed down from one generations to another through this mode of traditional learning. You learn by how you live your life and what you see done every day. It is uncommon to see a father and grandfather teaching their children traditional skills known for their family and village. It is important for the villagers to be observant and learn from what they see to master a traditional art and skill. Therefore, it's vital for an indigenous Fijian researcher to be vigilant and mindful of the conduct and actions of the research participants with notes taken during the observation.

3.4.3 Selection of Participants

Participants identified by the village headman included village elders who were well versed with traditional knowledge and skills commonly used in their villages. The village headman became a participant because of his traditional status as a spokesman for the village chief. The participants selected were aged between twenty and eighty years divided into two major categories of the young generation and old generation and expected to have some understanding of drakiveisau and its effects in their own village and basically have sound knowledge about traditional mitigation strategies used in their villages.

3.4.4 Ethical Consideration

The participants were given the information letter briefly explaining the purpose of the study and informing them that they would be required to meet for a talanoa with the researcher to respond to a set of research questions and to engage in the awareness training for drakiveisau. Most participants chose to meet the researcher at their homes or at the village community hall. This was important to help participants feel as comfortable as possible and to ease the problem of finding time to come out of their way to meet with the researcher.

3.4.5 Research Process

Talanoa was chosen because it was the most culturally appropriate method to obtain information among native Fijians. In both phases, it was important to observe the Vanua protocol as this was central to the success and effectiveness of the study. The talanoa sessions with the selected village elders and the village headsman covered the first phase while the second phase were for the wider communities and adults and elders. The Fiji research framework, 'Drakiveisau Framework' was the foundation of the research approach. Different approaches of gathering data were used to confirm if there were differences among participants perceptions of 'drakiveisau' effects and the traditional mitigation methods adopted for their villages.

3.4.6 Procedures of Approach

Conducting a study requires deep reflections on research Ethics. After approval was sorted at the institutional level, approval to conduct the research at the village and provincial level was sorted with the Ministry of Itaukei Affairs. At the government level, the approval of the Permanent Secretary for the Ministry of Itaukei Affairs is relayed to the provincial administrators who informs the village headman of the research proceedings (Append**ix** 1**:** Copy of Ethics Approval letter- itaukei Affairs), Awanuiarangi Ethics committee approval document reference number: EC2019.07, Appendix 4**).**

At the village level, traditional protocol and approval was sought through the presentation of i-sevusevu and the endorsement of consent letters for research from selected participants. A safe storage keeping procedure to safeguard data and information gathered from all sources including those from the selected villages was vital for this research. During interviews, data were audio recorded, questionnaires were analyzed and filed with written notes added, and all photos that were taken were sorted and filed. To ensure privacy and confidentially, all participants were coded with a number. A master copy for all information was compiled in one location and safely stored as hard copies as well as e-copies. Backups to the master copy of data was also stored in hard drive and emails. Each folder was labelled and itemized clearly to allow easy access for analysis and verification.

3.4.7 Transcription and Translation

Once transcribed and translated, the collected data was summarized and discussed with the participants for verification and confirmation straight after the interview after which the researcher tried to map the findings onto the result analysis template.

3.4.8 Photographs and Audio/ Video Recordings

The photographs and recordings of stories were taken during the fieldwork after the approval of the participants as formalized in the initial consent letter. The pictures helped the reader through visualizing relevant places and events that relate well to the research topic.

3.4.9 Field notes

Field notes were taken both in the vernacular or Vosa Vaka-Viti and in the English language and maintaining confidence of the recorded information was critical. In addition, the notes were triangulated with other data collected through photographs, audio/ video clips, observations, awareness trainings and talanoa sessions.

3.4.10 Data Analysis

The analysis involved the sorting and verification of data and information gathered through all possible means including notes from the talanoa and responses from the awareness training, verbal communication recorded on audio and video and photographs. The data gathered with results were sorted into classifications and categories using the following subtitle on the analysis to accommodate the analytical needs in the research under the following: name of the village, traditional skill set-under real threat of losing, traditional skill set possible for revival, and traditional skill set-still practiced today.

All the data collected during the fieldwork was received, coded, triangulated, and analysed before reporting back to the participants for validation so the work could be published. This was done partly to ensure that what was published would not ‘hurt’ the Vanua.

3.4.11 Coding

It is a way of labelling, compiling, and organizing data. Coding also helps with summarizing and synthesizing data and assists the researcher to link ideas derived from the data. Coding is cyclical, and for this research the ideas derived from the first cycle of coding were refined in a second and third cycle of coding. The researcher used a notebook and coded the main key areas under study to address the research questions. Responses to each research question were

recorded under the correct conceptual code. A storyboard was then established where similar responses were grouped together. Comments were also added to this storyboard to refine and analyse the collected data.

3.4.12 Triangulation

Triangulation is the linking of information from different sources of data using different tools in a study to ensure its validity. This may include data source, including time, space, and persons in the study. Findings can be collaborated, and any weakness can be compensated for by the strength of other data, thereby increasing the validity and reliability of the results.

3.4.13 Interpretation

Data collected during the talanoa and trainings with the participants was coded conceptually using the Methodological Triangulation approach. All responses were triangulated and repeated responses were used to answer and verify the research questions. The interpretation technique is critical to ensure the data recorded are correctly verified, valid and genuine. The interpretation of notes taken of talanoa, and trainings, audio and video recordings and photographs were then transcribed and translated into English with coded fields, before being triangulated, hence a critical process in this research.

3.4.14 Presentation of Results

The results of this study are presented under thematic narratives. This form of narrative is classically used to describe themes and patterns in qualitative research that use a phenomenological research design. Tables were also used where necessary.

Results and key findings with recommendations were then relayed to the Ministry of Itaukei Affairs, Provincial Offices and the 14 selected villages with the Qoma case study in a traditional protocol of thanksgiving or ‘vakavinavinaka.’

3.5 The Research Questions for the Vanua Participants

The following seven questions were part of the engagement process during the research and interviews with the vanua and the people. All the vanua customary protocols with research framework tools mentioned above were successfully applied which enabled approval of the vanua to the release and gathering of the information and data. The questions were in English and translated into the itaukei Fijian language.

Questionnaires (Na Taro)

This section describes the methods the researcher used in the research, which comes later in the sub section. Each research question is linked to the research method used to answer the research questions.

The method chosen to answer the research questions is interview. Cohen (1994) suggested that interviews are useful as a research method because the researcher needs not be an observer nor detach himself from the participants. It is dehumanising as well as undermining life and mind (Cohen, 2011) and the experiences gathered may not be that of the participants mind and opinion (Berg & Howard, 2012).

One of the weaknesses of storytelling is that it can be time consuming as it may take time and should be allowed for. The researcher mitigated against this by keeping control of time with constant reminders during intervals or at breaks.

To achieve the aim as described above, the research seeks to find answers to the following talanoa questions:

Na cava e rua (2) se tolu (3) na ka e rogo ka kilai kina na nomuni vanua/koro

1. What are some major climate change effects visible in your village? *Na cava so a veimataqali vakatakilakila e raici rawa ena nomuni vanua ka vakaraitaka na draki veisau?*
2. What are some available traditional mitigating factors used against climate change in your village? *Na cava beka eso nai yaragi vakaitaukei ena nomu vanua edau vakayagataki me valuti kina na revurevu ni draki veisau?*
3. Identify a major climate change mitigating factor, for example boat sailing, traditional food storage, etc. What is the history of this traditional activity in your village and what is its present status? *E rawa beka ni ko ni vakaraitaka e dua na sala se i vakarau vakavanua esa vakayacori tiko ena nomuni vanua/koro me valuti kina na raki veisau?O ni rawa ni vakadeitaka ni sala oqo e sega walega ni walia na leqa ni draki veisau, ia sa vukea talega ena kena vakabulabulataki mera vulica nai taba gone na i tovo makawa ni nomuni vanua ka sa tekivu me sa yali tiko yani?*
4. What can you do to save your land and people from the devastating effect of climate change and what traditional method of mitigation do you apply to save your village? *Na cava e rawa ni vakayacori me taqomaki kina na bula kei na nomu vanua mai na vakacaca*

ni drakiveisau? Na cava so nai walewale ni tataqomaki e dau maroroi kina na koro ena gauna ni draki ca.

5. How were the climate change mitigation skills and knowledge learned in the past and how it benefitted you and your people? *Na cava beka nai walewale ni kena vulici na tabana qo vei ira na i taba gone me na vukea kina na kena wali na draki veisau ka vakauasivi ena kena talevi lesu tale ka vakavulici nai vakarau vakamareqeti makawa ni nomuni vanua/koro?*
6. What do you see as major setbacks to the teaching and revival of climate change mitigation skills over the years and what do you think are some solutions to the challenges faced? *Na bolebole cava e tiko, oni raica ni vakadredretaka se vakataotaka na kena vakatavulici tiko na i-solisoli oqo kana rawa ni wali vakacava?*
7. In your view, what is the best delivery mode in restoring the lost climate change mitigation skill set? (Is it a normal classroom/ school environment/ village hall or practical demonstration of skill in a real sailing situation, as in a boat sailing in the open/coastal sea). *Na cava na nomuni vakatutu ena i walewale ni kena vakatavulici na i yau vakamareqeti oqo ena nomuni vanua/koro?*

All the seven questions were carefully developed after extensive consultation based around the thesis topic and with approval from the Ministry of Itaukei Affairs. The Itaukei Affairs approval is sought as part of the local government regulated requirement for the itaukei people of Fiji. This is to ensure that itaukei Fijian protocols are strictly observed with the local people being fully aware of the reasons behind the research and that it will benefit the vanua and the people.

Because the research method adopted was in the talanoa session format, most of the writing, scribing, and recording was done by the researcher. All the notes were later transcribed and interpreted as per conversation, from one village to another. Individual reports with findings filed, placed in a combined table format, and later analysed to determine the results which was to be further scrutinised in the next chapter. The analysis is critical as sample score variations and results may draw lines on the impact of climate change effect: what are the common factors across the selected sample village in terms of mitigation strategy adopted, and what means are they adopting to revive the traditional skill for mitigation.

Chapter Summary

This chapter describes briefly the Fiji Theoretical Research Frameworks which underpins the '*Drakiveisau Framework'* that is employed in this research study. It began with the Fiji Theoretical Frameworks and Research which includes Indigenous research, Pacific Indigenous Research Frameworks, itaukei-traditional roles and why these are important for this study. Sub-Section 3.2 describes tools, protocols and methods used to conduct the research for this study which includes Qualitative Research, Phenomenological Approach and Interpretivism. The Fijian Vanua Research Framework developed by Nabobo-Baba is driven towards strict observation of itaukei Fijian traditional protocol when engaged in traditional itaukei research with seven guiding principal protocols. The chapter also outlined supporting theories to support the researcher which includes standpoint theory, ecological theory, socio-cultural theory, and social learning theory. The chapter subsection 3.4 outlines the method of approaches in conducting the research study which is linked to the vanua itaukei ethical procedures and protocols. The chapter final sub section 3.5 explains the seven practical questions that are linked to the thesis topic**.** The chapter also explains the critical role of the Itaukei Affairs Ministry in regulating and approving the questions and research to be conducted in selected provinces and villages in Fiji.

The next chapter begins with the description of the effects of colonisation and decolonisation principles at the expense of itaukei traditional skill and culture with key areas under threat for itaukei's culture and traditions. The chapter then focuses on the research findings in a combined table format. The analysis reflects on the sample score variations with results which may draw lines on the impact of climate change and its effect. It is also interesting to grasp the common and uncommon factors across the samples collected from the village in terms of mitigation style and skill revival technique they are using.

The chapter ends with a focus on the case study of Qoma island capturing the lost traditional skill in canoe sailing which used to be popular for the islanders. The Qoma case study also concentrates on the development of a training package in canoe sailing with standards developed at certificate level 1 qualification with the intention to teach the training package to the young people of Qoma using competency-based training methods.

CHAPTER FOUR

CASE STUDIES, FINDINGS, RESEARCH FOCUS: COLONISATION EFFECTS, NEO COLONIALISM AND DECOLONISATION PRINCIPLES

Building blocks towards the case studies research. It also describes colonisation effect, neo colonialism and decolonisation principles at the expense of itaukei traditional skill and culture with key areas under threat for itaukei culture and traditions.

This chapter has six sub-titles under the following: 4.1, 4.2, 4.3, 4.4. 4.5 and 4.6

Chapter Introduction

4.1 The Fijian Canoe Sailing Metaphor.
4.2 The Pacific canoe sailing travel history, colonisation impact and decolonisation principles.
4.3 Key areas under threat for the itaukei in Fiji.
4.4 Laws and legislation- Na Lawa Tu kei na Veisemati ni Lawa.
4.5 Effects of climate change and surrounding issues- Na Drakiveisau.
4.6 The Fiji Qualifications Framework (FQF)

Chapter Summary

Chapter Introduction

The previous chapter looks at the Fiji Theoretical Frameworks in itaukei Fijian research and the validation of itaukei knowledge to see itaukei ways of viewing research. It further looks at Fiji theoretical platforms to undertake & validate Fiji-itaukei knowledge, wisdom, and traditional skills. It also reflects on Fiji theories from within the village structure, social systems, processes, and protocols within the itaukei Fijian village. The *Fijian Vanua Research Framework* being the key driver to this research project with its inbuilt itaukei protocol and system must properly be adhered to. The research framework as adopted in this study is the 'DrakiVeisau Research Framework' DVRF, derived from and aligned with the Vanua Framework. Several theories are also identified as relevant to support the research in selecting research methods to be used to gather, document, analyse and disseminate information collected for the understanding of Fijian ways of knowing, ways of being, ways of doing things and local ways of living. These, however, should support the researcher to comprehend the participants' standpoint, ecological, socio-cultural, and social learning systems, and

processes. The supporting theories important for the researcher to use for this study are Standpoint Theory, Ecological Theory, Socio-Cultural Theory and Social Learning Theory.

Chapter four discusses the colonisation effects, neo colonialism, and decolonisation principles which leads to the building block of the case study. The chapter describes climate change and traditional mitigation factors using traditional canoe sailing as a metaphor. It first describes Pacific canoe sailing travel history, colonisation principles impact, traditional skills and culture, and how key areas are under threat in the Fijian itaukei culture and traditions. The case study anchors on the philosophy that traditional skills can be revived, sustained, and adopted as a mitigation factor to reduce climate change effects. The chapter builds on the alignment of a training package with a level one provider qualification in 'Traditional Canoe Sailing' to be accredited in the Fiji Qualifications Framework.

4.1 The Fijian Canoe Sailing Metaphor

This sub chapter explains the metaphor in sailing on a Fijian canoe. It describes a story that protects the sovereignty of itaukei Fijians on their land and the dying traditional canoe sailing skill as a mitigation strategy to climate change effects. The latter is the backbone of the study with the intention of skill revival in canoe or 'waqaniviti' sailing.

The use of the analogy of sailing the Fijian canoes, commonly called *takia vakalaca, waqaniviti-vakalaca, camakau-vakalaca, drua-vakalaca* is a metaphor for the itaukei tribal set up in the traditional skills acquisition of sailing in unchartered waters and safely reaching their destination. The Fijian canoe epitomises our identity as itaukei, who are we, where do we come from, and where are we going to (Koya, 2007).

In a communal Fijian itaukei village, the system of support and care for one another is paramount. Village protocol expects each tribe to perform their duties for the family (vuvale), the clan (mataqali), sub clan (tokatoka), tribe (yavusa) and the chief (turaga ni vanua) daily. The canoe sailing 'vakalaca' depicts the forward movement or 'tosokiliu', of the itaukei people, observing and practically applying traditional skills and knowledge that allows the canoe with people on board to safely reach their destination. Several traditional itaukei detailed processes with given names must also be adopted as part of the journey to reach the end road. The top part of the sail is a wooden frame called the boom or 'karikari', which supports the adjoining upper boom or 'vagaicake', and the lower boom or 'vagaira". The main sail or 'laca' has two wooden side frames that bind and hold the sail together. The sail is either

made up of weaved mats or contemporary canvas material. The master frame or 'vu' is adjustable and tied together to meet the ends of the side ribs of the boom or 'karikari' and the front face or 'muailiu' of the canoe. Each side rib has two ropes that balance the sail, the wind adjusting control called the mainsheet or 'sila' on the lower end of the mainsail or 'laca' and the upper end has the 'upright control called shroud or 'i loba'. Both the 'iloba' and the 'sila' are adjustable and are controlled and adjusted by an able seaman during the journey. A long piece of bamboo called the mast or 'idumu' that holds the sail during the sea journey is hoisted up in a slanting position and is adjusted by the shroud or 'iloba' based on the wind direction and strength. The 'iloba' and 'sila' are closely monitored and regularly adjusted based on the currents and the wind force and direction. A special rope tying skill called square reef knot or 'bukicori' is required to give a free lock-in adjustment of the rope and mast during the sea journey. The sailing of the Fijian *canoe* implies a review of current paradigm shift from the traditional itaukei social system as it set sail to better and improve the traditional knowledge of indigenous itaukei (Koya, 2007). The foundation of this transformation is embedded in the belief that self-determination, revival of the past and a focus onto the future, is the cornerstone of the pillars of sailing the canoe or the 'waqaniviti'. The sea journey is reflected on the real Fijian itaukei traditional lifestyle with much determination to survive with meagre available resources but maintaining peace and harmony within the village protocol. For the canoe to move forward smoothly and gaining distance in territory water, all parts of the canoe and sail must coordinate and support one another to enable forward movement and safe arrival to its destination. Similarly, itaukei Fijians in its tribal sectoral set up must traditionally support each other on the metaphorical sailing sea journey to achieve greater outcomes in life.

The idea of share and care or 'veidovi' within communal group activities or 'solesolevaki' while preserving the environment is always at the heart of the matter. The itaukei Fijians always relate closely with nature. For instance, they whisper to the cloud for rain or chant at the wind to blow or sing to the waves to smoothen or stay calm. They could sense and hear nature whispering to another to facilitate their life's journey on a canoe in a deep blue ocean, thus reaching their destiny safely.

In stark contrast, Halapua (2003: 83) describes the epistemological underpinning of the hypo-modern world to a sailing journey with winds and waves doing the walking, dancing, and talking as he expresses; "Waves express the rhythm of the moana. Waves embrace the diversity and differences of sizes and contours. In the eyes of Oceanic peoples, the waves are linked to other waves. The waves, which dance to the generous rhythm of the moana, dance

in company with waves over the horizon. Waves follow one after another. Unceasing, relentless, embracing, they give and give and give. Energy that is the result of constant interaction with the wind and the heavens is released freely. As a metaphor, the waves of the moana speak of immense generosity and reciprocity".

The rhythm of nature on the beat above expresses the intimacy of interconnectivity and forged relationship between the wind, the ocean, the waves, and the ocean people. They speak, dance, wave and embrace one another. One cannot and may not fathom the language of nature through a traditional canoe sailing journey.

It is therefore critical and fitting that we support the need to revive the skills in sailing a Fijian canoe as proposed in the Qoma case study.

4.2 The Pacific Travel History, Colonisation and Decolonisation Principles

The history of the traditional sailing Fijian canoe is a story of a sea journey from a far land to Fiji before the arrival of the early missionaries, the British colonisers, and the indentured labourers. Our forefathers travelled in outrigger canoes for weeks or months carrying all their belongings, food and water and looking for new land. They also brought along their own cultural traditions, rituals of worship, language, and traditional skills. Later, migrants and colonisers were welcomed ashore as they would bring gifts in exchange for a piece of land and other local possessions. Hence the emblem of sailing and sea travel goes a long way in history not only for Fiji but other Pacific Island nations, for survival techniques, colonisation, trading, slavery, white supremacy, suppression, and reputation (Derrick,1951).

The Pacific people have a rich sea travel history by using outrigger canoes and sails, but colonial boundaries drawn in the nineteenth century by Western colonial regimes made sea voyages more difficult if not impossible. Consequently, it was colonialism that isolated islands, created territorial divisions and national boundaries. However, the decolonisation of most Pacific Island territories deconstructed this 'colonial perceptions of insularity' (Nero,1997) and was accompanied by a conscious return to indigenous valued traditions and knowledge and its related traditional techniques. This was demonstrated in the revaluation of the revival of indigenous medicine and its practitioners and in the revival of traditional navigation and art of land-finding. The 1976 'Voyage of the Hokulea from Hawai'i to Tahiti was a classic example where the Hokulea was a reconstructed Hawaiian double-hulled canoe, sailed by a crew led by the Micronesian master navigator Mau Pialug from Satawal, using

traditional navigation techniques (Finney, et al, 1994). In the process of revival and an attempt to restore traditional navigation knowledge and canoe building techniques, the others followed suit. 'Waan Aelon in Majel' or 'Canoes of the Marshall Islands' aimed at training young Marshallese to re-build outrigger canoes (Alessio, 2006). To reinvigorate long-distance voyaging, similar attempts were done like the traditional voyages by canoes from Yap to Palau, from Polowat to Pohnpei (Metzgar, 2006) and from Polowat to Guam (Cunningham et.al, 2006). Similarly, the 1992 Rarotonga Pacific Art Festivals as expressed by Yamamoto (2006) promoted a notable example of seafaring heritage where other visible efforts to preserve and revive cultural knowledge such as traditional navigation were promoted. A highlight of the festival was the display of canoes or "vaka" from Tahiti, the Marshall Islands, Hawaii, Fiji, New Zealand, and other islands. These traditional principles were reflected in contemporary forms of Pacific Islander mobility and migration (Hofmann, 2015). Chuukese scholar, Joakim Peter (2000), who focused in his analysis on local theories of space and movement writes: 'Travelling as movement has always been a tradition of atoll islanders. Their travels continued to identify the ways in which atolls people understand, appropriate, and manipulate space and boundaries'. By comparing current Chuukese migration practices with pre-contact seafaring journeys, it concluded that both forms of mobility were aimed at sustaining life in the home island through obtaining resources from elsewhere. Likewise, Falgout (2012) uses Peter's comparison of contemporary migration to traditional navigation in her study of Ponapean migration to Hawai'i. Both movements of contemporary migration and traditional Micronesian navigation were purposeful, well-planned endeavours with a distinct course of action.

There is no question that colonization had a devastating impact on indigenous people around the world. Generally, colonizers invaded countries with little regards for indigenous people in their quest for resources and land. However, to understand how colonizers were able to do this with little regard or concern for indigenous people they had to reduce indigenous people to a subordinate, servant hood and inferior status. This process involved the racialization of indigenous people to a place where they were viewed as less than human by the colonizers (Cote-Meek, 2010). Knowledge was passed on from generation to generation, indicating the central place indigenous knowledge played in their lives. Thomas, (1990) while referring to the pre-contact era confirms that Fijians at that time had a stable social, political, and economic organization of their own- one little understood by missionaries and other Europeans who visited their shores or came to reside in their islands. So much of their old

ways of living has been misunderstood by Europeans, abandoned by them, modified, and spoiled by Western contacts that we shall never know or appreciate the finer points in their old social structure.

For this paper, colonization and neo colonialism are conceptualised as having three dimensions: the Pre-Colonial, the Colonial and the Post-Colonial era.

The first tier of specific ideology focusses on precolonial era which depicts a primitive itaukei society, full of traditional natural life with high respect for the white colonizers or 'kaivalagi'. This was the era of great respect or 'vakarokoroko' for the white colonisers and itaukei would toil long hours to work for them from dawn to dust. Their white complexion with high class status marked overruling approaches and supremacy in most of the itaukei's Fijian way of life. Most of our indigenous tribes identified them as figures next to the gods. Because our people had so much respect for the visitors then, and as part of their traditional obligation, with almost no formal education, they were not able to distinguish between hard labour, employment, slavery, business trading, human bullying, and abuse of power. The conversion of traditional itaukei Fijians to Christianity by the missionaries was tactical as most if not all itaukei resorted to the new belief system. The underpinning theory of the white colonisers followed by the missionaries who were also white may have swayed their ideology and belief system that the god of the white people was also the supreme and true god who may have converted them from their traditional worship of spirit gods to Christianity. Additionally, the early traders in beach-der-mer and sandalwood were also part of the first-tier era (Cote-Meek, 2010).

The second tier of colonial era marked a huge shift from the traditional ways of life to a modern and advanced ways of doing things and delivery of services by foreign and colonial powers.

The first appointed interim Governor of Fiji, Sir Hercules Robinson, who arrived in 1874, adopted a policy of ″Fiji for the Fijians″. He was replaced in 1875 by Sir Arthur Gordon who granted autonomy of local affairs to the chiefs of Fiji who were forbidden to engage in tribal warfare but to establish direct rule in all spheres of itaukei autonomy. A Great Council of Chiefs was established in 1876 to advise the Governor and remained in existence until temporarily suspended in 2007 by the military government and removed in 2012 by the Bainimarama government. The 1997 Constitution empowered the Great Council of Chiefs to elect the President, Vice-President, and fourteen of the thirty two Senators. The Great Council

of Chiefs was supplemented by the Fijian Affairs Board and these two bodies enacted laws for the itaukei Fijians. European settlers, however, were not subjected to these laws (Palmer, 2009).

While adopting a "Fiji for the Fijians" policy, Gordon prohibited further sales of land, but it could be leased. This policy has not changed to this day, with some 83 percent of the land still owned by itaukei Fijians, which is contrary to the Land Tenure Act of 1880. Following the failure of the cotton-growing enterprise in the early 1870s, Gordon also cunningly prohibited the exploitation of Fijians as labourers in the farms. This resulted in the importation of indentured labourers from India in 1878 to work on the sugarcane fields that had replaced cotton production. The four hundred and sixty-three Indians who arrived on 14 May 1847 were the first of some sixty-one thousand that were to come before the scheme ended in 1916. The plan was to bring Indian workers to Fiji on a five-years contract after which they could return to India at their own expense, and if they chose to renew their contract for a second five-year term, they were given the option of returning to India at the government's expense or remain in Fiji. However, majority of the indentured labourers chose to stay on in Fiji (Macnaught,1981).

The colonisers brought with them the ‘principle of capitalism’ through formal education system, improved health sanitation, infrastructural development in roads, bridges, wharfs, building constructions, transportation, and importation of motor vehicles. The establishment of government system, schools and hospitals was still mostly controlled by the colonisers, together with the development of key sectors of economic growth like the tourism industry, copra industry and sugarcane industry. The cross-roads and hangovers of over-dependence, independence, dependence, and inter-dependence was a strategy employed by the colonial administration which involved balancing the policy of ‘native protection’ with the requirement of financial self-sufficiency. The use of Fijian labour in the emerging plantation economy was viewed as detrimental to the traditional Fijian way of life and Governor Gordon looked immediately to the Indian sub-continent from which other British colonies had successfully recruited their ‘helots of empire’ Fiji had acquired a substantial and permanent population of Fiji Indians whose descendants now comprised around forty-six per cent of Fiji’s total population. This created what is commonly described as Fiji’s ‘plural society’ where the two major ethnic groups are perceived as constituting monolithic entities in a two-sided contest for political power. This perception is largely responsible for the popular conceptions concerning the essentially ‘racial’ cause of the May 1987 military coup. Although

most academic commentators with the notable exception of Scarr (1988), have evinced a complex array of causes which point to the salience of other decisive factors as the general perception of contemporary developments in Fiji remains fixed firmly within a racially oriented paradigm (Lawson, 1993).

Whilst the itaukei canoe continue its sailing journey, the ‘waqaniviti’ cargos and attitude of the sailors have shifted immensely to a mixture of neo-colonial, pre independence and post-independence activities, unsure of what the future has for climate change effects, and causing conflicting views that the old system may be out of date and obsolete.

The third tier of postcolonial era shows a continued shift away from the traditional ways of life to a modern, politicised, and contemporary itaukei approach, and with technological inventions, meritocracy, urbanisation, and the move towards formal paid employment away from villages to towns and cities.

Furthermore, Woodridge (2021) described the meritocratic idea that was at the heart of the four great revolutions that created the modern world. The most fundamental of these was the industrial revolution which transformed the material basis of civilization and unleashed the energies of self-made men. This was strengthened by a succession of political revolutions. The French Revolution was dedicated to the principle of the "career open to talents". Feudal privileges were eliminated; the purchase of jobs was forbidden; and elite schools were strengthened.

The meritocratic idea is so vital to modern societies that it creeped succinctly into the process systems and unconsciously into the minds of people. Normally, one would expect to be given a fair chance when applying for a job but the notion of nepotism or favouritism or discrimination were thriving at all levels. American President Reagan (1984), strongly believe in all Americans having the right to be judged because of individual merit, and to go just as far as their dreams and hard work will take them. Similarly, British Prime Minister Blair (1995) suggested that people should be able to rise by their talents, not by their birth or the advantages of privileges. Woodridge (2021:22) when referring to the history of the West, jobs were handed from father to son or sold to the highest bidder, while with the rest of the world one can see governments riddled with corruption and favouritism. Hence the meritocratic idea is necessarily fragile as humans are biologically programmed to favour their kind and kin over strangers.

The very underpinning ideology that drives colonialism and even neo colonialism is rooted on the meritocratic philosophy where white supremacy favours their kind at all levels and suppressed the natives and indigenous people, undermining indigenous rights and supporting immigrants for capitalistic purposes.

The post-colonial era therefore was marked by a realisation that the racist, imperialistic nature of colonial relics needed to be exposed and deconstructed by a process that was widely known as decolonisation with neo colonialism supremacy. Thiong'o (1986) suggested that decolonisation must start with the mind and should involve a conscious decision to uncover, uproot, and remove western imposed values and beliefs which had been ingested through colonial encounters for centuries. The conscious decision of both sub conscious and conscious mind involves an understanding of the three notions called 'othering', 'hybridity' and 'voice', which are central to post-colonial thinking.

The notion of 'other' refers to the dominated culture and knowledge in the making of an overriding culture. According to Smith (1999), the 'othering' mentality could be traced back to the history of imperialism when European empires expanded their territorial boundaries in the early 17th century. Imperialism brought waves of Europeans, Dutch, Portuguese, British and French to many regions of the world and left lasting impacts in the lives and values of indigenous societies. Imperialism critics highlighted the bulldozing tactics of early discoverers or 'invaders' in undermining indigenous lifestyles and social structures during pre-contact times (Nielsen, & Robyn, 2003). Early European records described the indigenous people, as some discovered 'artifacts' to be presented to their King. The records on the discovery of the Pacific Ocean by Vasco Nunez de Balboa on September 25th, 1513, displayed this inhuman attitude.

"Otherness" is often viewed as the product of Europeanising indigenous people and closely associated with the notion of 'hybridity' (Nabobo-Baba, 2006). Macaulay (1835) describes the hybridity of Indian natives as 'a class of persons, Indian in blood and colour, but English in taste, in opinion, in morals and intellect' (Loomba, 1998). The process of hybridity produced racial disparity which perpetuated between the dominant and the subjected. Fanon (1986) further explained that the racial gap was linked to an inferiority complex as in colour, language, religion, and race that was characteristic of an unliberated people. The inferiority complex drove the indigenous person to renounce his blackness and elevated themselves to become whiter by speaking the language of the white and imitating what the white did. As a

result of the racial gap, an indigenous man behaved differently with his own people than with the white man. This psychological reaction as described by (Miller & Priestly, 2008) is 'depth ontology', a Western idea of being brainwashed where the real person is inside and what we see outside is superficial. Therefore, Fanon's notion of 'black skin, white masks' describes depth ontology appropriately in that the black person's white behaviour is indeed superficial. This principle may also explain a policy of colonising agenda where the processes of assimilation and integration see the indigenous Fijian's having two contrasting worlds of the traditional way and the western way of life (Tarabe & Naisilisili, 2007).

A key goal for post-colonial thinkers is clearing a space for multiple voices. This is especially important for those 'voices' that have been suppressed and silenced by dominant ideologies. Spivak, an Indian post-colonialist thinker refers to this as 'the subaltern' and claims that space for the subalterns must first be cleared within academia before any substantial change can be evident. Applying for a job as a 'consultant' was link to white supremacy and when a black man applied for the same job, the trauma of black colonial suppression hanged on. Much debate had since taken place regarding the ways to incorporate the subaltern voice effectively and fairly into academic discourses (Spivak 1988). Some postcolonial thinkers believed that the way forward was to speak on behalf of a group while using a clear image of identity to fight opposition (Thaman, 2005; Nabobo-Baba, 2006).

The repercussion may have impacted traditional thinking and cultural practices of itaukei believing that traditional practices were obsolete with white imported thinking and innovation was supreme. As the decolonisation and deconstruction process was slowly taking place, reskilling, and revival of itaukei culture was slowly restored by individuals and itaukei organisations who had itaukei values at heart.

Furthermore, the challenges of political instability and racial discrimination over the years continued to grow. Meetings were held between traditional, church, and government leaders to identify possible strategies in moving Fiji forward for a better Fiji. However, there were no real practical solution to slow down the momentum as these challenges had forcefully overflowed into the local villages, the churches ('lotu') and communities ('vanua'). According to Neal (2017:18), the political shifts severing the government or 'matanitu' from the church or lotu and the land or vanua however, was only a small part of the bigger hidden agenda. During this political upheaval, the culture of the indigenous Fijians was also undergoing rapid transformation. Manfred Ernst's Globalization and the Re-shaping of

Christianity in the Pacific made a strong case for the imperialistic dangers of globalization in the Pacific. Whether it was through economic policy or the embrace of technology or the well-funded denominations from the West, it was argued that 'cultural values were not compatible with the Western world and were disappearing at an alarming rate. Gudova, (2018:166) further concluded that a colonial domination was being replaced by a 'cultural domination through the over-influence of trans-media and new communication networks. While the changing culture of a new generation was a perennial challenge for churches around the world, it was exponentially more difficult in a context where land or vanua and the church or lotu were so closely identified'.

The next sub chapter describes the traditional itaukei value systems that are at stake with an alarm of urgency to be supported, revived, and protected.

4.3 Key Areas Under Threat for the itaukei Fijians

The colonial impacts on itaukei traditional systems were somehow linked to the cultural impacts of other ethnic groups gaining citizenship in Fiji over the years. The key areas under threat for the itaukei Fijians in a plural society was expanding fast posing threats to the culture, belief systems, traditional protocols, customary traditional rituals, and ceremonies; education and governance, traditional knowledge; skills craft, language and dialects and laws and legislation.

4.3.1 Culture, Belief Systems, Traditional Protocols, Customary Traditional Rituals and Ceremonies (Na Veiqaravi Vakavanua, Tovo Vakai Itaukei)

According to Nabobo-Baba (2006), the 'Vanua' is important for research on indigenous itaukei Fijians since it forms the process and the product of the research. The research generated reflects the knowledge of the people in the Vanua. Ilaitia Tuwere (2002) in his book '*Vanua: Towards a Fijian Theology of Place*,' describes the connection between space, time, and human community in a Fijian understanding of land. For indigenous itaukei Fijians, the land or vanua does not simply refer to the soil which makes up the 300-plus islands of Fiji. It is inclusive of all that grows in the soil and all that are sustained by it. The word "land," includes animals, people, human culture, and history. It knits together space, event, and time to create a holistic understanding of context. This relational understanding of vanua has far-

reaching repercussions for itaukei identity. The word itaukei can be defined as those who own the Fijian land, but this ownership does not connote detached objectification. Furthermore, in Fiji, the itaukei tradition of planting of a young coconut tree with the placenta of a newborn child or "vicovico" depicts the traditional itaukei ritual in the reality practise of the connection between a person and the land at birth.

As such, it is critical to observe the ethical procedures within the itaukei traditional systems and protocols and hence the need to observe and follow culture, belief, values systems in itaukei village set up. As highlighted in the previous chapter, the itaukei Fijian protocol of isevusevu, which is the Fijian welcoming ceremony is usually done by presenting yaqona or kava in a private ceremony. Kava was a traditional drink used only by chiefs during important occasions but has now been abused and misused by every other racial group as a social drink for 'talanoa'-discussion and storytelling, losing its sacredness and value. This also applies to many other traditional ceremonies like the presentation of whales' tooth or tabua to welcome chiefs, during the traditional 'qaloqalovi' ceremony or presentation of selected mats as the traditional gifts or 'ivakamamaca' to the chief and even the presentation of the sacred food basket or 'wase ni yaqona vakaturaga' presented to the chief after drinking the kava for the isevusevu. Most of these traditional itaukei protocols are not being strictly followed and observed. These have been presented on most occasions on a contemporary approach with much influence of the so called 'Fijian plural society propaganda'.

4.3.2 Education and Governance, Traditional Knowledge, Skills Crafts (Na Vuli Tara kei na Cakacaka ni Liga)

i. Education and curriculum

The teaching and learning of the itaukei Fijian traditional culture are only taught as a voluntary optional subject in selected schools with minimal delivery of the curriculum from early childhood through to elementary and secondary school level for at least two hours per week. The education system has also made the English language a compulsory medium of communication in schools at the expense of the itaukei Fijian language and the evidence is the language being poorly spoken by our young people today.

However, our universities and selected high education institutions are beginning to offer itaukei language and culture as a mainstream programme at sub degree and degree levels.

Selected government ministries like the Ministry of Education, Ministry of Youth and Sports and the Ministry of iTaukei Affairs are working closely together to restore the use and learning of the traditional culture, skills, and language of the itaukei Fijians through teaching, sports, performing arts, social functions, and entertainment (Curriculum Advisory Services, MEHA, 2019).

Furthermore, initiatives taken by the colonial government for itaukei Fijian's education included the establishment of four government learning institutions equipped and supported by the colonial administration during the pre-post-colonial development era. These schools included Ratu Sir Lala Sukuna Memorial School (RSMS), a co-ed secondary school for itaukei Fijians based in Suva. The school was owned by the Itaukei Fijian Affairs Board with a reduced budget funding from government through the Itaukei Fijian Affairs Board. Adi Cakobau School (ACS), a boarding secondary school mainly for girls of chiefly status, together with Queen Victoria School (QVS) and Ratu Kadavulevu School (RKS), both boarding secondary schools for boys of chiefly status only were fully government funded schools, established by the Great Council Chiefs (GCC) and owned by government and managed by the Ministry of Education. These schools were established to educate and prepare young, aspiring, future leaders of itaukei Fijians for leadership at the highest levels both in the public and in the private sectors. However, the chiefly status entry criteria to these institutions have been removed and commoners have been allowed to enrol into these schools. With the removal and suspension of the Great Council of Chief, itaukei Fijian leadership training has been at stake for the last sixteen years.

Similarly, the Nadave Centre for Appropriate Technology and Development (CATD) is a technical institution first funded by the German government in the first fifteen years of its establishment in 1980 but now a fully government funded institution, aimed to improve the standard of living in the rural sector of Fiji through the development of technical skills and services and the promotion of better leadership qualities necessary to enhance and facilitate community development. CATD is responsible for the good governance and well-being of the itaukei Fijians which includes preservation of the indigenous Fijian culture and ensuring protection and management of itaukei culture and heritage for current and future generations.

The school offers basic trade skill courses in carpentry, automotive repair, plumping, welding fabrication at certificate and diploma levels. The school also delivers and champions a Diploma in Traditional Itaukei Leadership Training or *'Sauvaki ni Vanua'* programme, an

accredited short course specifically designed for the chiefs of the fourteen provinces in Fiji for village administration and management and delivered in vernacular. It is envisaged that this institution will be the training centre for all itaukei traditional courses that can deliver traditional related programmes at certificate, diploma, and degree levels. It is also anticipated that CATD-Nadave will become the future university college offering itaukei related programs that are accredited on the Fiji Qualifications Framework. Apparently, CATD is at a high risk of closing due to low budget supplement from the current government **(**CATD Strategic Plan, 2019).

ii. The *Itaukei Fijian Language- Na Vosa Vaka Viti*

After Fiji's political independence in 1970, the Itaukei Fijian language, the English language, and the Hindi language became the official languages of Fiji, as linguistic autonomy was guaranteed by the 1997 and 2013 constitutions. English is the language of interethnic communication, administration, government, trade and commerce and education. Fijian vernacular and Hindi are often spoken at home and used in religious contexts and on radio and television (Geraghty,1983).

The Fijian Bauan dialect was used by Christian missionaries and subsequently became the standard Fijian dialect for both written and conversational communication among itaukei Fijians. The Euro-Fijian community tend to be bilingual, particularly among the educated classes. Fijian Hindi language is related to several North Indian Hindi languages, and the Chinese community is primarily Cantonese or Mandarin speaking (Geraghty,1983). The enforcement of English as medium of communication in the modern classroom after independence further marginalised and relegated the written, spoken, and practical itaukei Fijian language or vosa-vakaviti to a level below the common communication system. As a result, the younger itaukei generation were geared more to a recognised English mode of communication then to learn and practise the itaukei language, skills, and culture. Years after independence, the effect of this language transition has greatly affected the itaukei Fijians, having lost some of the indigenous identity in native itaukei language and in the process lost the transfer of some native indigenous skills for the itaukei survival (Itaukei Affairs Board Report, 2019).

4.4 Laws and Legislation- Na Lawa Tu kei na Veisemati ni Lawa

Special itaukei institutions were established by government over the years to work on preserving and protecting the values, cultures, language, traditional skills, and knowledge of the indigenous people of this land. The legal documents outlining the legislations that governs the provision and guidance on the use and access of the itaukei values, rights and properties include the Fiji Constitution of 2013 - Preamble and Section 27 –30; the iTaukei Affairs Act of 1944; the iTaukei Lands Act of 1905; the iTaukei Land Trust Act of 1940; the iTaukei Development Fund Act of 1965; the iTaukei Trust Fund Act of 2004; the Fisheries Act of 1941; the iTaukei Lands & Fisheries Commission; the iTaukei Lands Appeals Tribunal; and the iTaukei Institute of Language & Culture.

In addition, the iTaukei Land Trust Board (TLTB) supports itaukei institutions under several acts such as the Land Tenure Systems Act and the Land Lease and Ownership Act. With the suspension of the Great Council of Chiefs (GCC) which is the main household for protecting indigenous itaukei rights and belief systems, the above regulations and laws are at stake as well (Itaukei Affairs Board Report, 2019).

Furthermore, the four laws that govern and manage the itaukei native land are the Land Claims Ordinance of 1875, the Native Land Act of188, the Itaukei Land Trust Act of 1940, and the Agricultural and Tenant Ordinance (ALTO) of 1966 assure land security for itaukei Fijians.

Prior to the era of colonization, not all Fijian provinces had the current government structural systems in the vanua structure at the village level. The colonial government then developed the new village structure to include the clan or mataqali for all villages in Fiji and facilitated the establishment of the Itaukei Land Registration in 1940. At the same time, the Native Land Trust Board (NLTB) was established to look after the itaukei land register and become the custodian of itaukei land in Fiji (Rokolekutu, 2020).

The land tenure systems that were ingeniously developed and used by the British colonisers for ninety-six years under the Native Land Trust Act of 1880 are still very much active and functional today. The land tenure system was a tool used to supress itaukei from ownership of land but to benefit the state government for the development of the sugar industry, tourism, real estate, and commercial agriculture. This land tenure system provided for two types of tenure in Fiji:

- Natural Reserve - specifically for the native itaukei, who have customary rights to the land.
- Contractual Lease - for the others or non itaukei who wanted to lease the native land and have legal rights and access to the land.

The native reserve with customary rights did not give itaukei landowners the right to lease their land within their clan or mataqali. Unlike the contractual land lease, the tenants had the legal rights to develop the land for business profit. As such, commercial banks only recognised and approved bank loans for commercial development to lessees with land titles. This alienated itaukei from accessing bank loans as they did not have lease title. According to Section 3, Part 2 of the Native Land Trust Act of 1880 stipulates that the control of native land shall be vested in the TLTB Board, and all such land shall be administered by the board for the benefit of the landowners. This gave the legal power to NLTB or TLTB to control and distribute itaukei land to investors, commercial farmers, business entrepreneurs for the lease of itaukei land which may not necessarily require the consent of landowners. This underpinning so-called colonial strategy of the white supremacy to eradicate the itaukei through the land tenure system kept them in their traditional villages, poor and underprivileged. As a result, the itaukei were and are still assetless and cashless.

The land in Fiji is communally owned by the clan or mataqali within a village. Land is not owned individually or by the chief. The Native Land Act of 1880 which was ingeniously developed by the British colonisers had no clear indicative clause on the full ownership of the native itaukei land by the landowners or itaukei ni qele. Section 2 of the Native Land Act of 1880 clarifies that 'Native Owners' means the mataqali, having customary rights to occupy and use any native lands. 'Native lands shall be held by native Fijians according to native customers as evidenced by usage and tradition.' This meant itaukei did not own the land but could only occupy and use the land. There was no mention in the land laws of the ownership of land by itaukei Fijians according to Section 3 of the Fiji Native Land Act of 1880. This was another portion of the hidden agenda by the colonisers to eradicate the culture, values, language of the indigenous natives and promote capitalism for the profit of the state and the minority few (Rokolekutu, 2020).

The effect of colonialism with priority on capitalism, capitalises on the oppression and bullying strategies of the colonisers that featured the continual oppression, exploitation, and

marginalization of indigenous people during the ninety-six years under the British Crown rule. Now fifty years after independence, the scars and practices in the land acts are still the rule of the day. Hence, the relationship between colonialism, land alienation and the subsequent marginalization of indigenous peoples are still evident today. The so called 'itaukei landowners' are still poor and sitting on their land while the land lessees are enjoying the rich harvest on itaukei land, with all the state and commercial eligibility access, as per land law. Rokolekutu (2020), reiterated that capitalism is not a system that values traditional identity, and it comes with prioritizing national interest through economic development at the expense of the indigenous itaukei values and traditions with environmental exploitation. This was evidenced in the extreme logging, timber milling and deforestation on the land and excessive mangroves cutting over the years in the name of economic development and urbanization. The negative outcome has been disastrous in recent years with sudden environmental change in weather resulting in tropical cyclones, erosion and landslides, flash floods and rising sea level with king tides almost at regular intervals. Over the years, the impact is a factual reality today via climate change effects, which is further described in the next sub chapter.

4.5 Effects of Climate Change and Surrounding Issues- Na Draki -Veisau

Climate change is a significant issue of the current time due to negligence and exploitation of the natural environment with human activities for capital gain and economic development. This is Fiji and the worlds' defining moment. The latter is the result of shifting weather patterns, that threatens food security and rising sea level that increases the risk of catastrophic flooding and tropical cyclones. The impact of climate change is global in scope and unprecedented in scale. Apparently, the third world smaller island states are the worst affected.

Accordingly, the Intergovernmental Panel on Climate Change (IPCC) which was setup to provide an objective source of scientific information with more clarity about the role of human activity in climate change had reported a summary conclusion that climate change is real and human activities are the main cause (IPPC 5th Report, October 2014).

The reality of climate change effect was not taken seriously in Fiji for many years. Our grandfathers viewed change in weather patterns as a norm as they would have alternative traditional ways of mitigating different weather condition. They would use available signs in the sky like ocean birds flying inland, excessive fruiting of tree crops like mangoes, and

certain animals behaving unnaturally, as warnings to determine an upcoming adverse weather and therefore would find alternative mitigation strategies to prepare against these. However, the year 2016 was the year of the unexpected. A category five tropical cyclone named Winston rampaged the Fiji Islands on the 20th of February 2016 leaving thousands homeless and buildings and agriculture severely damaged or destroyed. The transport networks, water and power supply were either partially or completely damaged.

Qoma Islands, which lies along the route and direct path of the cyclone, was not spared. The 280km/hr wind force ripped through the islands and took away ninety percent of the building structures with additional damages to the electricity power lines and piped water systems. The village church and community hall were completely ruined. The seawall was tattered apart as the result of strong gusting winds followed by the giant tidal wave took all that was left by the cyclone winds and dumped them into the ocean beds.

Government since then have slowly helped rebuilt the lives of the people of Qoma with the supply of food rations, building materials, and restoration of water and power supply. Several houses are still to be rebuilt and repaired with peoples' lives slowly returning to normalcy. The seawall has slowly been fixed but the coastal land area that was washed away by the cyclone and tsunami is irreplaceable.

The major source of living for the people of Qoma is fishing. After Winston, forty-three houses that were damaged during the cyclone have been rebuilt under the "Help for Homes" government project. With hundreds affected, villagers had picked up the pieces from the leftovers materials and found ways and means to survive before relief assistance arrived.

As reported by the Fiji Broadcasting Radio Station of Thursday, February 25, 2016, the terror, and destructive wind forces of Cyclone Winston had left extensive damages in the village of Qoma Island in Tailevu**.** This came after forty houses were destroyed. Village headman, Sailasa Vasua, said the experience of Cyclone Winston was something they would never forget. He said that from the sixty houses in the village, forty were destroyed with nothing else left in the house; and our village bridge that links the two islands was destroyed. The Village headman added that they had also lost two village boats which drifted out to the open sea. Winston had left a devastating and destructive memories with major losses of properties on the island, as depicted in Figure 5 below.

Figure 5: Picture of Qoma island aerial view, after tropical cyclone Winston 2016.
Source: Fiji times, 10 February 2016.

Survival and Moving On: Relocation to Higher Grounds after Winston.

The Government's decision to relocate the village to the second main island of Qoma Levu after the cyclone has left the villagers in a major dilemma. The land-owning tribe who are apparently not living on the island had issued a strong notice of warning against the extension nor admittance into their land boundaries as per allocated by the itaukei land tenure system. Several attempts made with the landowners have all failed. According to the landowners, no one can build additional new houses on the island nor any relocation on their existing land of Qoma Levu was acceptable. Respecting the decision of the land-owning unit, the village elders then decided to extend the current seawall with fills and reclaim the shoreline so that new land is built to recover the eroded land of the past sixty years.

The Qoma case study on climate change effects and the traditional methods of mitigating against its detrimental impacts on the island and the people is the key focus for this research paper. Qoma islanders were traditional fishermen and used the sail and wooden canoe powered by wind to move from one island to another in the olden days until some 20 years ago. This had been replaced by outboard motors powered by fossil fuel known to be detrimental to the ocean and the surrounding environment and contributing to climate change and extreme weather conditions. Additionally, the high-cost factor in purchasing unleaded fuel is a major challenge to the people of Qoma.

Reskilling the sailors and fishermen of Qoma with traditional sailing technique in a form of a training package to be taught to the young Itaukei Fijians is one way of reducing the

destructive impacts of climate change while at the same time revive their sailing skills. It is envisaged that this package will also be recognized and considered into the Fiji Qualifications Framework (FQF) as a certificate 1 level qualification. The next sub chapter describes the system in detailed and the process of the Fiji Qualifications Framework and how the certificate qualification in traditional canoe sailing can be embedded and accredited onto the Fiji Qualifications Framework.

4.6 The Fiji Qualifications Framework (FQF)

The Fiji Qualifications Framework **(**FQF) is a recognized platform for quality institution programme that assures strict and stringent measures for the delivery of an accredited programme by any higher education institution. It is a global phenomenon and with an increase momentum recognition, it assures quality teaching and learning delivery, skills attainment, and productivity. Furthermore, it is a tool that captures the competency capability of a learner after leaving school for the workplace, making it a driving force behind the selection of young candidates for job skill selection and permanent employment. The national qualifications framework embraces teaching and learning through the competency-based training and assessment model, where unit standards are developed as outcomes-based competency which are externally assessed at the workplace or in the village and community if it is a traditional skills component. This basically means that in 'learning to sail a Fijian canoe', one will need to demonstrate all competency as per standard required to include the theoretical knowledge and practical application of sailing a Fijian canoe or waqaniviti.

4.6.1 The Dynamics of the Fiji Qualifications Framework (FQF)

The Fiji Qualifications Framework is a government initiative under the Fiji Higher Education Commission. A sub-committee of the Commission called the Fiji Qualifications Council (FQC) is the custodian of the ten performance levels of the Fiji Qualifications Framework. This framework comprises of a comprehensive list of quality assured qualifications, both the national and provider qualifications and unit standards in Fiji. The Fiji Qualification Framework is the definitive source of accurate and current information for qualifications, and it looks after the quality assurance and accreditation of qualifications from levels one to level ten of the qualification framework. Training providers, including universities, international providers, and private training establishments, can apply to have their qualifications registered on the Fiji Qualification Framework through an approved quality assurance process developed by the Fiji Higher Education Commission.

In Fiji, Unit Standards are developed by an industry committee called the "Industry Standards Advisory Committees" (ISACs). Each Industry Standards Advisory Committee writes unit standards or learning outcomes that describe what people must do, and how well they have to do it, to be awarded the unit. These unit standards are also registered onto the Fiji Qualification Framework which when accumulated will contribute to an award of national qualifications.

Some skills and knowledge are common in several industries, like health and safety, customer service, hospitality and tourism to name a few. For this reason, there are generic units as well as specific technical units for trainees to gain from. Because these unit standards are part of the national qualifications, they continue to be recognised when a trainee changes job. In this situation, they can form the basis for another qualification.

People who have already gained knowledge and skills by experience or training from another system have the opportunity to be assessed to determine whether they meet the current standard. They will not need to attend further training if they can show the assessors that their knowledge of the course content is current and up to date. This is called the "Recognition of Current Competence" (RCC), sometimes referred to as "Recognition of Prior Learning" (RPL), which is accumulated past learning skills already gained.

The use of Unit Standards in nationally recognised qualifications helps to ensure that:

- Clear outcomes are recognised.
- Nationally consistent standards apply to the outcomes that are recognised.
- Existing knowledge and skills are recognised and credited on the Record of Learning.

The ten levels of the Fiji Qualification Framework also recognize certain competency level of traditional skills and knowledge which to some extent can be accredited as informal and non-formal training program in villages and communities. This means the writing and documentation of traditional skills in a form of a training package can be taught in schools and village communities either through the formal education system or through recognition of prior learning (RPL) training and assessment model.

The Fiji Qualification Framework is supported by a three-pronged quality system:

- Quality assurance of standards – National qualifications and standards are quality assured before being registered onto the Fiji Qualification Framework.

- Providers need to be recognized and registered by FHEC before they can deliver programmes and assess against national standards. Organisations need to demonstrate that they can develop or access assessment resources, undertake internal moderation, engage in the FQC's national external moderation system, and report results in a timely manner.
- IQA and ER –The Internal Quality Assurance system and External Review system ensure that standards and quality are maintained during the High Education Institutions valid registration duration of five years for non-universities and seven years for universities.

The registered standard describes what a trainee, who has achieved the standard, knows, and can do. Each standard has a defined credit value, which represents the notional learning time, and a level, which reflects the level of complexity of the skills and knowledge that are recognised by the standard. The common currency of credit values and levels enables the credits gained from standards to be portable among national and international qualifications.

Trainees who achieve the standards gain credits which are recorded on the centrally managed "Record of Learning" database. Because the assessment standards are nationally approved, trainees' achievements can be recognised in several contexts (FHEC Brochure, 2014).

The extended work on the Fiji Qualification Framework through this research requires the interpretation of this framework in the itaukei culture and language together with the level descriptors. This should help promote the traditional skills and knowledge with the itaukei version of the National Qualifications Framework called 'Vatavata ni Rawaka Vakavuli' and aligned to the Fiji Qualifications Framework. It is anticipated that the development of the itaukei framework will enhance the teaching and learning of the traditional skills and knowledge and further support the recognition of the number of related traditional-itaukei courses on the Fiji Qualifications Framework.

It is envisaged that the training package for the itaukei canoe sailing, after using the outcomes of the interviews and research, will help develop and shape the occupational standards for regaining the skills and its recognition with accreditation on the Fiji Qualifications Framework through proper teaching and learning. A qualifications framework is a formalized qualification levelled structure where learning level descriptors and qualifications are used to understand learning outcomes and specify the degree of complexity to determine the pegging of a study programme from a Certificate to Diploma, to a Degree, Masters, and PhD level.

This allows for the ability to develop, assess, and improve quality education and training in several contexts. Since qualifications frameworks are typically found at the national, regional, and international level, a national qualifications framework is one that is nationally owned and administered as a national agency for accrediting awards programme that maybe benchmarked and recognised against other national and regional qualifications framework.

Fiji has some champions and best practitioners of itaukei traditions and cultures that are in a way trying to enforce the preservation of these God given gifts. With the right approach, the competency-based training model (CBT) can address these challenges when used properly.

Similar training applications and flexibility will be employed to the teaching and delivery of the training package for “Sailing a Canoe” (waqaniviti) programme. With the Competency based Training (CBT) model, a theoretical component of the course will accompany the practical sailing component in shared teaching mode in a real canoe and sail. The qualifications framework below shows the certificate level 1 at the bottom tier of the framework.

Overall Concept of the Fiji Qualifications Framework (FQF)

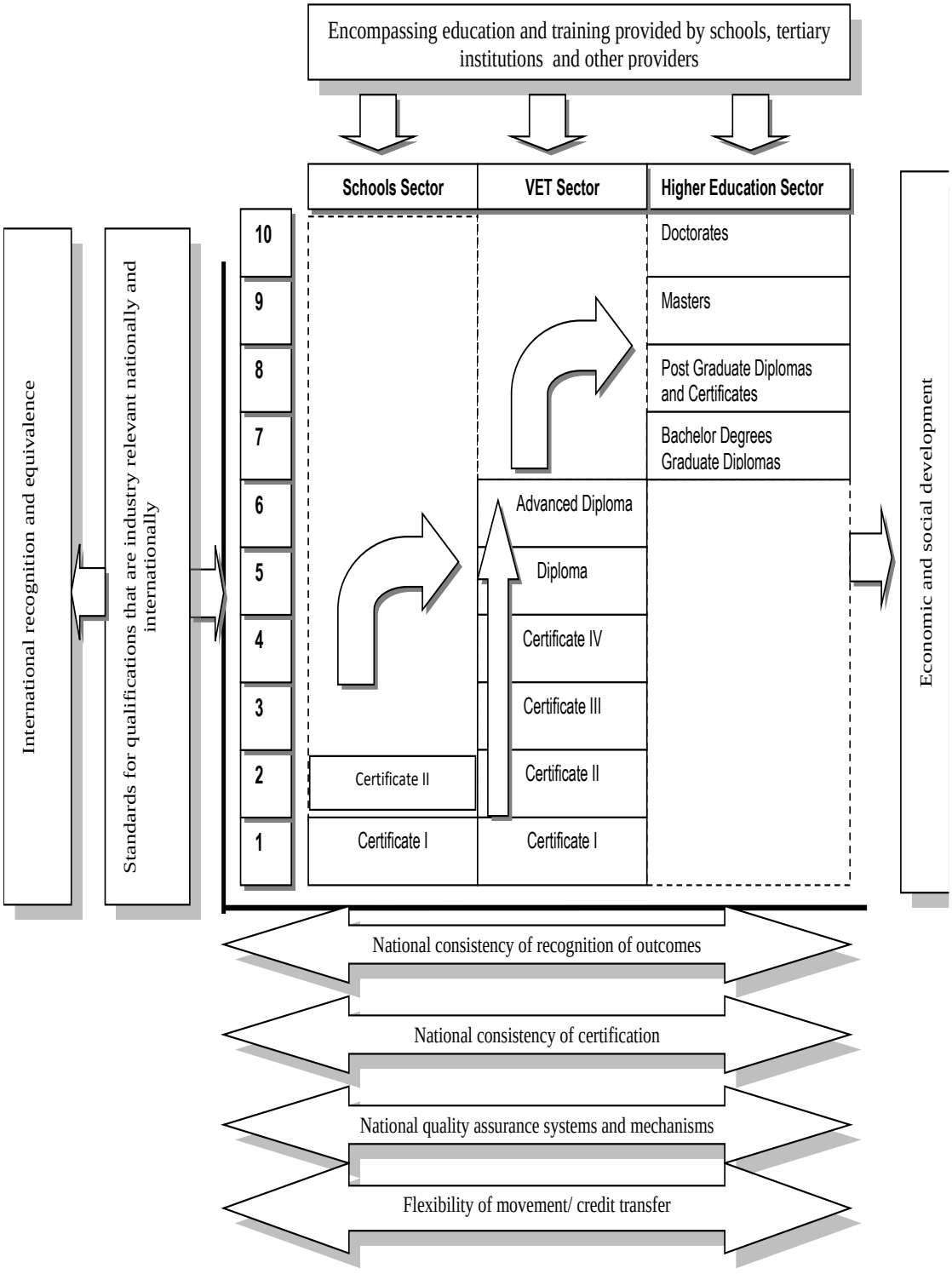

Figure 6: The Fiji Qualifications Framework: Source FHEC Annual report 2011

Chapter Summary

Chapter four focuses on colonisation effects and decolonisation principles which led to the building block of the case study. Climate change effect and traditional mitigation factor using traditional canoe sailing as a metaphor is briefly discussed. It further describes colonialism principles hidden in capitalism and suppression on the promotion of itaukei traditional skill and culture which were reflected by key areas under threat for itaukei culture and traditions. The chapter describes colonisation effect in three tiers category and the need to decolonize and deconstruct the neo-colonialism effect at the expense of itaukei traditional value systems. These include culture, belief systems, traditional protocols, customary traditional rituals and ceremonies, education and governance, traditional knowledge, skills craft, language and dialects, and laws and legislation.

The Qoma case study of traditional canoe sailing skills anchors on the ideology not only as a means of mitigation to curb extreme weather conditions, but more so to revive and sustain the traditional skill of sailing a traditional Fijian canoe for the younger generations.

Chapter five begins with the description of Qoma Case Study along with the parallel studies of eight villages on the island of Vanualevu, one village in the province of Tailevu, and three villages on the island of Kadavu. It first describes the journey allegory of sailing in a canoe. The focus is on the revival of traditional skill in sailing a Fijian canoe as a mitigation strategy for climate change effect and proposing for the development of a training package for canoe sailing to be taught in schools and communities in Fiji.

CHAPTER FIVE

CASE STUDIES RESULTS

THE QOMA CASE STUDY AND PARALLEL STUDY AREAS

Chapter Introduction

This chapter has three sub-titles under the following: 5.1, 5.2 and 5.3.

5.1 The Qoma Case Study

5.2 Parallel study areas

5.2.1 Parallel study 1: Uluiloli village of Verata, in the province of Tailevu- Viti Levu.

5.2.2 Parallel study 2: Navunievu, Nawaido villages in the Bua Province, Nakalou and Mataniwai villages in the Macuata Province, and Nagigi, Buca, Saqani, Wainigadru and Tawake villages in the Cakaudrove Province – Vanualevu.

5.2.3 Parallel study 3: Levuka, Kabariki and Muainuku villages on the island of Kadavu

5.3 Detail Research Methodology

Chapter Summary

Chapter Introduction

The previous chapter focuses on colonisation effects and decolonisation principles which are the basis of the building block of this case study. It explains the use of traditional canoe sailing as a traditional mitigation factor to climate change effects as a metaphor. It further describes the impacts of colonisation principles on itaukei traditional skill and culture with emphasis on key areas that are under threat for itaukei cultural traditions. The chapter identifies three tiers of colonisation impacts on Itaukei Fijians with the principles of decolonisation and deconstruction as a way forward to revive itaukei Fijians' traditional skills and culture. The key areas identified are the cultural belief systems, traditional protocols, customary traditional rituals and ceremonies, education and governance, traditional knowledge, skills craft, language and dialects, and laws and legislation.

This chapter describes the Qoma case study with the proposal for the revival of traditional knowledge and skills in canoe sailing as well as other key traditional mitigating factors against the effects of drakiveisau.

The geography of the island is outlined in terms of its social organization structure, demography, education, religion, daily chores, and its unique traditional skills known for the natives of Qoma. The parallel study villages in the provinces of Cakaudrove, Bua, Macuata in Vanua Levu, Kadavu and Uluiloli on traditional mitigation strategies for climate change adopted are also discussed.

This chapter further describes the research design, the selection of study participants and its ethical consideration, the process, and the methods of data collection, as well as the research findings. First, it discusses the selection of study areas and participants, and the study procedures describe the construction of themetical questions and meeting the participants and the format of data collection. The collected data are then transcribed and translated, and the photographs and field notes are analysed, coded, triangulated, interpretated and presented as results.

5.1 The Qoma Case Study

Adopting the ethnographic research methodology for this research case study means travelling to the island of Qoma, living within the people on the island, and researching its people and culture through a process of sustained observation and participation.

Qoma island is sinking and shrinking due to rising sea levels mainly caused by global warming and drakiveisau. The traditional lifestyles of Qoma natives have over the years been influenced greatly by modern developments causing loss of cultural values, skills, and knowledge. The once carefree, peaceful, and healthy traditional lifestyle of the villagers of Qoma has been disrupted by drakiveisau and has called for a solution to resuscitate the traditional ways of preserving the traditional environment and eventually mitigate against the effects of drakiveisau.

Figures 7a and 7b below show the aerial views of the three islands of Qoma in relation to the Tailevu Point located on Fijis' main island of Vitilevu, with the Qoma passage separating Qoma island from the mainland. Figure 2 further shows the three islands of Qoma and the two villages of Nabualau and Kenani, located along the Dawasamu coast of Tailevu province

on the main island of VitiLevu, that provide the traditional makeup of the tribe or 'Yavusa of Nabulebulewa', the natives of Qoma.

Figure 6a: Qoma 3 islands: source: Google earth 2020-3D google picture

Figure 7b: Qoma 3 islands: source: Google earth 2020-3D google picture.

The three tiny volcanic islands of Nabulebulewa, Qoma Levu and Qoma Lailai, located off the Tailevu Point, is the main study site for this research. Qoma has a total land area of 22 hectares of which only four percent is inhabited. Qoma Levu is the biggest of the islands with a land area of 17.6 hectares with an elevation of about 100m above sea level as its highest point (Figure 1). Dip and scarp slopes are found because of the disposition of the ridge closer to the southern side creating very steep slopes on the southern part and gentle ones to the

northwest. Qoma Lailai, with an area of about 3.5 hectares, is bigger than Nabulebulewa but low lying. Nabulebulewa, the smallest of the islands, has a land area of approximately 0.9 hectare and a 40m bluff on its northern end which gradually drops towards sea level on the southern end. All the islands have large black stones boulders and sedimentary rocks on their coastal areas that make up the 67.3 hectares of inter-tidal platform and fringing reef area, which is exposed at low tide and is an important fishing area (Veitayaki,1990).

Whilst the majority of the Qoma natives live on Qoma island, the rest dwell on the two mainland villages of Nabualau and Kenani, in the district of Dawasamu on the main island of Viti Levu, some seven kilometers away from Qoma. The number of households has increased remarkably in the two villages over the years due to migration, and the shrinking size of Qoma Island is limiting the expansion and rebuilding of houses on the island due to rising sea level and coastal erosion. This freehold property of 3,638 acres of prime land was gifted by the chief or Ratu of Dawasamu to the Rokotuiloma Clan of the tribe or Yavusa Nabulebulewa in the late 1800. The old village site, referred to as "koromakawa", was located at the coastal delta of the Dawasamu river but has since moved to the inland sites of Nabualau and Kenani villages as depicted in figure 8 below (Vasua, 2018: Per Comms).

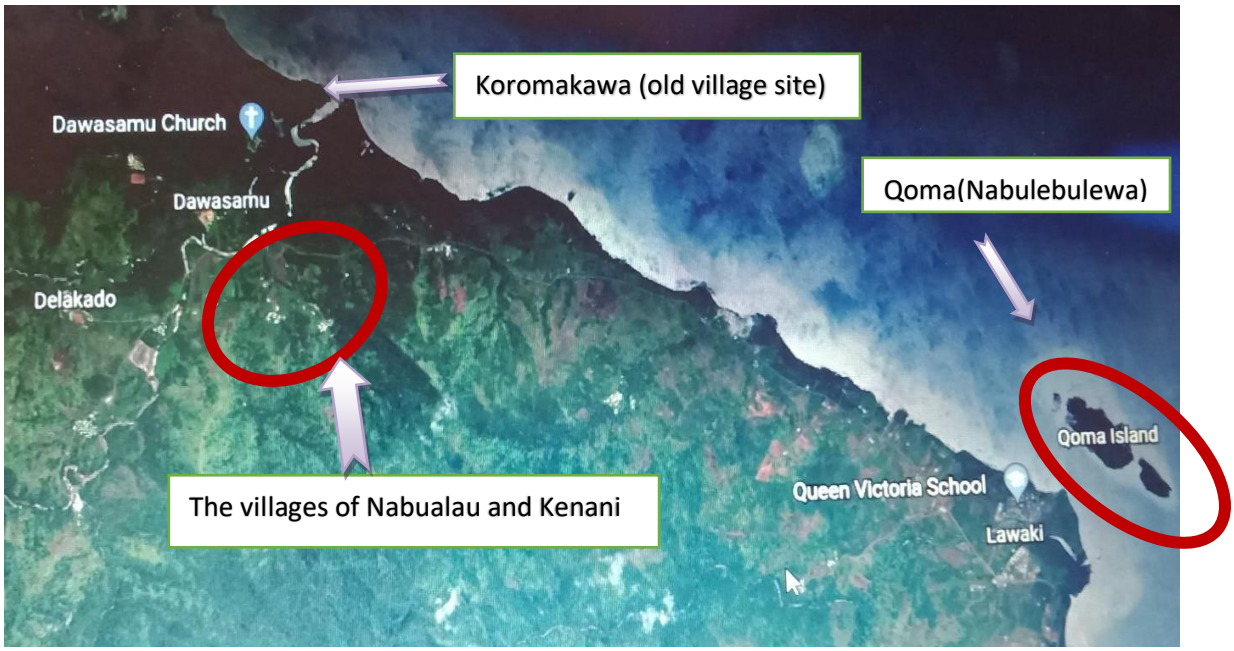

Figure 7: Map of Qoma and the two villages in Dawasamu- Nabualau and Kenani,

Source: Google map, 2021.

5.1.1 Qoma Village Site

The village of Qoma is selected as the main case study for this research due to its current challenges caused by drakiveisau and the initiatives taken by the village chief and its people to revive their traditional practices and skills in mitigating against drakiveisau with underpinning knowledge in climate change awareness which has been on-going for the past ten years. Most of these selected traditional skills are strategic in the way they have been used by the people of Qoma to mitigate against the devastating effects of drakiveisau on the island. Apparently, all except sailing on a traditional Fijian canoe, has for a long time no longer a practice by the villagers as the younger generations prefer the more convenient and faster diesel- powered engine boats, without much concern for its damaging impacts on drakiveisau.

Qoma is well known for its folklore story of the sacred "Bitu ni Ceva" or Magic Bamboo, which is growing on the hilltop of Qoma Levu, as described in Chapter 1. Legend explains how this special magic bamboo tree was gifted by the spirit god and chief Rokomoutu of Verata to the people of Qoma, to provide them seven days and seven nights of strong south easterly winds and waves whenever the traditional priest or bete shakes its leaves. It is used by the menfolk to direct wind energy on their sails for their trip back to the village and after fishing in the open sea. For this reason, Qoma is home of the traditional fishermen to the Turaga Na Ratu mai Verata in the Tailevu province.

Due to the smallness of the island, majority of the natives live on Nabulebulewa (Qoma) and a few households have been relocated to Qoma Levu over the years. Others have been reallocated to the villages of Nabualau and Kenani in the Dawasamu area on the mainland of Vitilevu. The natives of Qoma belong to the tribe or yavusa of Nabulebulewa, who are divided into two main clans of Tui Nabulebulewa and Rokotuiloma.

The three islands of Qoma are located between latitude 17°.3760 south and longitude 178°.3460 east of the Tailevu Point, Naigani and Ovalau Islands. Qoma is surrounded by a fringing reef and the mangrove swamp is found behind the island's periphery. It takes about three hours to walk around the three islands. The effects of drakiveisau and weathering on the three islands have taken its toll over the years with the waves, ocean currents and winds continuing to erode the foreshore and seawalls and flooding the village green. Awareness and implementing mangroves tree planting and rebuilding of seawalls over the years have been

part of the rebuilding process to mitigate against the drakiveisau effects on Qoma as depicted in Figure 9 below.

Figure 8: Pictures of Qoma with weathering effect and mangrove tree planting

The pictures below show weathering effects seen on the foreshore of Qoma.

Coastal erosion and Seawall rebuilding on the island of Qoma

Planting of mangroves between Qoma Levu and Qoma Lailai

Figure 9: Pictures of weathering effect on seawall and mangrove tree planting on Qoma.
Source: Naisele, 2018.

This thesis proposes the revival of the dying Fijian traditional canoe sailing skill and discourage the use of fossil fuel on outboard motors which is harmful to the environment. This could also boost awareness amongst the natives of Qoma to help contribute to mitigating against the growing drakiveisau effects on their lives in the island. This contribution should go a long way in not only supporting the maintenance of a healthy environment but more so to help revive a dying skill.

Figure 9: Qoma aerial and front views

Front view

Qoma aerial and front views: Google Aerial view *Source: Google Earth, 2019*

5.1.2 Social Organisation

The people of Qoma have close traditional ties with the people of Dawasamu and Verata but under the current government administration, Qoma comes under the Namena district. The traditional social organisation of Qoma is clearly stratified and strictly adhered to. Every person belongs to an extended family unit or itokatoka and to a large landowning unit or mataqali, that are responsible for different traditional roles observed in any itaukei Fijian village set up. Community affairs such as village ceremonies are approved by the chief after the head of the chiefly mataqali consults with the heads of the other mataqali and elders, whose duty are to relay decisions to their respective mataqali members. Messages for the chief that originate from the people are passed through the same network.

5.1.3 Demography

The population figure of Qoma has not changed significantly since 1956 though recorded figures show a slightly higher population in 1966 (Veitayaki,1990). The population

fluctuation in the past four decades showed that the total population of 226 in 1986 was approximately the same as 1956. However, the number of households in 1986 totaled 46 compared with only 31 in 1956. In 2019, 56 households were recorded with a slight increase in population to 278 (Vasua, 2018: per comms). The number of households has increased markedly, illustrating a reduction in household size, which may be due to the resettlement of islanders as farmers in Nabualau and Kenani on the mainland of Dawasamu district. This new home site to the people of Qoma is a freehold property of 3,638 acres of prime land gifted by the Ratu of Dawasamu to the Rokotuiloma clan of the tribe of Nabulebulewa in the late 1800s. The population density of ten people per hectare block is a high indicative and a concern for land issues on the island and in view of this, the people rely heavily on fisheries due to limited land resource (Veitayaki, 1990).

Figure 10: Qoma island ariel 3D view, after tropical cyclone Winston 2016;
Source Fiji times, 13 February, 2016.

5.1.4 Education

The children of Qoma attend Lauwaki District School on the mainland of Tailevu in their elementary school years and move to either Queen Victoria, Ratu Kadavulevu, Saint Vincent College, or Tailevu North High Schools, while a few moves to urban schools around VitiLevu. The people of Qoma prioritise the education of their children. They believe that having a good education is the doorway to earning a good job that would enable them to settle and work outside of the village. This could also reduce the pressure of sharing the limited land and marine resources on the island. This is evident in the high number of Qoma natives who are well educated and employed in different sectors of Fiji's economy and have settled in different parts of the country. However, the village is always a hive of activities when everyone comes

together for the annual village event of Nabulebulewa Day during the Christmas season to meet and strengthen traditional and family ties and celebrate life and various achievements of the people of Nabulebulewa (Vasua, 2018: per comms).

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5.1.5 Religion

The islanders of Qoma, like most Fijians, are Christians by faith with religious commitments occupying a significant part of their life. Most belong to the Methodist Church denomination while a small group worship under the Christian Mission Fellowship Church. The villagers observe Sundays as sacred and church services are organized in the village church throughout the week. The Qoma Methodist Church is linked to the Verata Divisional Methodist Circuit, headed by an ordained church pastor. The lay preachers follow a roster which requires them to preach and conduct religious services in Qoma and other surrounding villages. Church services are organised by different groups every evening except on Saturdays, while special church services are organised occasionally (Vasua, 2018: per comms).

5.1.6 Daily Chores

The men of Qoma are traditionally known for turtle fishing and are the sole providers of their households. The women are usually engaged in domestic fishing, but they do not wander too far from the island as they have household chores to attend to. Fish and other edible sea foods around the island are always plentiful but has slowly depleted over the past ten years. According to Veitayaki (1995), the villagers believe that the fisheries resources will not be depleted as the sea will always provide for them. The men folks would sail around on their canoes and fish in nearby reefs and lagoons between Vitilevu and Vanualevu and with a clear weather and strong easterly winds, they could sail and fish around the reefs closer to Nabouwalu Point of Vanua Levu where they could sell their catch at the market and return to Vitilevu, guided by the strong easterly winds. Every surfaced reef or ‘cakauvotu’ and submerged reef or ‘amotu dromu’ had been given names by our forefathers long ago. They would know the signs that bad weather was approaching by studying the sky, ocean current, cloud formation, ocean currents and would use the south easterly winds to sail and return home quickly. If they happened to be in the opposite direction of the wind while out in the sea, they would adopt the gliding sailing technique with zig-zag approach to reach the mainland safely and quickly. The sailing technique called ‘qasila’ or gliding at an angle

towards the winds, has been and continued to be used by the fishermen of Qoma today (Vasua, 2018: per comms).

In view of the above, the people of Qoma are regarded as traditional fishermen and professional sailors with skills in sailing traditional canoes or waqaniviti. Over the years and decades, this unique skill has been passed down from generation to generation. Every family or 'itokatoka' in the village would own a canoe, canvas sail, oar with a hand-weaved turtle rope net and turtle spear. Sailing is a daily activity which includes sailing to the mainland of Vitilevu, for the children's education at a nearby primary school or to travel to Suva for work or administrative and commercial purposes.

Interestingly, the years between the 1970s and 1990s saw a huge shift in contemporary thinking capped with modern development mindset that changed the entire village lifestyle of the people of Qoma. The unexpected wave of modernization with new technological interventions have broken through the itaukei value systems of traditionalism and culture. The shift has challenged the traditional itaukei norms for the villagers. Owning a miniature sized wireless communication gadget, or an educational technological tool, or outboard motor vessel on the island has suddenly replaced the carefree, sociable, peaceful, and slow-paced lifestyle the villagers of Qoma once enjoyed. This has resulted in the younger people's preferences over the new form of technology than the outdated traditional way of doing things. The thatched Fijian bures are now seen to be associated with the poor people. The traditional woven pandanus mats are seen to be costly and wastes a lot of time weaving them. The faster outboard motorboats are more preferred over the slow sailing canoes (Vasua, 2018: per comms).

With very little awareness of their impacts on the environment, the whole village resorted to adopt the new ways of doing things. Slowly and sadly, the art and traditional skill in canoe sailing starts to fade away. During the talanoa with the village headman and village elders, only five living adults still know the art and skill of sailing a traditional Fijian canoe.

The men of Qoma are best known for their love and expertise in certain traditional practices which ranges from traditional fish drive (silitikawa), to turtle catching using traditional ceremonial approach or 'qolivonu', food preservative method of boiled grated cassava or 'madrai ni viti' after soaking in murky mud brackish water for a week before cooking, eating and storing for days, specially used to feed the fishermen out fishing or turtle catching for days and weeks. Other traditional skills that are on the verge of being lost if they are not

revived include smoked fish drying technique or 'ika vesa', earth oven cooking or 'lovo', annual yam growing event or 'itei ni yabaki', observing protected marine areas or 'qoliqoli vakatabui ka sauvi', sea-wall rebuilding technique or 'tara bainiua', house heating during cold winter season known as 'irara' to name a few (Vasua, 2018: per comms).

5.1.7 Traditional Skills of Qoma

Table 2 below shows the different type of traditional skills known and practiced by the people of Qoma, its significance, effect and risks, and current mitigation strategy.

Table 2: Known traditional skills for the natives of Qoma.

Known traditional Itaukei Fijian skills	**Description /Significance**	**Effect /Risk**	**Current Mitigation**
Fishing or 'Silitikawa'	Traditional fishing using leaves, reeds and vines all weaved together	This fishing method is rarely used today	It's now compulsory that menfolk must adopt this method once every three months, a village functions, as approved at their village meeting in 2019
Turtle fishing or'Qoli vonu'	Catching turtle on weaved nets and using traditional protocol.	The Fisheries Department has regulated rules against the slaughtering of turtles, hence no turtle fishing for the last 30 years.	Government in its new fisheries legislation has approved that one turtle to be used for every village function in Fiji, upon request. As a result, five of the ten clans now have turtle nets and have practicing turtle fishing for the last ten months.
Food preservation methods '	Cassava delicacy or 'Madraiviti. The soaking of cassava in a pool of brackish water for days before wrapping in leaves and cooking	Rarely practiced in the village today	It's now compulsory that women must cook the 'madrainiviti' at every village community function
	Smoked fish drying technique or 'Ika vesa'	Rarely practiced in the village today	Women are now practicing smoked fish preservation methods almost every Sunday for lunch. The process is done on Saturdays.
	Earth oven or 'Lovo' Lovo is next to the…. and helps smoke the house to keep insects out	Still in practiced.	Men are now practicing 'lovo' almost every village function and families do the 'lovo' for Sunday lunch.

	Small house like structure or 'Lololo' for storing root crops that can stay longer periods like yams and kawai	No longer practiced today	The skill can be easily revived but the people prefer to take their crop yields to their homes in the village.
	Yam planting or 'Tei Uvi'-. It is a sign of manhood and strength. The crop that can stay fresh for 12 months period	Still in practice today	Over generations, it has always been compulsory that menfolk plant yams and present the first harvest to the chief and the church at every yearly harvest. This practice is still enforced today.
Sailing of canoes or 'vakalaca waqakau'	The only means of transportation over the years until 30 years ago.	Since the arrival of modern means of transportation, this practice is longer used today.	There are five elders still know canoe sailing skills. The development of the training package in canoe sailing will mitigate and possibly revive this skill
Marine Protected Area (MPA)- 'Qoliqoli vakatabui'/ 'sauvi'	A portion of sea/reefs around the three islands that are forbidden to fish in	Still practiced today	Apart from MPAs, there are times when the village enforce the' taboo' or 'tabu' at nearby reefs or 'iqoliqoli' when the chief dies as a mark of respect. This is still encouraged today as a means of replenishing the ocean resources.
Seawall or 'Bainiua'	The seawall protects the village coastal and frontage and helps maintain the islands physical status and nature.	Coastal erosion through strong winds, current and king tides continue to wash away coastal seashore and threatens the	Villagers continue to repair and rebuild the seawall using large rocks during weekly community work since 2019. The village continue with their monthly mangrove tree planting project to act as the first barrier to the natural weathering of sea, ocean current and winds
Traditional house heating during cold/winter season or 'irara'	During cold season, a fireplace heater or 'i-rara' with selected dry logs placed at the centre of the Fijian bure as a heat energy source for the family.	No longer being practiced today.	The skill can be easily revived as the needed resources are always readily available in the village. Need to enforce the teaching of the skill to the younger generation
Traditional chats or 'vucu vatu, meke and vakalutuivoce'	Traditional chanting and singing after a communal task in a community hall.	Has not been welcomed by the younger generation and has been replaced by contemporary singing	Elders slowly reverting to the use of chants, vucuvatu and meke during village meetings once every two months beginning in 2019. It comes with wooden bell or 'lali', baboo drum or 'derua'
Fish trapping technique or 'Tuva Moka' / 'Tuva Salisali'	Stone weir, in a 'u' or circular shape placed on the reef during low tide and visited during the next low tide	Regularly practiced today	Villagers once a month are committed to revive this skill, as agreed to in the village meeting 2020. Additionally, in October 2019, the Ministry of Itaukei Affairs staff spent two weeks on the

			island to help revive this skill and other related traditional skills known for the islanders
Traditional Fish drive or '*Samu busa'*	A fish drive technique where men, women and children are engaged in this group for activity	Regularly practiced today.	Villagers once every three months are committed to revive this skill, as agreed to at the village meeting in 2020
Fijian house or 'Fijian bure'	Building of thatched bure or traditional Fijian houses.	This used to be popular on the island but no longer practised now.	Plans in place in the 'Qoma Village Strategic Plan 2021-2025, to teach the younger generation on the skills of building a Fijian bure but not yet implemented.

Source: interview script with Turaga ni Koro (Vasua) and village elders of Qoma

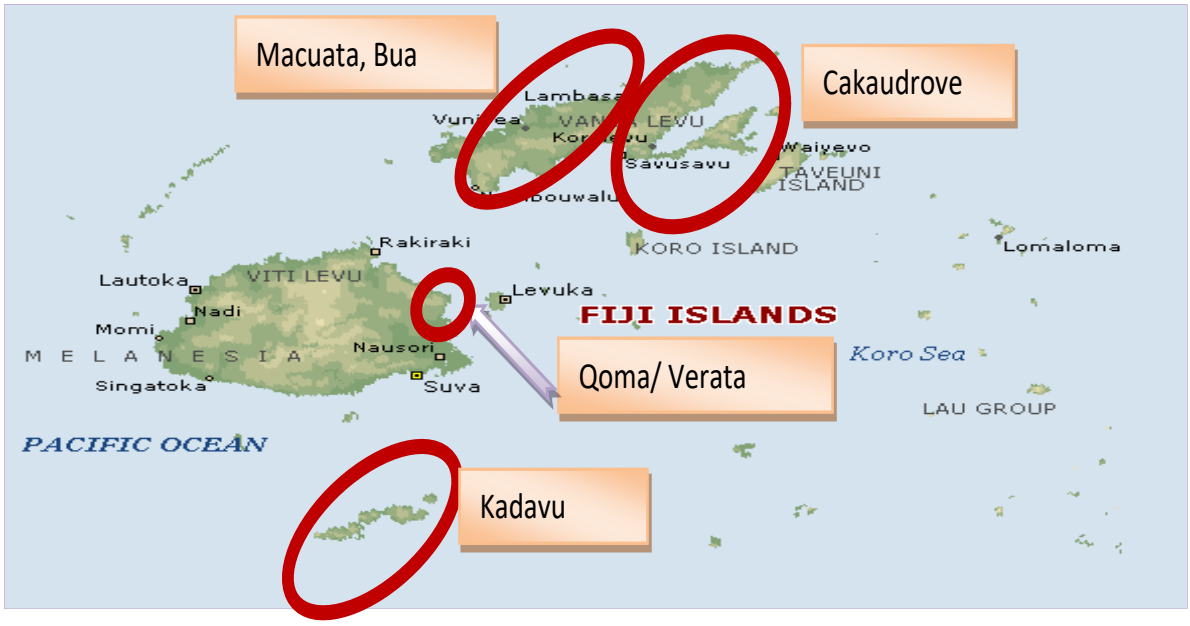
5.2 Other Selected Study Areas

5.2.1 Parallel study 1: Navunievu, Nawaido and Solevu villages of Bua Province, Mataniwai & Nakalou viilages of Macuata Province, Nagigi, Saqani, Tawake, Wainigadru villages of Cakaudrove Province.

5.2.2 Parallel study 2: Levuka, Kabariki and Muainuku villages of Kadavu Island

5.2.3 Parallel study 3: **Kadavu**-. Uluiloli village of Tailevu Province.

Figure 11: The areas of study and research in Fiji- coastal Vitilevu and Vanualevu, and Kadavu



The areas of study and research in Fiji- coastal Vitilevu and Vanualevu, and Kadavu

The research study not only focused on Qoma Island but also had a comparative analysis of other selected villages in five different provinces with its fourteen villages. Nine of the villages that were studied are located on Fiji's second largest island called Vanualevu, covering all its three provinces of Bua, Macuata and Cakaudrove. The village of Uluiloli in the Tailevu Province on Fiji's main island, Vitilevu and three villages on Fiji's fourth largest island of Kadavu, located south of Vitilevu, were selected for this project. All selected villages are coastally located on the windward areas of the main islands and had skillful canoe builders and sailors.

The main research questions targeted the notion of traditional itaukei Fijian skill identity with its traditional significance to the villages; whether the skill is active and what strategies in-place were to replace or revive the dying skill, and what mitigating strategies to drakiveisau were implemented by the village.

5.2.1 The Eight Villages of Vanualevu

Twenty-five traditional skills were identified in the eight villages in the three provinces of Vanualevu. According to their village headmen or 'turaganikoro', these traditional skills ranged from farm clearing methods, to fish drive methods, canoe building and sailing, sea

wall building, village relocation, farming method, annual fish and crop harvest or ‘isevu ni yabaki’, food preservation methods, bure building, crafts and weaving, and food delicacy or ‘vakalolo’.

Of the twenty-five traditional skills tested, the two lost skills include the food delicacy of vakalolo or ravoravo, common for Navunievu village in the province of Bua and the canoe sailing of Nawaido in Bua, Saqani, Tawake and Wainigadru villages of Cakaudrove. Farmlands are now mechanized and depend heavily on chemicals to rid weeds and pests which are detrimental to the environment that contribute to drakiveisau. This is true for Navunievu, Bua, Nagigi and Saqani villages where large bush areas are bulldozed to clear the big trees before chemicals are sprayed to kill the weeds.

Similarly, traditional fish drive methods are on the verge of disappearing and are no longer practiced in the villages of Tawake, Wainigadru, Nagigi, Saqani, Navunievu and Nakalou. However, the villages of Saqani, Tawake and Wainigadru continue to practice it and they also protect the breeding season of the smallest fish or ‘Kanace’ around the Natewa Bay during the months of June-July each year when no fishing is allowed during this taboo period around the Natewa Bay area. This ensures survival and continuous supply of such fish in years to come.

Traditional crafts and building of Fijian bures are dying skills for most villages in Cakaudrove especially Tawake, Saqani and Wainigadru. The latter is the same for other villages in the provinces of Bua and Macuata.

According to Labati, the headman of Nakalou, the village was relocated some eighty years ago, and the old village site is now under sea water. The present village site is located on higher grounds and safe from tidal waves and tsunami. The people of Nakalou are traditional fishermen and depend on the sea for survival. However, the increase in free-night diving and use of high-lazer diving torches have threatened the ecosystem surrounding the nearby reefs and sea as there are evidence of dead corals and less fish in their traditional fishing ground (Labati, 2018: per comms).

Ten of the fourteen villages visited have damaged sea walls due to weathering effects which have drastically washed away the front shorelines of the villages. However, a number of these villages have started mangrove planting projects to help protect their shorelines and stop coastal erosion. The village of Nagigi have adopted a different approach of planting coconut

trees close to each other on the white sandy beach along the shoreline. Natural sand-banking and sand-piling by the winds, waves and ocean currents along the beach area are now acting as sea walls for the village (Navau, 2018: per comms).

Similar traditional natural sea wall building pattern is seen along the Suva city foreshore where coconut trees planting, and a jet-out sea concrete breaker creates natural weathering and piling of sand to form huge sand piles next to the concrete seawall as illustrated in Figure 13 below.

Figure 12: Traditional and natural sea wall Building

Traditional and Natural Sea Wall Building

1.(Top) jet-out sea concrete breaker with the sea wall: 2.(Top) Natural piling of sand bank next to the sea wall; 3. Coconut trees planted and growing (below) on reclaimed land with the sand piles that now form the new sea wall next to the concrete sea wall; source: Naisele E, 2020.

5.2.2 The Three Villages of Kadavu

The Kadavu study showed nine traditional skills and activities are still practiced within the three villages of Muaninuku, Levuka and Kabariki, as reflected by the village headmen. These skills and activities range from sea wall building, farm clearing methods, fishing drive methods or 'yavirau', canoe sailing, annual fish, and crop harvest or 'isevu ni yabaki', Fijian bure building and repair, crafts, and weaving.

The risk of losing the skill of traditional fish-drive for the three villages is high as this was once a practiced for the last twenty years but no longer the case now, according to the village headmen. However, there is reskilling and practical training for the youths in the Fijian dessert delicacy known as 'vakalolo' for the villages of Levuka and Muainuku.

Interestingly, the two villages are well known for the existence of two magical rocks called 'Vatuniloka' which means extreme high-tide rock, and 'Vatuniuca' which means extreme rainfall rock. These rocks are of great traditional importance to the people as some guide and control of village norms and moral values. The Vatuniloka rocks have special mana or power to cause earth tremors and sea level rise or tsunami, while vatuniuca has this power to cause extremely heavy down pour that can cause flooding, both as a warning of disobedience by the villagers.

The village of Kabariki on the other hand continues to practice their traditional annual yam planting skill. Yam is seen as a crop of traditional importance and yam farmers are skillful and respected for the harvest they produce annually. There is feast and celebration at every stage of the farming process from the preparation of the land to the planting and weeding and finally the harvesting of yams. However, Kabariki village is slowly losing its fish driving method called 'tuvamoka' where rocks and big boulders are arranged in a circle on the reef at low tide and during high hide fish get trapped in the rock wall.

5.2.3 Uluiloli Village in the Tailevu Province

There is something unique about this village which was selected based on the history of boat sailing. According to the village headman, Uluiloli is situated inland, around mangrove swamp but villagers travel to the sea by sailing on wooden boats to fish in nearby reefs. The traditional canoes during the early days were made from local timber using weaved mat as a sail. This skill is still alive, however, their wooden boat or waqakau uses canvas sail.

5.3 Research Methodology

5.3.1 Methods of Data Collection

The methods selected to collect data for this study was based on the purpose and the main research questions underpinned by itaukei Fijian traditional epistemology, with the key proposal to revive traditional mitigation strategies against drakiveisau to save our land from shrinking and sinking. To verify the research purpose and address the research questions,

talanoa and awareness trainings were identified as appropriate methods to collect information sought for the "drakveisau" effects and its traditional mitigation strategies. The researcher's observations and experiences during the research were also major sources of primary data for this study. The stories and responses of selected participants, photographs and field notes were transcribed and translated, analysed, coded, triangulated, interpretated and presented as results.

The story telling or talanoa session was done either on a one-to-one basis, or small discussion group of four to five participants. The awareness training involved the village elders and the young men and women during a village meeting. The awareness was to inform and further notify people of the local and regional impacts of 'drakiveisau' on their livelihood and why traditional mitigation methods can save their deteriorating landscape and resources.

a. Talanoa Session

Nabobo-Baba (2006) refers to the notion as "*a process in which two or more people talk together, or in which one person tells a story to an audience of people who are largely listeners*".

Twenty-two talanoa sessions were conducted in the fourteen selected villages between October 2017 and December 2019. Prior to the meetings, the research questions were presented and explained to the chiefs and village headman before they were discussed with the participants. The participants were selected from the youths and young couples as the young generation of 20- 45 years old, and the older generation of 46-80 years old. The Qoma case study had follow up-talanoa verification visits during the late 2020 and early 2021.

To guide the participants during the talanoa session, a semi structured questionnaire based on the main research questions was used to allow participants to express opinions and information freely. The questions were translated into the itaukei Fijian language for the free flow of information and to help the researcher monitor time. The talanoa sessions were all conducted in the Baun dialect for most participants, except for a few who preferred to speak in their own dialects, as the research participants would be more comfortable to share their knowledge about 'draki veisau' in their own language. Some villages in Vanualevu and Kadavu where it was difficult to speak in the Baun dialect were allowed to converse in their own Vanua Levu or Kadavu dialects as information given by the participants would be

accurate if communicated in their vernacular (Latu 2009).
All the collected data was recorded and validated at the study site during the talanoa sessions.

The talanoa session begins with the traditional protocol of isevusevu which accorded the approval to conduct research by the village chief via the 'Turaga ni Koro'. In most occasions, the yaqona or kava drink is served during the talanoa sessions to allow the free flow of ideas while participants shared their stories. Itaukei Fijians believe that talanoa and kava drinking go together if there is a need to get things done. Sometimes kava maybe served and consumed after a task has been achieved as a token of appreciation to the participants by the hosting party. However, to maintain clarity of ideas and validity of information from participants for this research, yaqona was only allowed after the talanoa sessions.

b. Awareness Trainings

With the help of the village headman, two awareness trainings were carried out on Qoma and one training each for the selected villages.

The isevusevu ceremony was first presented to the village chief before the training session begun to provide approval for the researcher to conduct the training and exchange information confidently with participants. There was no drinking of kava during the training session as consented by village elders for it was vital for participants to maintain a clear state of mind during the training to ensure validity in the data collected.

The researcher first explained the purpose of the research and why these sites were selected for this study. This was followed by a short video presentation of the causes and evidence of drakiveisau impacts globally and within the Pacific region identifying the unusual weather patterns that have resulted in the form of severe killer storms, severe flooding, sea level rise with king tides and extreme heat and high humid conditions as evidence of drakiveisau in our community.

The participants were then divided into groups based on their mataqali and on their ages: below 39 years as the young generation, and 40 years and above as the old generation. In the case of Qoma, there were only two mataqali and two groups were formed from each social unit. This was not the same for the other study villages because they had three or more mataqali in their village. The six research questions translated into the Fijian language were given out to each group to guide them in their discussions. The group discussions took about 45minutes. Results of the group discussions were written down in newsprint papers for

presentations and later pasted on the walls after they were presented. It was interesting to note the contrasting views between the young and the old people when it comes to traditional skills that need to be revived in their own villages as comments from across the floor provided lively discussions on the issue of drakiveisau and what could be done to save their villages. Participants were well versed with the physical changes on their islands and villages in terms of coastal erosion, shrinking island size, decreasing fish supply, weather changes and sudden variation in weather patterns that does not match the traditional weather calendar.

The awareness training was beneficial to both the researcher and the participants for it allows the participants to gain and exchange information on the drakiveisau issue while learning from each other and engaging with the village elders and young people and raising an awareness for practical solutions to these weather challenges.

All the group presentation were recorded and validated after the training sessions.

At the end of the training, the traditional itatau was presented to thank the village chief and participants for their support and contribution to the research and to leave the village site. The researcher was then sent off with the blessings of the village.

c. Vakaraica, Vulica qai Cakava (Learning Through Observation and Experience)

Itaukei Fijians are believed to possess high observation and imitation skills as a pedagogic approach. Traditional learning requires attentive listening with closer observation and repeating the process again and again or 'vakamurimuria' technique. Normally, the informal teaching is done once or repeatedly before anyone can master the art and the rod would be close by as a reminder for attentiveness by the learners.

The researcher's traditional village upbringing provided a major source of primary data for this thesis. Learning about his traditional roles, values, and skills by observing his father and grandfather and imitating what they do helped established himself with a great wealth of traditional knowledge and skills of his vanua and this was easily related to his observations of other villages in the study. The experiences of participants regarding traditional adaptations for drakiveisau were captured and analyzed.

5.3.2 Selection of Participants

Participants identified by the village headman included village elders who were well versed with traditional knowledge and skills commonly used in their villages. The village headman

automatically became a participant because of his traditional status as a spokesman for the village chief. Participants selected were aged between twenty and eighty years divided into two major categories of the young generation and old generation and expected to have some understanding of drakiveisau and its effects in their own village and basically have sound knowledge about traditional mitigation strategies used in their villages. These mitigation methods included canoe building and sailing, farming methods, food preservations, coastal preservation and mangrove planting, tree planting, building sand banks and sea walls, and preserving marine resources through taboo or marine protected areas (MPAs).

5.3.3 Ethical Consideration

After the researcher introduces himself formally, participants were given the information letter briefly explaining the purpose of the study and informing them that they would be required to meet for a talanoa with the researcher to respond to a set of research questions and to engage in the awareness training for drakiveisau. Most participants chose to meet the researcher at their homes or the village community hall. This was important to help participants feel as comfortable as possible and to ease the problem of finding time to come out of their way to meet with the researcher. For individual talanoa session, most preferred their home while for the larger group trainings, the village community hall was a popular meeting place.

Organizing the time of the interview was also left to the participants to decide to ensure that data was collected at a convenient time.

To minimize any distress put upon the participants, they were reminded that they were free to withdraw from participating in the study if they wish to do so at any time they chose. They were also informed that if they wish not to answer any questions asked by the researcher, they were free to do so.

Participants were also reminded that there was no right or wrong answer as the researcher was only interested in gaining their perceptions and experiences of “drakiveisau” and the traditional mitigation practices they are familiar with and would choose to restore or replace.

Finally, participants were informed that all their responses would be recorded and transcribed, and all information collected from them would be maintained as confidential and their identity would be coded.

Before the talanoa was conducted, consent was sort from each participant and respondents were informed that the talanoa session would take about an hour to one and a half hour and if they want to stop, they may do so, and another time could be arranged to complete the session if they chose to. They were also asked to choose a time convenient to them for the interview.

Participants were also informed that if they want, they can tell the researcher what they want acknowledged in the report. They were also assured that written feedback in a comprehensive form would be conveyed to them on completion of the research project.

5.3.4 The Vanua and Customary Traditional Protocol

This research begun with the traditional vanua protocol of 'isevusevu' presentation as request to enter and to research in Qoma and in the thirteen parallel study villages. This request required a presentation of dried yaqona or kava to the chief through the chief's herald or 'matanivanua'. Kava, otherwise known as yaqona, is the traditional national drink of itaukei Fijians. It is a mildly narcotic and sedative drink made from the crushed root of the piper methysticum,[1] strained with water. It is served in a large communal bowl as part of the traditional kava ceremony, and a crop of the Pacific Islands (Forst, Wikipedia).

The 'isevusevu' presentation begins with a worship chant to the chief for his land and the people or 'vanua'. The chant of adoring and acknowledging the chief of Nabulebulewa would be '*Vakaturaga saka i Nabulebulewa vua na Turaga na Tui Nabulebulewa' and translated as 'to the high chief of Nabulebulewa, long live the chief of Qoma'.* The chant ends with a loud yell from the presenter shouting '*A soso Ratu',* translated as 'Hail to the chief!!Then comes the loud reply from the host *shouting 'Mana! Ei dina!',* meaning the host has accepted the request to carry out the interviews! '*Aaa muduo'* or thank you! '*Yaqona saka e levu!' 'Vinaka saka*!' The last lines of the chant explain the chief's and host's approval of the "i sevusevu" presented by the researcher and visitor to village to do their research.

The 'isevusevu' ceremonial ritual is an essential exchange that starts and permeates all ceremonial and social behaviour that underpins the Fijian concepts of respect, mana, reciprocity, and social cohesion and it correlates in all Oceanic cultures (Lebot, et al, 1992).

[1] *Kava or* **Piper methysticum** *is a shrub of the pepper family, native to Micronesia, Melanesia, and Polynesia. Kava or kava kava is a crop of the Pacific Islands. The name kava is from Tongan and Marquesan, meaning 'bitter'; other names for kava include 'awa, 'ava, yaqona or yagona, sakau, seka, and malok or malogu. Wikipedia: Scientific name: Piper methysticum: https://www.sciencedirect.com › topics › piper-methysticum*

The “isevusevu” marks the beginning and nature of a relationship which has been used throughout the field research for this thesis as the starting place for building relationships and establishing trust with participants (Katz, 1999; Ravuvu, 1987; Tomlinson, 2002, 2004).

Respecting, observing, and practicing the traditional itaukei traditional protocol during the whole research duration is critical to ensure the information and data most needed for evaluation and analysis are freely given by the participants in the selected sites. There was a village in the Bua province where the researcher was asked by the village headman that he may not be able to conduct the research in their village due to a heated argument between the two tribal clans in the village which was boiling up to a village fight. The researcher had to move to the next village instead (Vasua, 1918, Per Comms).

The Qoma case study is no different as the Vanua o Nabulebulewa protocol was strictly observed and conducted prior to the approval of the ‘Tui Nabulebulewa’. The village headman, after being guided by the researcher, selected, and gathered the participants before the research process of storytelling or ‘talanoa’ begun. He was also responsible for gathering the villagers for the awareness training sessions at the village community hall. Because Qoma is central to the objective of this thesis, the researcher took several trips to the island to collect data from participants and coordinated awareness trainings and verifying data within a duration of two years. In this case, there was only one traditional approval as the researcher has become acquainted with the chief and the villagers (Vasua, 1918, per comms).

As a researcher at a crossroad, the researcher’s dream and vision was birthed in the village of Qoma more than fifty years ago as a young village boy. The experiences of growing up traditionally in the village and seeing the effects of drakiveisau and all that had been lost in terms of physical disorientation, shrinking landscape, coastal erosion, coral bleaching, loss in traditional skills and culture, that has driven the urge to search for a solution to resuscitate the traditional ways of preserving the traditional environment and eventually mitigate against the effects of drakiveisau.

The research draws parallel measures for the influence of colonialism on itaukei Fijians, with neo colonialism hangover and suppression, thereafter, reflecting on the early missionary work, the introduction of indentured labourers’ system, the failed cotton industry, and the sandalwood hacking traders. The itaukei Fijians have then and now continued to face a huge disparity in terms of traditional values, customs, culture, skill, art, language, and belief system. Briefly at a horizon, Fiji’s cultural mix, diverse religious beliefs, different ethnicity,

contemporary issues outweigh lost traditional values, eroding itaukei native language and customs, vanishing traditional skills and knowledge and the threat of drakiveisau effects. The challenges facing the people of Qoma and the itaukei people of Fiji is a reality check (Vasua, 1918, per comms).

With a modern shift in contemporary educational approach, the research finding is inclined to the adoption of a proper education modality for the itaukei using the competency-based training and assessment model to address and minimise these impacts and preserve traditional cultural values for itaukei Fijians. The study focuses on the revival of the traditional canoe sails while adopting a survival technique using the competency-based training model approach.

5.3.5 Research Process

My observations of villages visited were supported by data collected from the talanoa on an individual or small group basis and awareness trainings with a larger group feedback. Talanoa was chosen because it was the most culturally appropriate method to obtain information among native Fijians. In both phases, it was important to observe the Vanua protocol as this was central to the success and effectiveness of the study. The talanoa sessions with the selected village elders and the village headsman covered the first phase while the second phase were for the wider communities and adults and elders. The Fiji research framework, 'Drakiveisau Framework' was the foundation of the research approach. Diverse approaches of gathering data were used to confirm if there were differences among participants perceptions of 'drakiveisau' effects and the traditional mitigation methods adopted for their villages. The methods used included talanoa sessions, transactional tracking, focus group discussions, observations, and questionnaires. One of the key questions asked during the talanoa was the delivery mode used in regaining the lost or dying skill set which is critical for sustenance and for the future. However, the use of 'word of mouth training approach' was fairly common amongst the villages visited.

The participants were also selected based on two age groupings. The young generation, between the age of 20- 45 years, and the older generation between the age of 46-80 years. Both men and woman were interviewed from their respective categories. The clear demarcations on the responses received and analyzed were of age-gap relevance.

The young generation of 25-45 age group responded to the question on the visible effects of 'drakiveisau' in their villages as coastal erosion, diminishing island space, fish migration from shallow to the deep, depleting ocean and reef marine resources, ocean warming and sudden change in ocean current while diving for fish, regular high and king tides, regular neap tides, long drought and dry spell becoming regular, dead corals and reefs, deep ocean marine lives looking for food on shallow waters, most houses are made of tinned or concrete and no more Fijian canoes, only fiber gall boats with diesel powered engines.

On the other hand, the older generation of 46-80 years old argued that visible effects of climate change in their villages have resulted in soil and coastal erosion, island size has shrunk in size over the past fifty-five years, depletion of ocean, reef marine resources on their fishing ground, irregular fruiting of normal fruit trees, regular high and king tides, regular cyclones and hurricane over the past 30 years, ocean birds have often come to the land to find food, normal itaukei Fijian traditional signs calendar has been slightly compromised and there are no more itaukei Fijian bures in the villages nowadays.

On enforcing available traditional mitigation factors used in the village, the young generation proposed for the compulsory form of Marine Protected Areas (MPAs) and using cement block sea walls while the older generation preferred mangroves planting and 'slash and burn' farming method to preserve the fertility of the soil.

The question on reviving traditional mitigation strategies to save the land and people from the devasting effects of 'drakiveisau' saw the young generation preferring the use of both traditional mitigation methods and contemporary techniques and construction of stronger concrete houses that can withstand category five cyclone winds. The older generation on the other hand strongly maintained the use of traditional mitigation methods in farming, fishing, sailing or transportation, cooking, food security, traditional medicines.

The question on a major traditional mitigation factor to mitigate against 'drakiveisau', the younger generation proposed for the rebuilding of sea wall using boulders and large rocks and natural land and sand reclamation formed by sea waves and ocean current movement. The older generation on the other hand argues canoe sailing as a safer means of transportation instead of the use of fossil fuel on outboard motors, and mangroves planting with enforcement of marine protected areas are the also recommended strategies by the older generation.

Additionally, the responses on major setback to the teaching and revival of climate change mitigating skills over the years with solutions to the challenges faced saw the young generation arguing that traditional methods are no longer interesting and convincing, outdated or obsolete. The matured participants argued young people are not interested in the old traditional ways of doing things as there are no written text to capture the traditional knowledge and skills over the years. There is a need to enforce compulsory teaching of traditional arts and skill in all villages where the Ministry of Itaukei Affairs to take the lead role. The older generation concluded that the colonization effect still lingers on after 51 years of independence. The detail summary of the age group findings is provided in Appendix 6.

5.3.6 Procedures of Approach

After approval to conduct the research is given at the village and provincial level, traditional protocol and approval was sought through the presentation of isevusevu and the endorsement of consent letters for research from participants. Apparently, traditional knowledge and belief systems are still common where upcoming events are foretold through signs and nature are still common. The researcher's arrival prior to receiving formal notification was made known to Mr Vasua, the village headman of Qoma, through a rooster crowing three times at the main door of his house. Similarly, the chief priest of Uluiloli village, who has the ability to discern and foresee things before they take place, was awoken and made known of a visitor arriving to the village soon.

The research questions were provided to guide the participants through the talanoa sessions and training awareness, and participants expressed their opinions and knowledge freely. The collected data was recorded and validated during the talanoa sessions at the research sites. Detail of the approach used is further outlined below:

- **One-to-one talanoa**: Mataniwai village in Macuata, Qoma village, Nagigi, Buca, Vusasivo and Drekeniwai villages in Cakaudrove, Kaba, Levuka and Muainuku villages in Kadavu
- **One to a group talanoa**: Qoma village, Uluiloli village in Verata, Kaba, Levuka and Muainuku villages in Kadavu, Nagigi, Buca, Vusasivo, Saqani, Tawake and Drekeniwai villages in Cakaudrove
- **Whole community training**: Qoma and all the study villages.

5.3.7 Transcription and Translation

The data are collected, transcribed, and translated, with a summary and discussed with the participants for verification and confirmation of data. This is done straight after the interview and the mapping of the findings onto the result analysis template. The transcription of the interviews was discussed and validated during further talanoa visitations. No changes to the transcripts were requested.

5.3.8 Photographs and Audio/ Video Recordings

After the approval of the participants as formalized in the initial consent letter, the photographs and recordings of stories were taken during the fieldwork. Similarly, the audio and video recordings were important tools for the researcher to gather and help recap every information foretold in the discussions and helped validate and verified the collected data. They also provided key information guiding the researcher in the writing process of this thesis.

5.3.9 Field Notes

Field notes were recorded in a notebook to explain excerpts from participants' stories and observed activities related and relevant to the research topic. The villagers of Navunievu in Bua for instance were busy planting mangroves on their shoreline as a protective measure against coastal flooding, while the researcher was conducting his research in the village. This was important observation to affirm the topic of study.

Field notes were taken both in the vernacular or Vosa Vaka-Viti and in the English language and maintaining the confidence of the recorded information was important.

In addition, the notes were triangulated with other data collected through photographs, audio/ video clips, observations, awareness trainings and talanoa sessions.

5.3.10 Data Analysis

The general strategy employed to analyse the qualitative data is analytical induction which include thematic analysis where themes emerge from the data; content analysis, which involves the analysis of both recorded and written communication; and narrative analysis, where respondents tell of their life stories and the researcher draws on some conclusions. Employing qualitative analysis helps capture the interesting themes that emerge out of the

respondent's story through the talanoa and training sessions. Proper analysis of qualitative data will give reliable and useful information.

The analysis involved the sorting and verification of data and information gathered through all possible means including notes from the talanoa and responses from the awareness training, verbal communication recorded on audio and video and photographs. The data gathered with results were sorted into classifications and categories using the following subtitle on the analysis to accommodate the analytical needs in the research under the following: name of the village, traditional skill set-under real threat of losing, traditional skill set possible for revival, and traditional skill set-still practiced today. This analysis with findings were further plotted using multiple qualitative methods where a traditional practice in one village is mapped into and compared with another village. For example, the talanoa conducted with the villagers of Qoma had information on traditional canoe building and sailing which when mapped reflected similar and verified challenges but found different revival approaches for Uluiloli village. The same is true for the eight villages in Vanualevu when compared with the three villages in Kadavu in terms of the traditional food preservation techniques.

All the data collected during the fieldwork was received, coded, triangulated, and analysed before reporting back to the participants for validation so the work could be published. This was done partly to ensure that what was published would not 'hurt' the Vanua.

5.3.11 Coding

According to Lichtman (2013), coding is a process whereby data is organized and sorted. Coding helps with summarizing and synthesizing data and assists the researcher to link ideas derived from the data. The researcher used a notebook and coded the main key areas under study to address the research questions as per listing below:

1) Major visible climate change effects.
2) Traditional mitigating strategies available in the village.
3) Proposed mitigating factor, canoe sailing skill and traditional food preservations.
4) Things to do save the land and people from the devasting effect of drakiveisau using traditional method of mitigation.
5) Art and Skills taught in the past and the advantages of using this mode of mitigation.
6. Setbacks to the teaching and revival of traditional skills and challenges faced.
7. Proposed delivery mode in regaining the lost skill set.

Responses to each research question were recorded under the correct conceptual code. Then, a storyboard was established where similar responses were grouped together. Comments were also added to this storyboard to refine and analyse the collected data.

5.3.12 Triangulation

This study used the Methodological Triangulation approach whereby information was acquired using the following multiple qualitative methods: the semi-structured questions in the talanoa and trainings conducted in different villages in Bua, Macuata and Cakaudrove had triangulated information on traditional fish driving technique were similar and verified to be true on the challenges but adopted different approaches for its revival. The same was also true in terms of traditional skills on food preservation for the three villages in Kadavu when compared to and triangulated against the nine villages in Bua, Cakaudrove and Macuata.

Since the data was collected through different methods, the information had to be compared and similarities and differences were identified. For similar responses collected, they were treated as verified. For example, canoe building and sailing were all inclusive traditional activities for the villagers of Qoma, Uluiloli, Saqani, Tawake and Wainigadru. While the traditional approach of building and sailing a canoe were similar in many aspects the comparative triangulated results were quite broad in terms of dying and practiced art and skills. Qoma, Saqani, Tawake and Wainigadru are no longer practicing canoe sailing but for Qoma, there are still five surviving adults who can still teach the art of building and sailing a canoe whereas in Cakaudrove, it was a dying art and skill. The village of Uluiloli on the hand are still practicing canoe sailing today but using a wooden boat or ‘waqakau’ instead of a traditional canoe or ‘waqaniviti’.

5.3.13 Interpretation

Using the Methodological Triangulation approach the data collected during the talanoa and trainings with the participants was coded conceptually. All responses were triangulated and repeated responses were used to answer and verify the research questions. For example, the traditional food preservation technique in Navunievu in Bua is different from the food preservation method in Qoma. The ‘ravoravo desert’ made of cooked cassava and grated taro, soaked in sugar red hot coconut milk can remain edible for three days compared to the Qoma ‘Madrai ni viti’ that can stay for more than five days without losing its freshness and taste.

While the Navunievu ‘ravoravo’ dessert and delicacy is not practiced anymore, the Qoma ‘madrai ni viti’ has been revived and practiced by the villagers now.

Finally, after the interpretation of data, the results were presented to the participants for a last validation before it was published.

5.3.14 Presentation of Results

Presentations of initial results at village level were first made to the participants and the chiefs as a verification process of the information gathered**.** This was a verbal presentation providing a summary of scribed notes based on the talanoa and trainings sessions. The next presentation was After the scribed notes were interpreted, translated, transcribed to match the audio and video of the talanoa and training sessions, the findings were presented in a table. The pictures and photographs were pasted to support the presented arguments along with the key findings. Final results, key findings with recommendations were then relayed to the Ministry of Itaukei Affairs, Provincial Offices and the 14 selected villages with the Qoma case study in a traditional protocol of thanksgiving or ‘vakavinavinaka.’

Chapter Summary

This chapter outlines the research findings with the analysis of the Qoma case study and the parallel study villages. It then describes the methods of data collection used with the research procedures identifying strong itaukei traditional protocol implications. The research data were collected from the talanoa and awareness training sessions and from the researcher’s observations and personal experiences were also considered as major sources of data.
All the data collected during the fieldwork was received, coded, triangulated, and analysed before reported for validation so the work could be presented.

The next chapter describes the research findings with research focus opportunities and analysis of the findings. It explains the variations in the research findings outlining key areas for the villages studied by comparing traditional skills and activities that have been lost or are on the verge of losing out with those still in practice.

The chapter further explains traditional mitigation and adaptation techniques for the selected villages and traditional pedagogy knowledge and skills for the younger generation. The chapter concluded by explaining traditional mitigation and adaptation technique for the selected villages.

Figure 13: The meeting held with Turaga ni Koro, Qoma

Source: Naisele, 2019.

CHAPTER SIX

RESEARCH FINDINGS AND ANALYSIS WITH FOCUSSED OPPORTUNITIES

This chapter outline has five sub-titles under the following: 6.1, 6.2, 6.3, 6.4 and 6.5.

Chapter Introduction

6.1 Research Findings – Master Research Table (Refer to appendix 1)

6.2 The Fijian (itaukei) Ontology: Qoma Case Study

6.3 The Significance of the Case Study: Climate Effect versus Qoma Tradition

6.4 Research Analysis

6.5 Revival and Survival Technique

Chapter Summary

Chapter Introduction

The previous chapter provides detail of the Qoma case study with the parallel case studies results. It also discusses the methods and procedures used for data collection.

Chapter six describes the research findings with research focus opportunities and analysis of the findings. It begins with the concept of ontology where the nature of being, and existence is an underpinning ideology in human existence. In the itaukei Fijian context, it addresses the

itaukei's concern for the nature of knowledge and ways of learning about social reality under the epistemology theory. It explains the variations in the research on key areas for the villages studied by comparing traditional skills and activities that have been lost, with those on the verge of losing and with those still in practice. Importantly, the research hopes to bring out the variances in preference for the adoption of traditional mitigation methods of drakiveisau between the younger and the older generation. The chapter provides an extended scope on the significance of the Qoma case study research findings regarding drakiveisau effect and the conception of invigorating traditional skills that are well known and used by the islanders.

The research considered two age grouping categories. The young generation comprising youths and young couples between the ages of 20- 45 years, and the old generation of matured participants aged between 46-80 years. Both men and woman were interviewed for this activity. The results are highlighted to give a broader scope on the comparative analysis on the view of the younger and older generations regarding traditional mitigation strategy, between the modern contemporary measures against drakiveisau. The chapter concluded by proposing and explaining traditional mitigation and adaptation techniques for the selected villages and ways of teaching traditional skills to the younger generation.

The research findings show a ray of hope with the philosophy that 51.2 percentage of the traditional skills can still be revived. The results favored extended training by the participants and developing relevant and targeted educational training packages that will be critical to drive the revival journey, at the same time maintaining the support systems and processes to sustain the 16.2 percent skills that are still in practice today.

6.1 Introducing the Research Findings.

The research findings outline key traditional activities of Qoma and the fourteen villages studied under the parallel research. More skills identified are noted either to have been completely lost or on the verge of being lost while only a few are still being practiced by these villages.

The broad scope of the research from the case study with comparability measure across the fourteen selected villages in the three provinces in Fiji was to identify and verify the impacts of drakiveisau and the provisions of traditional mitigation strategies as employed by the villages in these provinces. Apparently, it is clear from the research findings that a few villagers have resorted to contemporary and modern measures to mitigate against drakiveisau

at the expense of traditional skills associated with their tribe. Details of the research findings can be seen in appendix 1.

In addition, the 'modern Fiji' perception is not helping either as it naturally suppresses the very core existence and being of itaukei in terms of traditions, belief systems, cultural ethics, values, and skills. Hence the notion of itaukei Ontology is being challenged.

While it is noted that 32.5% of the traditional skills surveyed have disappeared completely, a mere 16.2% are currently being practiced, with the chances that 51.2% of these skills can be revived. The study anchors on the belief that these traditional skills can be revived by developing a training package on traditional knowledge and skills that will help sustain and restore lost skills that are effective in mitigating against drakiveisau.

Twenty-five out of the thirty-seven traditional skills identified have some relevance in contributing to mitigation of drakiveisau for the villages, accounting for 67.5% of the total skills surveyed.

The analysis may have reflected the influence of key factors identified in chapters 1, 3 and 4 about early colonization, neo-colonialism hangover, modern innovations and technological development, cotemporary preferences over traditional obsolete, ignorant and attitudinal behavioral change of itaukei Fijians, to name a few.

Moreover, the results have drawn conclusions to the way itaukei Fijians, especially the leaders behaved indifferently in response to the key factors mentioned above and at the same time trying to strike a balance between the modern world and the neo colonialism hangovers while maintaining a balance between traditional culture and values while living harmoniously with others. This may have also influenced the shift in the traditional social ethics and sciences underpinning the traditional values and may have helped itaukei Fijians understand the contemporary social world to a huge extent. It further explains the concerns which claims the nature of itaukei existence within itaukei traditional society, traditional social systems, ownership of local resources verses living in harmony amongst a multi racial Fijian society. These may have summarized the epistemology of itaukei Fijians concerned with the nature of knowledge and ways of knowing and learning about social reality under the grounding theories of positivism and interpretivism.

6.2 The Fijian Itaukei Ontology

Ontology normally seeks the classification and explanation of entities and is concerned about the nature of being and existence. Epistemology on the other hand is concerned with the nature of knowledge and the ways of knowing and learning about social reality. Two main perspectives for knowing are positivism and interpretivism (Oxford dictionary, 2019).

By using the Interpretivism Research Model, its ontological assumption is that knowledge is created through social and contextual understanding. This includes a person's contribution to the context in which they dwell and interact. This also gives the opportunity for the person to create and understand knowledge. This viewpoint complements the epistemological standpoint that people create knowledge through a continuous process of socialization.

According to Chowdhury (2014), the roots of interpretivism can be traced back to the ancient history of philosophy. Interpretivism has influenced the development of the social sciences and has helped human understanding of the contemporary social world to a great extent.

For the itaukei Fijians, traditional skills, and knowledge in the indigenous itaukei society exist in the 'Vanua'. The Vanua generally represent the people, land, sea, and all living things beings inter-related. The Vanua intermix and relationship is learnt, understood, and interpreted through socialisation in terms of practical activities like oral practice, observation and imitation. According to Ravuvu (1983), the 'Vanua' has four closely interlinked dimensions; the physical, social, cultural, and spiritual dimension. The social and cultural systems establish the foundation for a harmonious, prosperous, cohesive society and they provide an identity with a sense of belonging for the people in the Vanua. As alluded to in chapter 3: *3.3*, under the *Fijian Vanua Research Framework*, the Vanua has the supreme power or *'manasau'* over the people, the land, and the sea together with language, customs and culture to harmonize the relationship. This relationship is enhanced in the traditional itaukei village set-up both in its social structure and social system. The spirit of communal partnership is enhanced in achieving a communal task called 'solesolevaki' and this is important in itaukei culture. It brings oneness and togetherness that supplements communal relationship and ontology. 'Solesolevaki' is working together to achieve a common goal for the benefit of the community Great things are achieved in the village, vanua and families under the spirit of 'solesolevaki'. Raisele (2021) describes 'solesolevaki' as an itaukei social practice that was a motivating factor of development for itaukei communities during pre and post -colonial era, even before indigenous people encountered the early traders of the West.

It was the practice that strengthened their ties with other groups and communities and technically held each community together. Through 'solesolevaki', itaukei were able to accumulate wealth and overcome poverty. It is in this approach that solesolevaki has helped build resilience in Fiji by overcoming the challenges of unemployment and poverty brought about by the global pandemic Covid 19 between 2019 and 2021 (Raisele, 2021).

Itaukei Fijians believe that respect or 'veirokorokovi' and submissive spirit or 'yalovata' are critical to ensure and enhance good relationship amongst themselves. Additionally, the vanua has eyes, ears, and teeth, as the spirits of the elders can relate a hidden agenda in the spirit world via signs, dreams, or unusual events. If there is an act of disobedience, mischief, misconduct by the people in the Vanua, the spirit gods can intervene through signs or give punishment to the offender as a reminder of their disobedience. For example, in the Qoma study, the village headman relayed the story of how his grandfather Tekuru and his wife Ana, who lived in a distant island of Gau, in the Lomaiviti group, were supposed to have spent one year on Gau Island as per agreed by his father Joeli but failed to return to Qoma after one year. Unfortunately, he was bitten by a shark while spear diving in the reefs of Gau after realizing that he had disobeyed and disrespected the vanua by breaking that agreement with his father. Immediately, he returned to Qoma and presented a traditional apology of 'soro' or 'matanigasau' to his father and the Vanua (Vasua, 2018: pers. comm). In the vanua protocol, ancestoral spirits are expected to advise their descendants through dreams or in person through the elders on the importance of maintaining and nurturing the vanua. When descendants do not follow the advice that are given, they may receive the 'anger of the land' or '*kudru ni Vanua'* and are punished by forms of unusual event or sickness and even death.

6.2.1 The Physical Dimension

The physical dimension of the Vanua represents the land and water which the people in the vanua *or 'lewe ni vanua*' use for gardening, hunting, fishing, or building. Every indigenous itaukei Fijian is said to have a source or '*yavutu*' which spiritually connect the people to their vanua. There are no marked land boundaries as they know and respect where their boundaries end (Ravuvu,1993).

6.2.2 The Social Dimension

The social dimension includes social hierarchies and the relationships between people in the Vanua. All indigenous itaukei Fijians are related and bear responsibility for taking care of one another. This relationship is not confined within a village setup but throughout Fiji. For example, the people of the three provinces in Vanua Levu, Cakaudrove, Bua and Macuata would call the people of Tailevu province '*tauvu'* or 'veitau-na-Vu' or friends, meaning their ancestral gods are related and friends. The people of Lomaiviti province and the people of Naitasiri province would call each other '*Mataqali',* to mean they are from the same tribe. The people of Tailevu province call each other '*Tai'* meaning they are from the same family. Additionally, the people of the Nadroga Province in Viti Levu and the people of Cakaudrove Province in Vanualevu call each other 'Dreu', which is a familiar, informal and friendly form of expression often used between men and women, with a smile meaning 'sweet lips' or ''friendship.

The social hierarchies include basic affairs from a vuvale to 'nuclear family' or extended family or 'itokatoka', clan or 'mataqali' and tribe or 'yavusa'. The value of relationships within this system supports the survival and the continuity of the Vanua. Relationship or 'veiwekani' bonds itaukei Fijians and through it there are provisions for access into one's ownership title, whether it be acquiring a piece of land, or approval to fish on fishing ground or 'qoliqoli' or eat a fruit of a tree on someone else land. The role of women after marriage in itaukei culture is enhanced between the two tribes. A young woman married to another tribe would normally be given a piece of land, back in her family tribe as a gift of the family after marriage or 'covicovi ni draudrau/ covi ni lou'). Furthermore, it is through blood relations and marriage that land ownership is decided.

6.2.3 The Cultural Dimension

The cultural dimension includes values, beliefs and acceptable ways of doing things are embodied in the cultural dimension of itaukei Fijians. Love, caring, and sharing are key principle values underpinning itaukei Fijians' value system which reflects qualities that manifest in people's lives. Itaukei Fijians generally commands humility or 'yalomalua', helpful or 'veivukei', attentive or 'vakarorogo', considerate or 'veinanumi', loving or 'veilomani', respect or 'vakarokoroko', and work together, 'yalovata' to ensure the survival of their people.

6.2.4 The Spiritual Dimension

The spiritual dimension is classified as the strongest amongst the four. Prior to the arrival of Christian missionaries in the early 1800s, itaukei Fijians worshipped spirit gods. The Priest and spirit intercessor or 'Bete' is a traditional itaukei role where the 'Bete' intercedes in between the chief, people in the vanua and the spirit gods. According to the *Godchecker Holy Database*[2], there were forty spirit gods itaukei Fijian deity names. Spirit gods named Dakuwaqa, Ulupoka, Bulu and Degei were the most popular ones.

Indigenous Fijians believe in the presence of spirit gods of the Vanua to make it sacred or 'vanua tabu'. The sacred places were feared and respected by the people. These sacred places include the burial sites for chiefs or 'Sau Tabu', house foundations or 'yavu' and restricted land and sea areas or 'Vanua sauvi', to be used so they can restore their power and wealth. Spirit worship and belief in its existence as representative of the gods is nothing new to itaukei Fijians as this had been part of their lives over the years. The spirits are believed to be invisible but have the power to implicate good or evil. Consequently, they are respected and well-regarded (Ravuvu, 1993).

6.2.5 Nabulebulewa Ontology: The Case Study

The Qoma case study, like any Fijian itaukei village set up, has all of the above. The social hierarchies of Qoma and the vanua o Nabulebulewa include basic relationships from a nuclear family or 'vuvale' to an extended family or 'itokatoka', clan or mataqali and tribe or 'yavusa o Nabulebulewa'. The ten extended family or 'itokatoka' in Qoma are: *Lacavukivuki, Naivakarube, Nawavo, Curuvotu, Rokotuiloma, Burematau, Vuniivi, Nabuli, Vuniuto and Rara*. Relationships within this system are organized in a way that ensures the survival and the continuity of the Vanua o Nabulebulewa. The heads of the ten clans or 'tokatoka' are members of the Village Council and their meetings are chaired by the 'Tui Nabulebulewa'. The monthly meetings discuss development in all facets of village life including the government or 'matanitu', village resources, people and developments, education or 'vuli', and the church or 'lotu'. The bose vakoro or village meeting is conducted once every three months for the adults only. The meeting outcomes are then relayed to the people during the clan meetings. The village headman is also tasked to present announcements or 'kaci vakoro'

[2] *Godchecker.com - Your Guide To The Gods*
https://www.godchecker.com

in the evening at selected spots in the village green at least twice a week. The village social system provides the social status whereby everyone in Qoma know their ascribed status and understand their responsibility to the vanua of Nabulebulewa.

Figure 14: The 'Vanua o Nabulebulewa' Social System and Decision - Making Structure

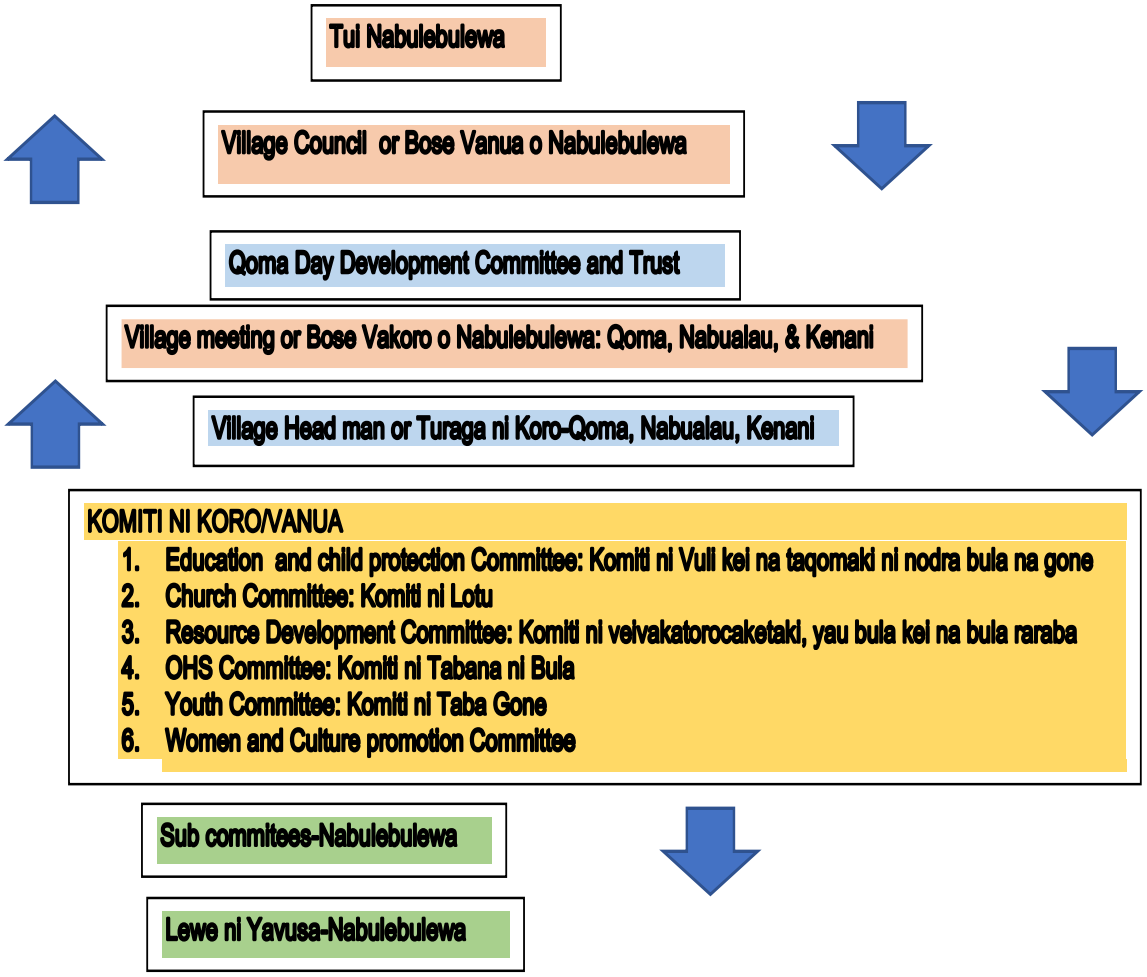
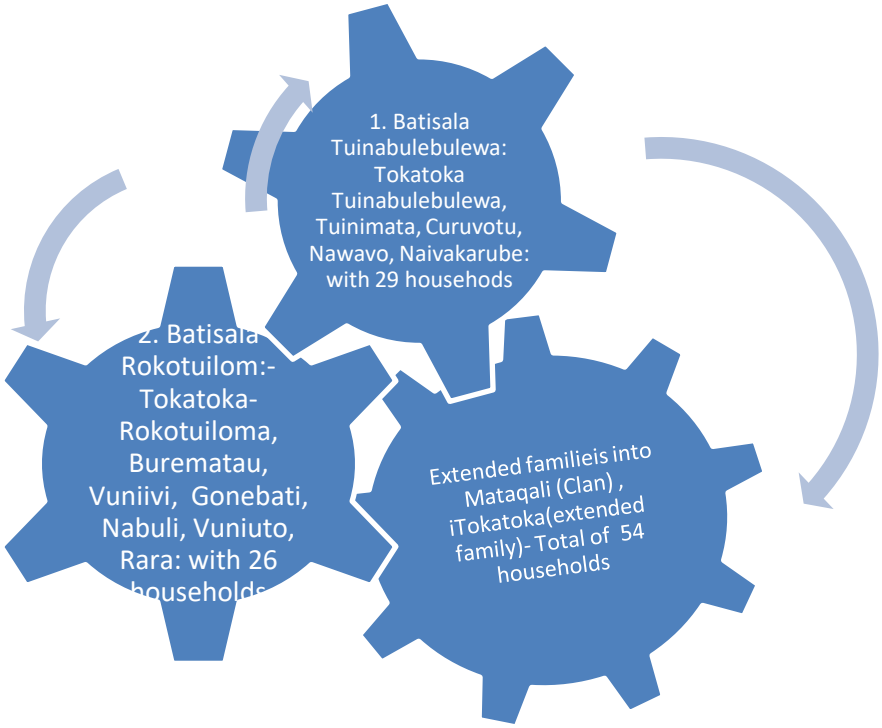


Figure 15. The 'Vanua o Nabulebulewa' Social System and Decision - Making Structure: Source: Qoma Strategic Plan 2021-2025

The diagram below shows the clans and the extended family in the traditional village structure of Qoma, or the Yavusa or 'Tribe' o Nabulebulewa. The family structure shows a close-knit relationship between the two tribes on the island of Qoma. The two tribes consist of clans (mataqali) and sub clans (i tokatoka). The head clan is named after the tribe Rokotuiloma and Rokotuiloma clan. The head of the clan is also the head of the tribe who coordinates tribal meetings and tribal obligations to the Vanua o Nabulebuewa.

Figure 15: The two main family clusters in Qoma: Refer to appendix 8.



*The Two Main Family Clusters in Qoma**;** Source: VKB: Land Registers, Itaukei Affairs, Fiji 2017*

The sacred places or '*vanua tabu'* of Qoma are highly respected and not easily accessed by the common people. People will need approval to enter some of these places. However, some sacred places are accessible but are observed with silence and great respect as one passes through. These sacred places include the dwelling place of the chief or Tui Nabulebulewa, located on the hill called 'Delana', the Christian Methodist Church Ministers' residence, and the burial sites or sautabu' for chiefs, also locate on Delana. The other burial sites are called 'Nakasiva' and 'Nukubalavu'. House foundations or 'yavu ni vale' and the magic bamboo tree or 'bitu ni ceva' are additional to the most respected places in Qoma. The restricted taboo land and sea areas or 'vanua-sauvi' are strictly observed as they are believed to help re-establish power and wealth of the people of Qoma.

Sacred natural sites are areas of special spiritual significance to the communities. They include natural areas recognized as sacred by indigenous and traditional peoples, as well as natural areas recognized by institutionalized religions or faiths as places of worship and remembrance. Access to these sites is usually restricted by taboos and management codes to activities and members of a community. Many sacred sites have survived for hundreds of years and act as important biodiversity reservoirs (Gland, 2005).

6.3 The Significance of the Case Study

6.3.1 Climate Effect versus Tradition

Drakiveisau has taken its toll over the years on Qoma, Qoma levu and Qoma lailai. The continuous climate impacts in the forms of ocean waves and currents and winds continue to bombard and erode the shoreline and seawall, especially on the main island of Qoma. The comparative pictures below show the traditional house or thatched bure' with the wooden sails or 'waqakau', once common on the island in the early days, and the now common corrugated iron roofing houses crowding the island with fiber glass motorboats berthed on the shoreline as the means of transportation for the islanders. The glaring pictures below show the weathering effect and drakiveisau impact on the island. The island has been reduced in size and tree planting along the coast has been adopted to help sustain the island and mitigate against drakiveisau.

Figure 16: Qoma Island- Comparative viewed from Vitilevu: 1970 and March 2021

Case Study: Qoma Island- viewed from Queen Victoria School, Vitilevu: 1970; Source: Maleck.com

Case Study: Qoma Island March 2021- viewed from Queen Victoria school; Source: E Naisele

Qoma Island- Comparative viewed from Queen Victoria School, Vitilevu: 1970 and March 2021

The sand and rock sealed walls have now been replaced by the higher concrete seawall around Qoma island. Awareness trainings in mangroves tree planting and rebuilding of seawalls have been ongoing as part of the rebuilding process to mitigate against the effects of drakiveisau on the island.

The project in reviving the skill in traditional canoe sailing and reducing the use of fossil fuel on motorboats are additional awareness drives to help mitigate against drakiveisau effect. This research project is expected to not only support the maintenance of a safe and clean environment, but more so help revive a dying skill. Apparently, the people of Qoma have recently been engaged with the Department of Itaukei Affairs in helping revive the canoe sailing skill and other skills that are on the verge of disappearing. Staff of the Itaukei Affairs Ministry spent two weeks of teaching and engaging elders and villagers on the revival of these traditional skills. Despite losing several traditional skills, strategies have been put in place to revive them. These include the traditional fish-drive methods of silitikawa, tuva moka, samu busa, vakavoka and vakaua, qolivonu, chants or vucu vatu and vakalutuivoce, canoe sailing or 'waqakau vakalaca', and thatched bure construction.

According to the village headman, S. Vasua, one of the underpinning drives towards the success of communal living over the years, in Qoma is the strength in social relationships amongst people of Nabulebulewa which is built on the notion of 'solesolevaki'. Vasua added that through 'solesolevaki', the itaukei of Nabulebulewa have been able to accrue wealth, achieve greater things and alleviate poverty, over the years. They would do communal work in fishing like in 'Samubusa' (use of nets and long wooden sticks), 'Silitikawa' (use of leaves and creeping vines intertwined as nests), 'vakaua' (use of nets during upcoming tides), 'vokavoka' (use of nets during low tides at night), 'tuvamoka' (pilling of stones or 'weir' during low tides and fish are caught in the next low tide), 'qolivonu' (turtle fishing using nets), 'tuva salisali' (use of stone weir and vines stuck in between the rocks in a circle with a small opening) In farming they would work together to help families or individuals do traditional farming like 'slash and burn' or 'crop rotation'. They would work together to till and plant their land for the traditional yearly uvi or yam crop, and kawai or thorned yam. This was often called 'wawa ikatalau' (communal work done before breakfast). After breakfast, they were free to carry out their daily chores. Most, if not all these traditional practices, were done with close observation of the traditional weather and seasonal calendar (refer to appendix 2). For example, the month of July is known as 'Vula i Cukicuki' or month to till the land for yams.

The season calendar also specifies other parallel activities for the people to be mindful of. On this same month of July, the tivoli (wild yam) flowers and the kuita (octopus), seni kawakawa (yellow finned groper) and salala (mackerel) spawn. The temperature during this season remains cool and rainfall decreases. The traditional calendar directs and informs the villagers that it is taboo to harvest the wild crops when they flower nor catch specific fish during their spawning season. The biodiversity of their ecosystem and their respect for the environment with reverence by the people help sustain their lives and is a key driver to mitigation of climate change or drakiveisau. For years, the people of Nabulebulewa have continued to maintain and respect this wonderful relationship with nature and mother earth. However, this relationship has been severely affected over the years with less and less respect given for nature and the environment. The notion of communal partnerships may have weakened but as outlined in the new Qoma Strategic Plan, key activities of reviving the traditional skills on the island are in place for implementation The people of Qoma may have moved away from communal way of living due mostly to the impacts of modernization, changing attitude and modern wealth system, which is more inclined towards the value systems of the dollar rather than relational ecology between humans and the environment. Vasua concluded that, whilst a number of these traditional practices are on revival approach, two traditional practices have been identified as dormant and no longer in practice today in Nabulebulewa. These are the building of small storage bure called 'lololo' at the plantation, to store root crops like yams for the next planting season, and the practice of traditional house heating called 'irara', during the cold season. There are two reasons identified by Vasua as the non-practice of these skills which are the increased use of modern house structure which have no provision for a traditional fireplace for house heating and the increase theft of crops in the garden where people prefer to store their crops at their homes rather than keeping in the 'lololo' at the plantation (Vasua S, pers comm). On the higher end, there has been an increase in the practice of some traditional skills which over the past ten years have had a regular practice coverage between 50% to 100%. Traditional weaving of turtle net and turtle fishing or 'qoli vonu' account for 55% survival rate, while food preservation methods or 'walewale ni maroroi kakana such as 'madrainiviti and fish smoking, 'tei uvi', 'toni kora', all have a 60% survival rate Traditional fish drive or 'vakavoka and vakaua' make up70%, and predicting weather condition or 'kila na draki ni se bera mai' by interpreting natural signs for weather forecast has the highest survival rate of 90%.These means the proposal to revive the lost skills known for the people of Nabulebulewa can easy be achieve given the high practice rates for a number of traditional skills identified above.

The plan to revive these traditional skills are highlighted in pillar three of the new Qoma Strategic Plan (2019):

Pillar three:
Improve traditional skills and values of Nabulebulewa and improve the efficiency of services and support the promotion and sustenance of culture and traditions. (Tokona na maroroi ni tovo vakavanua e kilai kina o Nabulebulewa kei veiqaravi ni matanitu) -More collaborative efforts with Ministry of itaukei affairs for the promotion of culture and heritage; Revival of traditional skills and knowledge known for the vanua o Nabulebulewa: example, Sili tikawa, madrai ni viti, tei lawa ni vonu, samu busa, tuva moka, tuva salisali and qoli vonu.

Traditional skills well known and practiced by the people of Qoma are highlighted in table 3 below, reflecting on the percentage rating of the current practices for the past ten years. It shows that out of the fifteen traditional practices, seven fall below the 50% rate which is equated to 46%. The graphs provided thereafter explain the nature of current occurrences and practices for the past ten years.

6.3.2 Interview Results with the People of Qoma

Table 3 with four Pie Graphs: Village interview with Turaga ni koro, and elders of Qoma

Traditional Skills	Practice Rates for the last 10 years %
1. Traditional Fishing or Yavirau	10%
2. Traditional weaving of turtle net and Turtle fishing or 'Qoli vonu'	55%
3. Food preservation or 'walewale ni maroroi kakana'madrainiviti, smoked fish,	60%
4. Lololo- keeping root crops like yams in a small bure on the plantation for the next planting season or next meal	0%
5. Tei Uvi-Annual crop or 'Itei ni yabaki'	60%
6. Marine Protected Area (MPA) or Qoliqoli vakatabui'-sauvi'	50%
7. Seawall or 'Bai ni ua'making/ mangroves tree planting.	35%
8. House heating during cold season or 'irara'	0%
9. Fish trapping or 'Tuva Moka'	35%
10. Fish trapping technique or 'Tuva Salisali'	25%
11. Fijian food delicacy or 'Toni Kora ni Niu'	60%
12. Fijian house or thatched bure building	5%
13. Traditional Fish drive or 'Samu busa'	60%

14. Traditional Fish drive or 'Vakavoka and Vakaua'	70%
15. Determining the weather condition or 'kila na draki ni se bera mai' by interpreting natural signs in the sky through cloud formation, ocean current, wind direction and migrating birds /insects.	90%

Village interview Results with Turaga ni koro, and elders of Qoma.

Source: Village interview with Turaga ni koro, and elders of Qoma.

6.3.3 Traditional Practices by Villagers of Qoma

Pie Graph a, b, c, d: Pie Charts 1-4, showing current rate of traditional practices on the island of Qoma, as reflected on table 3.

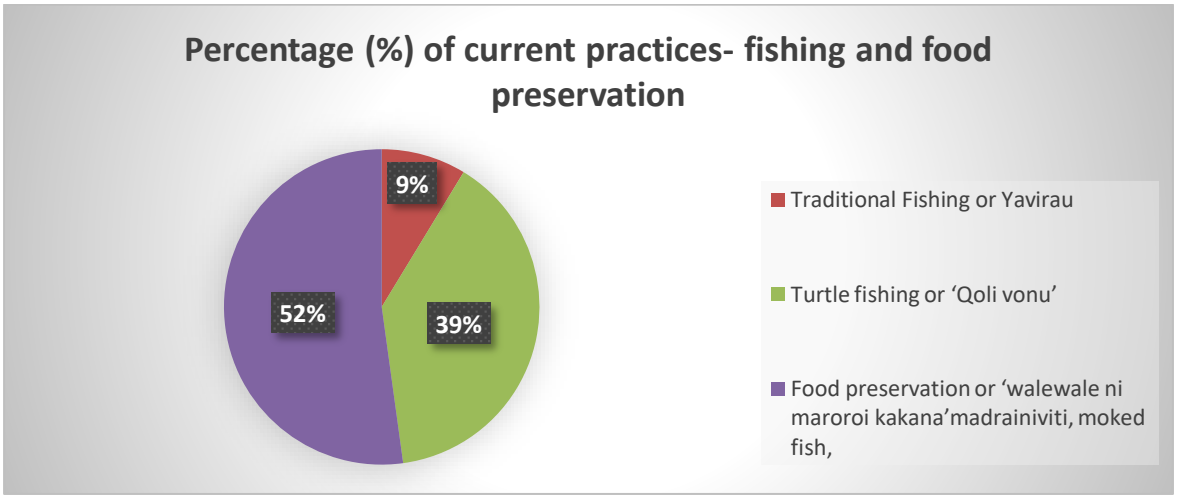


Figure 17a Pie *Chart 1: Traditional fishing methods with food preservation*

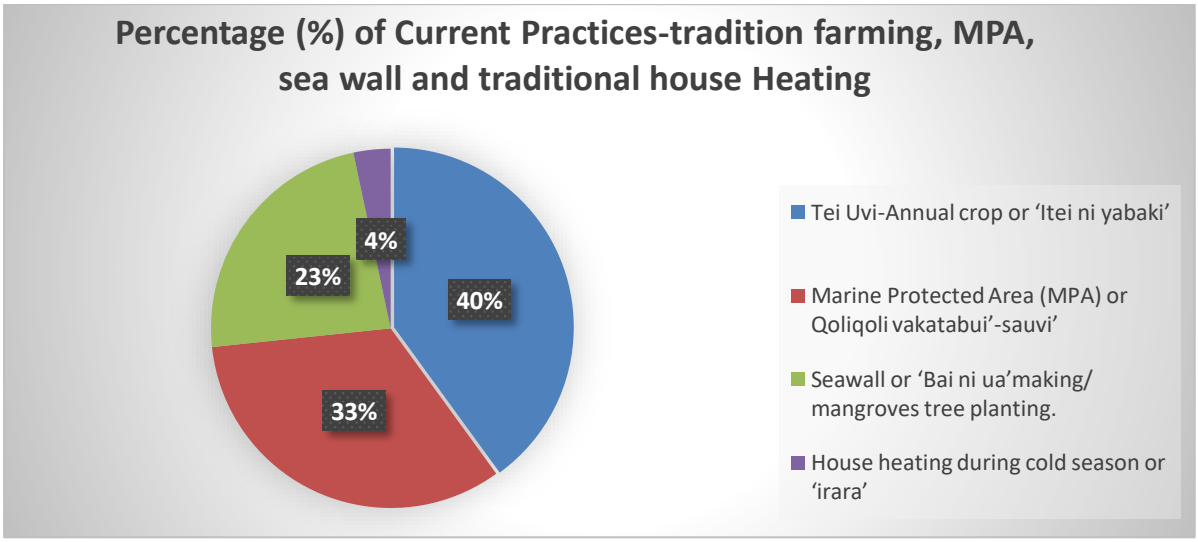


Figure 18b Pie Chart 2 Traditional Farming, MPA and sea wall building and traditional farming.

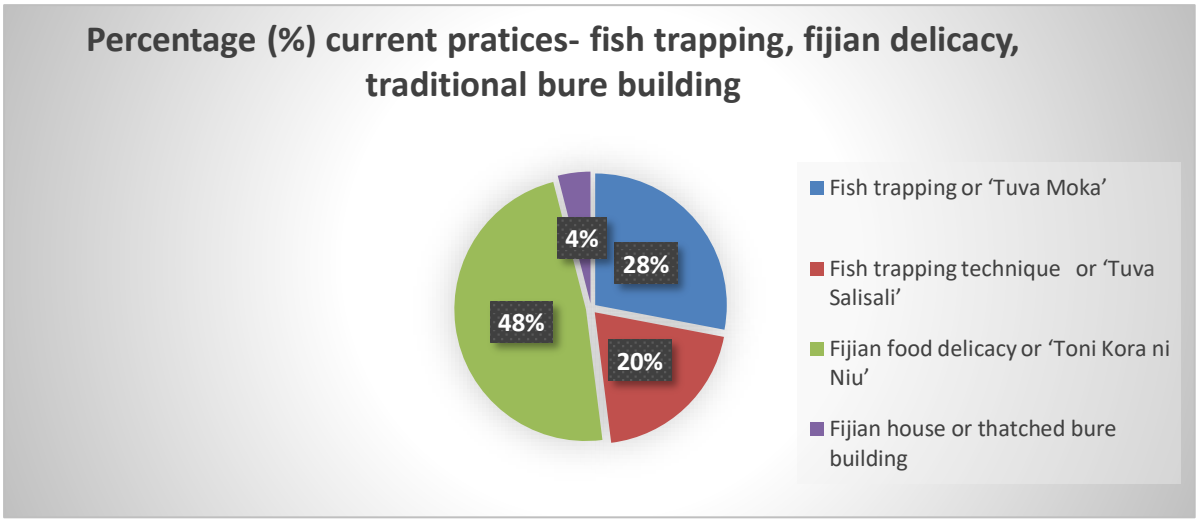


Figure 18c Pie Chart 3: Traditional Fish traps

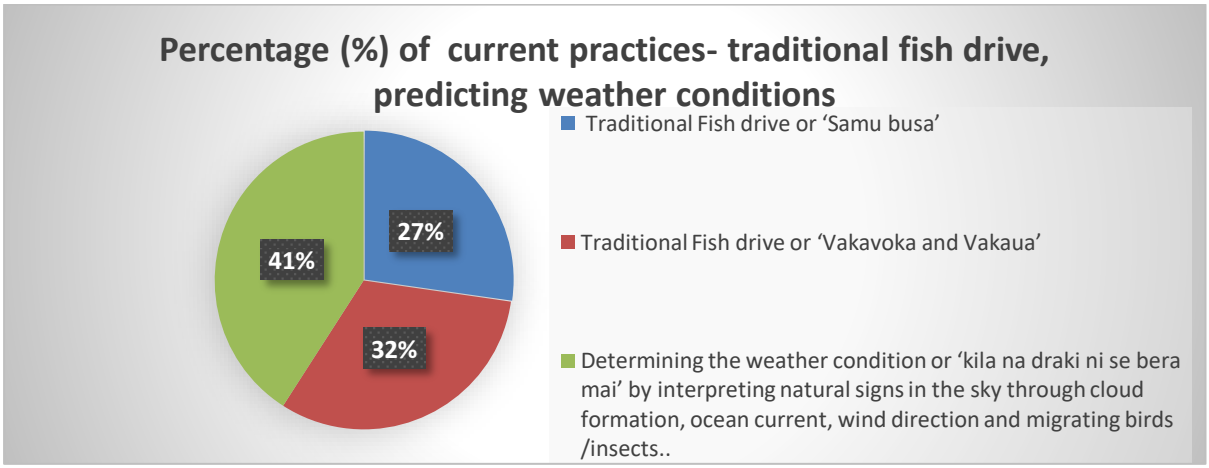


Figure 18d: Pie Chart 5 -Traditional Fish Drive; Source: Village interview with Turaga ni koro, and elders of Qoma

Qoma villagers are well known traditional fishermen. As earlier mentioned, they rely heavily on the sea for their daily sustenance. Eleven out of the sixteen traditional skills and knowledge are directly linked to the sea, whether it is to do with sailing, fishing, diving, reading signs in the sky, wind direction and ocean current or carrying preserved food for many days in the ocean.

According to the village headman, drakiveisau and rising sea level is affecting fish yields and spawning season around the Qoma waters. According to the Fijian traditional calendar for the months of October to November, bream fish or sabutu should spawn and be available in abundance during these months. Unfortunately, as reported by the village headman, the stock of bream fish has decreased dramatically, suggesting the future of bream fish is futile. The fish kawago or lethrinusnebulosus is supposed to be available in abundance during the month

of June, however, there is a decreased in numbers and in sizes over the last five years. Apart from the act of overfishing, drakiveisau has affected the marine resources and fish supply tremendously.

The people of Qoma spend most of their times in the sea and have high traditional skills in reading signs for weather forecasts. They can predict that rain will fall within the next two days by studying the movement of clouds and winds. For example, if it has been raining heavily for some hours and suddenly there is thunderstorms around Wainunu, Bua, in Vanualevu, the elders would say '*Sa kuru o Wainunu'*, meaning the Wainunu thunderstorm would stop the rain. Sure enough, the rain would stop within minutes. They can foretell an approaching bad weather or cyclone or tsunami, by studying the bird's behavior and signs in the sky, cloud formation and changes in wind direction and ocean current or extraordinary high tide and even the unusual appearance of certain birds and insects and certain fruits. This will give them ample time to prepare to travel back to the village if they are out in the sea or wait for a day or two after the bad weather clears out.

Traditional weather and climate farecasting are used by many indigenous communities worldwide as a guide in making important decision that enable them to cope and adapt to climate -induced extreme weather variation (Ford, King, ,Galappaththi, et al, 2020).

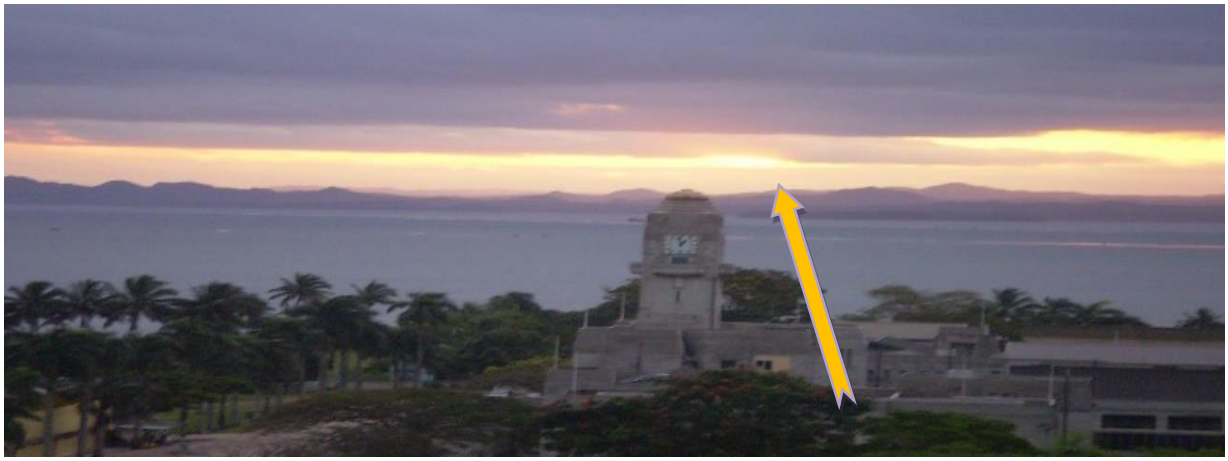
Some of the common traditional indicators of the drakiveisau that were highlighted by the elders of Qoma are discussed below. The following are the signs of an approaching cyclone, according to village elder Meli Vasua. When flocks of frigate birds from the island of Vatuira are seen flying over land, '*Ra sa vuka e vanua na manumanu ni cagi mai Vatuira, qori e ivakaraitaki ni vakarau liwa e dua na cagilaba'* or when diving for fish in the reefs, the sea current is so strong at the bottom of the submerged reefs and the ocean is murky, '*Ni kui na boto ni waitui qai vuvu na loma ni wai*' or when debris and dead sea grass from the bottom of the ocean are washed up on the seashore, 'Ni kune na vutia, lecau kei na co ni waititobu ni kasa mai ena baravi', they are all signals for the people to prepare and expect strong storms and damaging cyclone winds.

For an approaching tsunami or 'ualoka', there would be unusual extreme low tide or king tides, '*Ni sa di caracara na mati se ua gunu'* or when certain birds and animals behave abnormally, '*sa ra veiciciyaki na manumanu'*, indicating to people that a tsunami is most likely to approach and they should prepare to move to higher grounds (Sainimere, 2019: pers. Comm).

For a fine weather or 'draki vinaka', the sky is as blue as the stomach of the branded rail, 'Sa *ketekete ni bici na lomalagi'* or when there's red skies in the evening, '*sa botaira na vanua' or* if a lot of stars are seen at night or there's lightening in rainy weather, '*ni levu na kalokalo ena bogi, se tibi na liva ena gauna ni draki ca qo sa ivakaraitaki ni draki vinaka ena siga tarava*'. They are all signs of approaching fine weather according to villager Taraivosa (Taraivosa, 2019, pers. Comm).

Additionally, indigenous societies also observe bio-physical animate and inanimate entities to make predictions about the future and current weather variables that cannot be directly observed by the human senses (Kalanda, Ngongondo, Chipeta, et al, 2011).

Figure 18: Red skies in the evening as the sun sets



Red skies in the evening as the sun sets in Suva or 'sa botaira na vanua'; Source: Naisele, 2019.

6.4 Research Analysis

6.4.1 Analysis of Findings by Villages

The broad scope of the research across the fourteen selected villages in the three provinces of Fiji was to verify the impact of drakiveisau effect and the traditional provisions of mitigation strategies as employed by the villages in these provinces under the key seven research questions.

The questions were analyzed based on the two categories:

A. The 14 villages analysis

B. The age grouping analysis from the 14 villages.

A. The Village Analysis

A6.4.2 Summary of Responses on the Major Drakiveisau Effects Visible in the Villages.

A6.4.2.1 Visible Effects Evident of Drakiveisau.

The most common visible effects of drakiveisau are coastal erosion of foreshores and riverbanks, diminishing size of the islands, coral bleaching, dead coral reefs, migration of fish into the deep, loss of traditional methods for farming and fishing, loss of mangroves due to excessive use for firewood, regular occurrence of king tides, irregular weather patterns- long drought spell followed by excessive rainfall that causes flash floods and extensive agricultural damages, fresh water pond turned to brackish water, droughts and dry soil,

A6.4.2.2 Traditional Mitigating Factors Used by the Villages.

Traditional mitigating factors used by the villages against drakiveisau included the rebuilding of sea walls, cultivation of mangrove trees along the coastal shores and river mouths, adopting traditional farming techniques like slash and burn, terrace farming, shifting cultivation, crop rotation and organic farming, traditional methods of 'tabu' or taboo both on land and sea to help sustain and replenish the soil on land with tress and fish and reefs in the sea.

A6.4.2.3 Major Drakiveisau Mitigating Techniques with the History of Traditional Activity.

The mitigation techniques of climate change with the history of traditional activity in the village include planting and replanting of mangrove trees to help support and maintain the coastal shores and acting as the first wave breaks to the sea wall and also providing an estuary for the fish spawning and breeding, replanting of tress and forest on land to help in the reforestation program, and enforcement of marine protected areas (MPA) - taboo for a given duration to help sustain the marine lives population.

A6.4.2.4 Proposal to Save the Land and People from the Devasting Effect of Climate Change

Most villages propose for the enforcement of traditional cultural values and skills that support and preserve the natural land surface, air space and their marine environment. The need to revive the traditional skills, methods and culture that support the protection of environmental

ecosystem is paramount for most villages. For instance, sailing a dug-out canoe instead of using outboard motorboats is a good example.

A6.4.2.5 Major Setback to the Teaching and Revival of Climate Change Mitigating Skills, Over the Years.

The major setback identified is the lack of/or no written records of traditional knowledge and skills of itaukei Fijians. Five villages (63%) argue that the modern and faster means doing things like modes of transportation and communications will dampen the spirit of revival of tradition skill as mitigation factors to climate change.

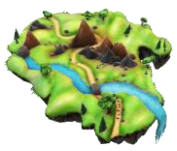
A6.4.2.6 Mitigation Skills and Knowledge Learned in the Past and How it Benefitted the People.

65% of the total responses agreed that sailing a canoe is environment friendly and cheaper. Others mentioned traditional farming techniques like slash and burn, crop rotation, terrace farming and organic farming protected the soil and saved costs for the people. Equally environmentally important and cheaper is the planting of mangrove tress and using mangrove root soil as a mortar to cement the sea wall.

A6.4.2.7 Effective Delivery Mode in Restoring the Lost Climate Change Mitigation Skill Set.

All the villages agreed that teaching/learning and practical training with close monitoring of activities to support its sustenance is the way forward. The traditional techniques may be seen as obsolete, but suggestion for revival through education must be however made attractive to the youths and school leavers. Most villages propose that education must be conducted to itaukei villages in itaukei language, to ensure the revival and sustenance of these traditional skills and knowledge.

Table 4: Villagers general responses to the Questions and Analysis.

Questions	General responses	Villages
1. What are some major climate change effects visible in your village? 	• Coastal erosion of foreshores and riverbanks, • diminishing size of the islands, • coral bleaching, dead coral reefs, migration of fish into the deep, • loss of traditional methods for farming and fishing,	Uluiloli- Tailevu Levuka- Kadavu Qoma, Tailevu Nagigi-Cakaudrove Saqani-Cakudrove Mataniwai- Macuata Navunievu-Bua Nawaido-Bua

	• loss of mangroves due to excessive use for firewood, • regular occurrence of king tides, irregular weather patterns- long drought spell followed by excessive rainfall that causes flash floods and extensive agricultural damages, fresh water pond turned to brackish water, • traditional Fijian house 'bures' now replaced by corrugated iron and concrete buildings, • excessive logging of trees and forests causing droughts / dry and hard surface.	Kabariki-Kadavu Muaninuku-Kadavu 10 
2 What traditional mitigating methods have been used against climate change in your village? 	• Rebuilding of sea wall using mangrove root soil mortar • replanting of mangrove trees along the coastal shores and rive mouths, • adopting traditional farming methods like slash and burn, terrace farming, shifting cultivation, crop rotation and organic farming, • putting restrictions or 'tabu' on certain land and sea areas to help sustain and replenish the soil and plants on land and the reefs and sea with fish. • land and sand dune reclamation. • Compulsory marine protected areas.	Kabariki-Kadavu Muaninuku-Kadavu Mataniwai- Macuata Navunievu-Bua Nawaido-Bua Nagigi-Cakaudrove Saqani-Cakaudrove Uluiloli- Tailevu Levuka- Kadavu Qoma, Tailevu Tawake-Cakaudrove Wainigadru- Cakaudrove  12
3. Identify climate change mitigating methods you think will work for your village 	• Revival of traditional fishing method • Planting and replanting of mangrove trees to help support and maintain the coastal shores, act a first wave break and help save the sea wall and provide estuary for the fish spawning and breeding. • Replanting of tress and forest on land as part of the reafforestation programme • Enforcement of marine protected areas (MPA) -tabu or taboo for a given duration to help sustain the marine lives population.	Uluiloli- Tailevu Levuka- Kadavu Qoma, Tailevu Tawake-Cakaudrove Wainigadru- Cakaudrove Kabariki-Kadavu Muaninuku-Kadavu Mataniwai- Macuata Navunievu-Bua Nawaido-Bua Nagigi-Cakaudrove Saqani-Cakaudrove 12
4 What can you do to save your land and people from	• enforcement of traditional cultural values and skills that support and preserve the natural environment -	Wainigadru- Cakaudrove Kabariki-Kadavu Muaninuku-Kadavu

the devasting effect of climate change and what traditional methods of mitigation do you use?	land, atmosphere, and marine resources. • Re-learnt and revive the traditional knowledge, skills, and cultural approaches that support our ecosystem, like use of sailing canoes, building of Fijian bures, practice organic farming Sailing a canoe- environment friendly and cheaper for the people in terms of fuel and engine. • Traditional farming techniques- slash and burn, crop rotation, terrace. • farming, organic farming, and high costs for the people • Coastal erosion- planting of mangrove tress and using mangrove root soil as a mortar to cement the sea wall.	Mataniwai- Macuata Navunievu-Bua Nawaido-Bua Nagigi-Cakaudrove Saqani-Cakaudrove Uluiloli- Tailevu Levuka- Kadavu Qoma, Tailevu 11
5. How did you know/learn of the mitigating skills and knowledge used in the past and how it benefitted your community?	• These were learnt through word of mouth with no formal learning taking place. People learnt through observations and imitations. • Mat weaving, traditional framing, fishing methods, and traditional food preservations were all done by copying what our elders did. • They were cheaper and sustainable and support drakiveisau mitigation.	Navunievu-Bua Nawaido-Bua Kabariki-Kadavu Muaninuku-Kadavu Mataniwai- Macuata Qoma, Tailevu Tawake-Cakaudrove Wainigadru- Cakaudrove 9 
6.What are some setbacks to the teaching and revival of mitigating skills and what solutions can be applied? 	• The major setback is the lack of/ little /no written materials stored on traditional knowledge and skill of itaukei Fijians. • 70% agreed that the modern and faster means doing things like modes of transportation and communications will dampen the spirit of revival of tradition skill as mitigation factors to climate change. • Contemporary methods and blending both the traditional and modern methods of mitigation.	Uluiloli- Tailevu Levuka- Kadavu Qoma, Tailevu Tawake-Cakaudrove Mataniwai- Macuata Navunievu-Bua Nawaido-Bua Kabariki-Kadavu 8

7.What do you see as major challenges to the teaching and revival of drakiveisau mitigating skills over the years and what do you think are some solutions to the challenges faced? 	• Education and practical training with close monitoring of activities to support its sustenance will need technical and financial support from the government and initiatives from the local communities. • The traditional techniques may be seen as obsolete, suggesting for its revival through education which must be made attractive to the youths, especially. Most villages suggested that education must be conducted to itaukei villages in itaukei language, to ensure the revival and sustenance of these traditional skills and knowledge. • The presentation is no longer interesting and convincing and hence most see the traditional techniques as outdated, as colonization effect still lingers on after independence.	Nawaido-Bua Nagigi-Cakaudrove Saqani-Cakaudrove Mataniwai- Macuata Navunievu-Bua Nawaido-Bua Kabariki-Kadavu Uluiloli- Tailevu Levuka- Kadavu Qoma, Tailevu Tawake-Cakaudrove 11 

Villagers' general responses with analysis to the Questions; Source: Village Interview Reports, 2019

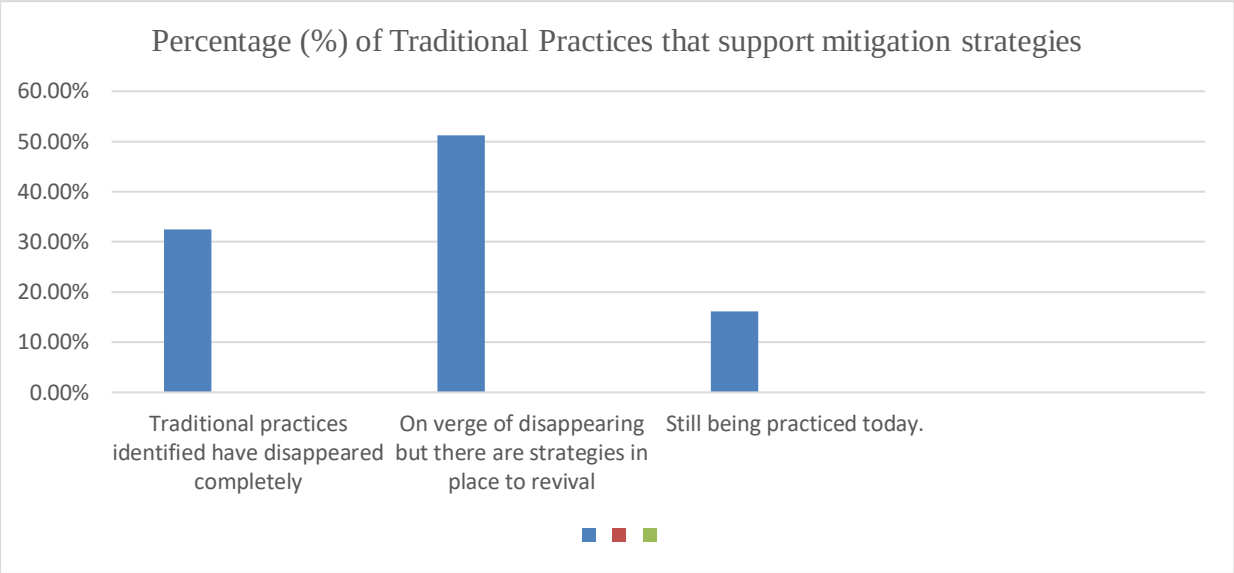
A6.4.2.8 Village with Age Grouping Interview Data and Report: 2017-2020

This research clearly indicates that of the total 37 traditional practices identified, 32.5% have disappeared completely or are no longer used while only 16.2% are still being practiced. A large portion of 51.2% are on the verge of disappearing, but there are strategies in place through government initiatives to help revive them. Twenty-five of the total thirty-seven traditional skills surveyed are related to contributing mitigation strategies on drakiveisau currently used by the itaukei villages, accounting for 67.5% of the traditional ways of mitigating drakiveisau effects. Other traditional mitigation and adaptation techniques are explained below.

A6.4.2.9 Traditional Practices that Support Mitigation Strategies.

Table 5 with Graph: Village Analysis of Results: *Percentage (%) of Traditional Practices that support mitigation strategies.*

▪ Traditional practices that have disappeared completely	32.5%
▪ Skills on the verge of disappearing but strategies in place to revive them	51.2%
▪ Skills still in practiced today.	16.2%



A6.4.2.10 Traditional Practices with Mitigation Engagement.

Table 6 with Pie Graph: Total raw number of traditional skills identified.

Traditional skills	Percentage (%)
Identified to have some relations in contributing to mitigation on drakiveisau effect for the villages	67.5%
Identified to have little relations in contributing to mitigation on drakiveisau effect for the villages	32.5%

Table 6: Total raw number of traditional skills identified is 37 with pie graph below.

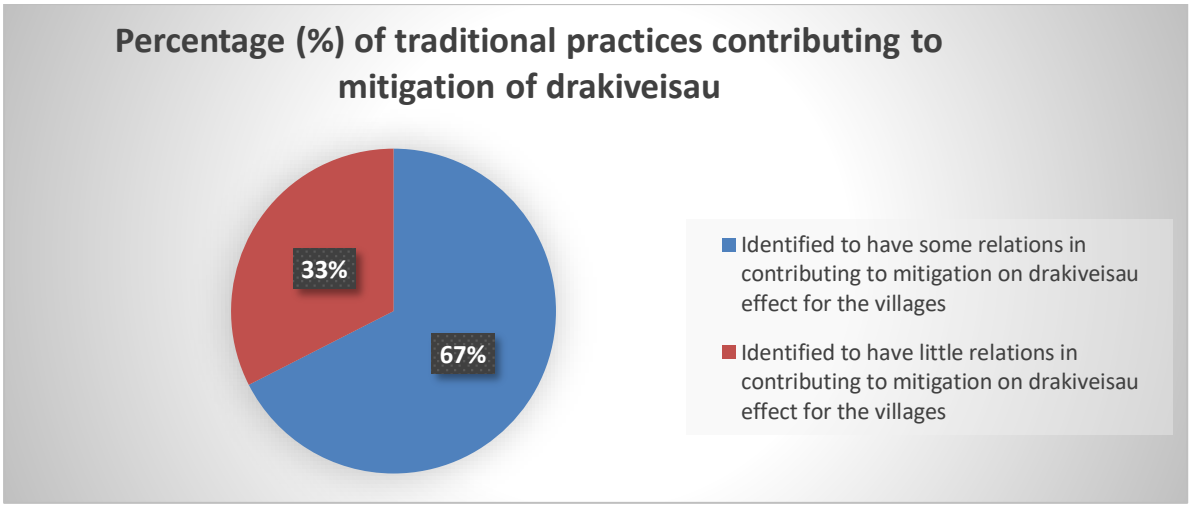


Table 7: Village classification of traditional skills that have been lost, revived, and those still in practiced today.

Village	Traditional skill under threat of losing	Traditional skills possible to revive	Traditional skill set-still being practiced today
Navunievu, Bua	Vakalolo-Ravoravo	Qoli-Tuvamoka	- Farm clearing or 'were bula'for Terrace farming. - Planting and replanting of mangroves.
	Fishing in the reefs-using canoes	Sea wall or 'Baniua', washed away-	
Nawaido, Solevu, Bua	Fishing in the reefs-using canoes	Sea wall or 'Baniua', Planting and replanting of mangroves	
Nakalou, Macuata		Fishing- using traditional spear fishing technique or 'Tukidodo'	
		Annual fish-drive harvest or 'Nuqa/Volaca'	
Mataniwai, Macuata		Sea wall or 'Baniua', Planting and replanting of mangroves	
Nagigi, Cakaudrove	Building of Fijian Bure-traditional itaukei house	Planting yearly crops like yams and present the 1st yield to the chief and church	Planting of coconut trees and preservation of soil close to the beach front
		Fishing – traditional fishing	
Buca, Cakaudrove	Fishing/Qoli a fish type called 'Yawa' and 'Malaivi'		
	Tapa making -Masi		
Saqani, Cakaudrove	Fishing/Qoli ni yabaki-Octopus or 'Kuita'	Farming/planting or 'Sevu ni yabaki'	
	Fishing type-Yavirau		
Tawake, and Wainigadru Cakaudrove	Traditional crafts and rituals -Fijian bure -Fijian canoe	Traditional Fishing methods -Yavirau - ika ni Yabaki-Balolo/Deu/sirisiriwai	
		Mallet fishes are only fished when they come out of the Natewa Bay for spawning and not when they are going into the bay or 'Susu Kanace'	
		Farming -Terrace farming - special root crops farming of 'dalo and uvi'	
Qoma Tui Nabulebulewa	Sailing of canoes	Fishing methods -Yavirau/Silitikawa	'Tei Uvi' Making Turtle nets

			for 'Qoli vonu' Tuva moka Tuva salisali Toni kora Samu busa
	Seawall or 'Bainiua'		Traditional Food preservation- madrai ni viti Taboo of marine protected areas
	Traditional house heating during cold/winter season or 'irara'	Marine Protected Area (MPA) or 'Vanua/Qoliqoli vakatabui' se 'sauvi'	
Uluiloli Ratu mai Verata		Traditional Fijian bure	Sailing of canoes
Levuka, Nabukelevu and Muainuku village-	Traditional Fishing method Turtle or 'ikabula/vonu' are fished for a special ceremony for the chief - Levuka, consumption	Traditional Fishing method or yavirau	
		Dessert/food classic or 'Vakalolo/vukitavu/ sivaro'	
		traditional Fishing method or 'balolo' 'Ika ni yabaki'/ 'Ika ni balolo- 'tulevu/cigani/'	
Kabariki, Nabukelevu		Traditional Fishing method: 'yavirau' ''balolo- 'vulaitalevou', 'ligani'- 'ika ni yabaki'	Yam farming or 'Tei Uvi'
Total	**12**	19	6

The Table 7 above shows the village classification of lost traditional skills, those that can be revived, and those that are still being practiced today; *Source: village interview data report, 2017-2020*

A6.4.2.11 Summary of Traditional Skills Ratings

Table 8 with Pie Graph: Summary of Traditional Skills Ratings

Traditional Skill	Percentage Rating
Skills under real threat of losing	32.4%
Skills possible to revive	51.3%
Skill set still in practiced today	16.2%

Summary of Traditional Skills Ratings

The table above shows findings on several traditional itaukei skills that have been lost and those that are on the verge of extinction for the selected villages. However, it's encouraging to also note that some traditional itaukei skills and knowledge are still being practiced which shows the underground effort of the village chiefs and elders in upholding the traditional culture of their tribe. These include the following noted in sections A6.4.2.12-A.6.4.2.19.

Sixty-six percent (66%) of the traditional practices proved to be effective strategies supporting the mitigation of drakiveisau and at the same time supports the revival of traditional skills and knowledge for itaukei Fijians. These are highlighted in the following section.

A6.4.2.12 Traditional Farm Clearing Without Chemicals for 'Terrace Farming.'

The traditional terrace farming technique never uses chemicals and requires communal work of 'solesolevaki' where the menfolk clear terrace or hill land using cane knives, forks, spades, and axes. It's purely manual with so much passion and spirit of working together. It is only done to new grounds on bush lands where the weeds are cleared leaving some trees for shelter during hot seasons. The hill terrace is shaped in a way that provides heaps of dead logs and grass in between plots before the contour drains which run perpendicular to the main side drains from the terrace top to the bottom of the hill. This way, minimum erosion of the top rich soil is lost during rainy weather and hence preserve the soil from washing away into the streams and ocean. The trees provide the most needed shade for plants and man, use up excessive CO2 in the atmosphere and absorb the heating effect of

the sun thus reducing the heat wave that are reflected to atmosphere, dangerous to the thin ozone layer. This bionetwork, in a small way help support mitigation against drakiveisau.

A6.4.2.13 Traditional 'Slash and Burn' Method for Rotational Farming

This traditional technique never uses chemicals and requires communal work of 'solesolevaki' where the menfolk clear the land using cane knives, forks, spades, and axes for rotational farming. It is only done to used farmland that have been lying fallow for some years. The glass is cut leaving dead grass for couple of days before they are burn down to provide ashes and potash for the soil which makes it rich and fertile. This method helps the natural ecosystem by recycling of the soil and minerals. The ecology supports and protects each other from the heating effect of the heat waves that are dangerous to the protective ozone layer.

A6.4.2.14 Planting and Replanting of Mangroves.

Mangroves planting and replanting comes in two folds of importance. First, it acts as a first line of strong wind breaks during cyclone and tidal waves on the land and for the people. As such, it is seen as a sea and wind barrier before the sea and wind reaches the land and hence stops the effects of nature on the coastal shores.

Secondly, it provides a breeding ground and shelter for small fish, sea prawns and crabs along coastal sea line. As such it helps in the ecosystem of marine lives that live around the coastal seashore. Mangroves also provides the most needed shades for marine lives and absorb the heating effect of the sun and help absorb excessive CO2.

Planting of coconut trees and other trees help preserve sand and soil on coastal land from erosion. It also provides shelter for the people during hot humid weather condition and a source of food and wood. As such, the trees provide the most needed shades and absorb the heating effect of the sun.

A6.4.2.15 Traditional Food Preservation Methods: drying fish, earth oven cooking(lovo) and madrai ni viti making.

Traditional food preservations mentioned above are always preferred over the modern means of preservation using refrigeration and cooking oil which both are damaging to the human lives, environment, and atmosphere. Refrigerators release toxic chemicals and

radiations that are released into the atmosphere which supplements and combines with toxic gas that threatens the atmospheric protective layer.

A6.4.2.16 Marine Protected Areas- Taboo/Tabu

An important traditional preservation method which helps the marine and land ecosystems to conduct its own normal recovery process and allows the natural biodiversity of ecology to reconnect, rebuild and regrow at their own pace. These restrictions provide a more stronger protection unit of the environment against the adverse weather condition from the heat of the sun, strong winds, flooding and ocean waves and currents.

A6.4.2.17 Canoe Building and Sailing

The new generation preferred modern means of transportation at sea on a fast out board motorboat compared to the traditional method of sailing a canoe. The fuel and powered engine boats proved too expensive for most villagers and release toxic gases into the atmosphere and oil leakages in the ocean which contribute to drakiveisau. The sailing canoe is cheaper and user friendly and environmentally safe. This is seen as a key mitigation strategy to drakiveisau.

A6.4.2.18 Traditional Sea Wall Building Methods using Mangroves Mortar Soil

The mangroves bottom soil mortar is preferred over concrete cement to help support and sustain the sea wall for years. The soil mortar helps sealed the stone sea wall and it is less expensive and long lasting.

A6.4.2.19 Construction of Fijian Bure/ House

Concrete and corrugated iron houses are commonly preferred now compared to the traditional thatched bures. The thatched bure, made from timbers, reeds and vines is proven to be cool during hot humid weather and warm during cold night and it provides an absorption strategy to the rays of heat wave from the sun glaze and help contribute to mitigation of drakiveisau. The thatched bure requires less cost to the people, can withstand strong damaging winds, and well-ventilated and neat.

However, there are variations from one village to another in terms of research findings. There are villages where they have no one else left to teach the traditional skills like the construction of thatched bures, that was evident in Nagigi, Kabariki, Saqani and Tawake. This was also

the case for the traditional fish drive or ‘yavirau’ as discovered in Tawake and Saqani. In contrast, there are several skills that are dying or no longer in practiced but there are still one or two elders alive to teach the skills to the younger generation. This is true in terms of canoe building and sailing, ‘silitikawa’ fish drive, turtle net weaving, ‘tuva moka’ and ‘samu busa’ fishing, and its traditional chants and dances, for Qoma. In Navunievu on the other hand, the making of food delicacy ‘ravoravo’, which is traditional to the people of Bua, is totally lost.

Despite of the many traditional skills that have faded away, villages have adopted other means to preserve their land and resources and to mitigate against the on-going effects of drakiveisau. All the villages that are located on the coast have resorted to constructing concrete seawalls with the assistance from the government, to replace the stone walls cemented with black earth tar from the roots of mangrove trees. Most villages have also stepped up the protection of eroding coastal areas by planting mangroves along the coastal shoreline. This is true for Qoma, Navunievu, Saqani, Tawake, Nakalou, Levuka, Mataniwai, Muainuku and Kabariki. Nagigi village however, adopted a slightly different approach by planting coconut trees at the seafront where natural sand movement caused by waves and ocean current forms piles of white sand on the beach front and act as a natural seawall.

The traditional skills known to be currently active are the traditional farm clearing or ‘were bula’ in Navunievu Bua, yam farming or ‘tei uvi’ in Kabariki, traditional fish drive, traditional taboo of fishing ground, and traditional food preservative technique in Qoma, and sailing in Uluiloli, in Verata.

Yams or ‘uvi’ is a significant root crop for itaukei Fijian men. Known as a man’s crop’ or ‘itei ni tagane’, it dictates several key activities in the itaukei traditional culture and protocol. This includes the ceremony to mark the harvesting season, the ceremony to present the first harvested crop to the chief and to God, by way of the church, and is even marked as a significant event in the Fijian traditional calendar (Refer to appendix 2). The Fijian calendar shows four months which are associated with the four stages of yam cultivation. April is known as the ‘Vula i Kelikeli’ or the harvesting month. June is ‘Vula i Werewere’or the weeding month. July is ‘Vula i Cukicuki’ or the month for the preparations of the yams planting, and September is ‘Vula i Vavakada’ or the digging of yam plots and mounds and plotting of reeds to support the creeping vines.

B. Age Groupings Analysis

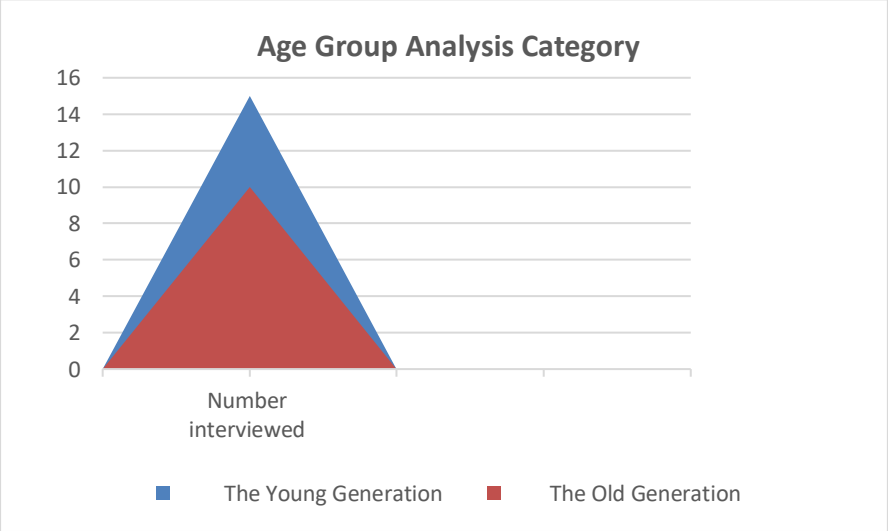
B6.4.1 The Age Grouping Analysis in the 14 Villages.

The second analysis of the research focused on age groupings of the young and old generation, which was important to gauge their perceptions of traditional methods of mitigating drakiveisau. The selection of participants was also categorized into their age groupings. There were two main categories of age groupings: The young generation of 20- 45 years of age and the old generation of 46-80 years of age. Both men and woman were interviewed for their respective age categories. A total of 25 interviews and 'talanoa' sessions were conducted which had a mix of the two age group categories with 15 in the young generation category and 10 in the old generation group. The grouping analysis shows the participants' responses with reference to the traditional knowledge and adaption skills on drakiveisau.

B6.4.2 Age Group Analysis

Table 9 with graph: Age Group Analysis Category: Total Interview and Talanoa: 25

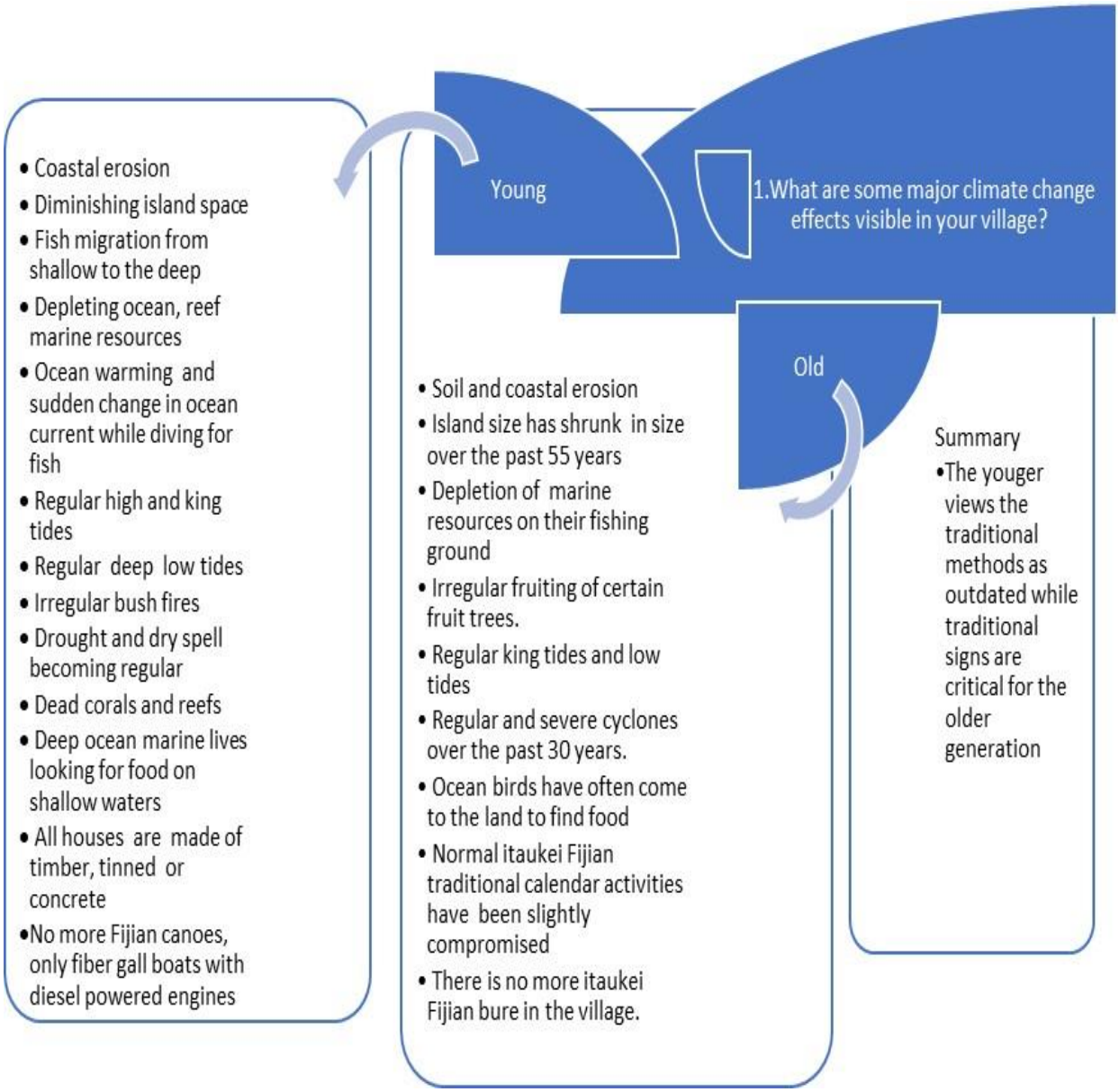
Age Groups	The Young Generation	The Old Generation
Number interviewed	15	10

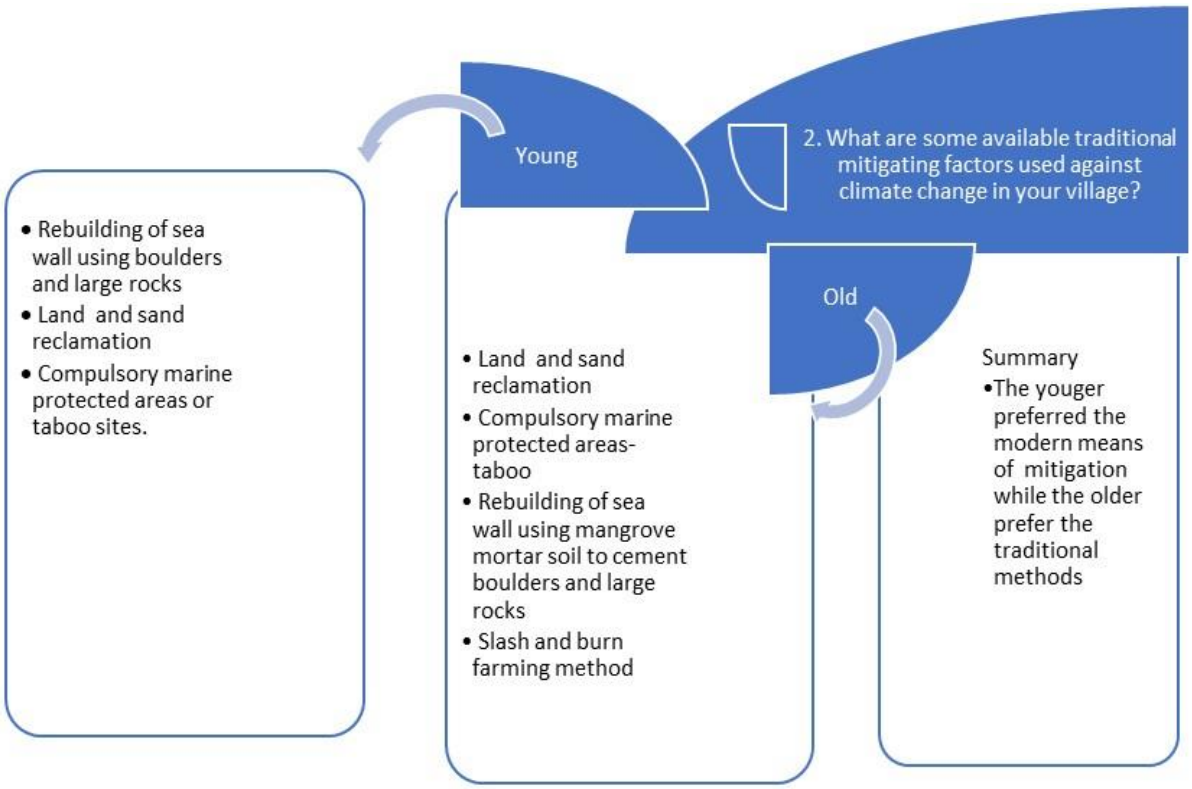


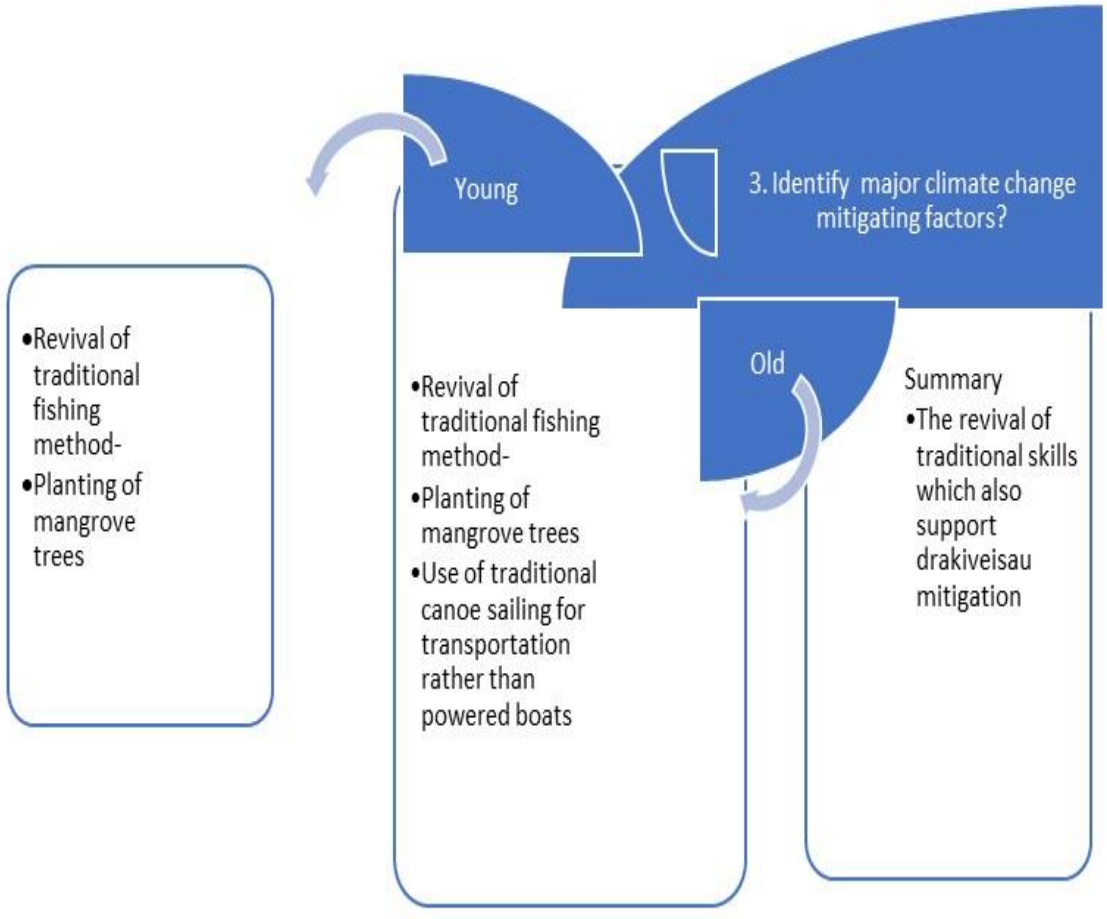
The summary of the analyzed findings is inclined to the younger generation who prefer the modern and contemporary means of mitigation and seen traditional knowledge as outdated while the older generation prefer an aggressive revival approach to traditional mitigation which will not only contribute to mitigation of drakiveisau but help sustain traditional knowledge and skills.

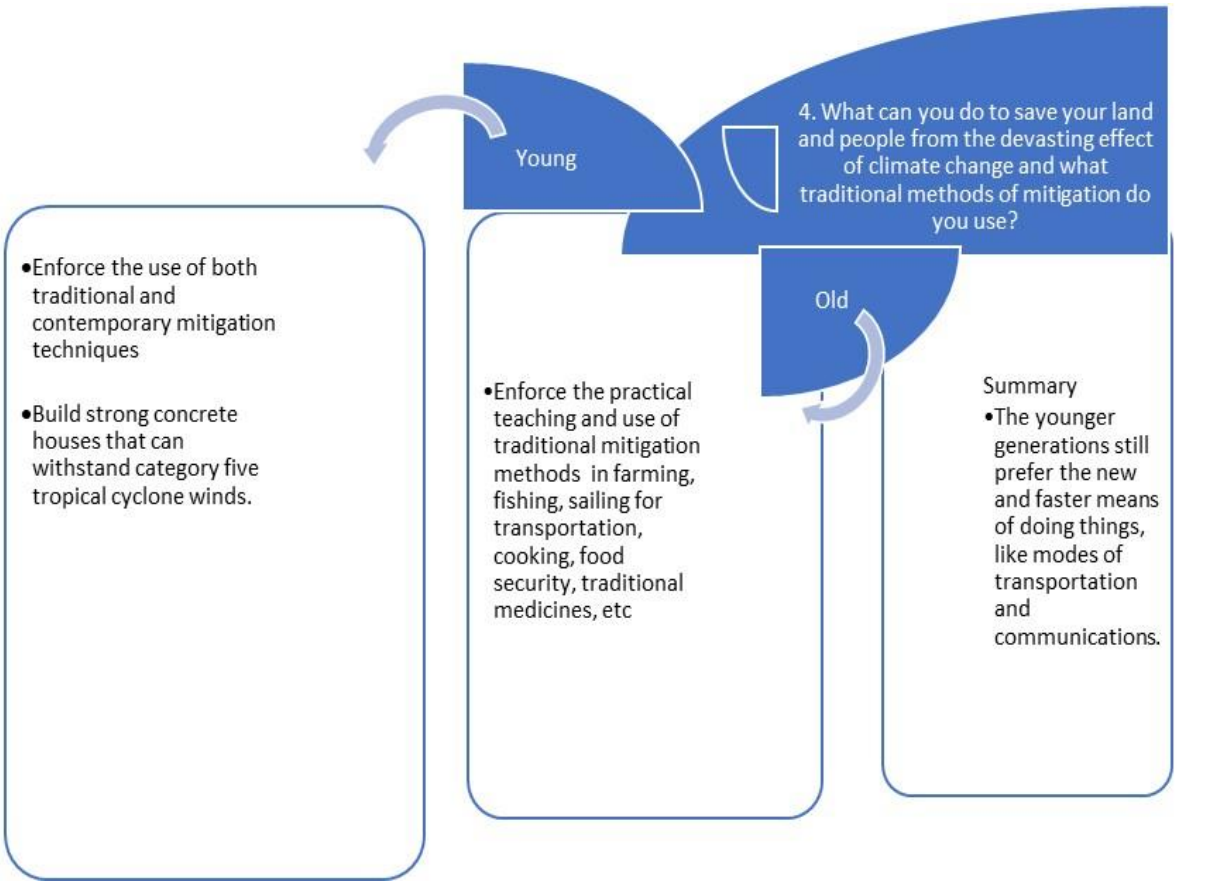
The details are shown in diagram below.

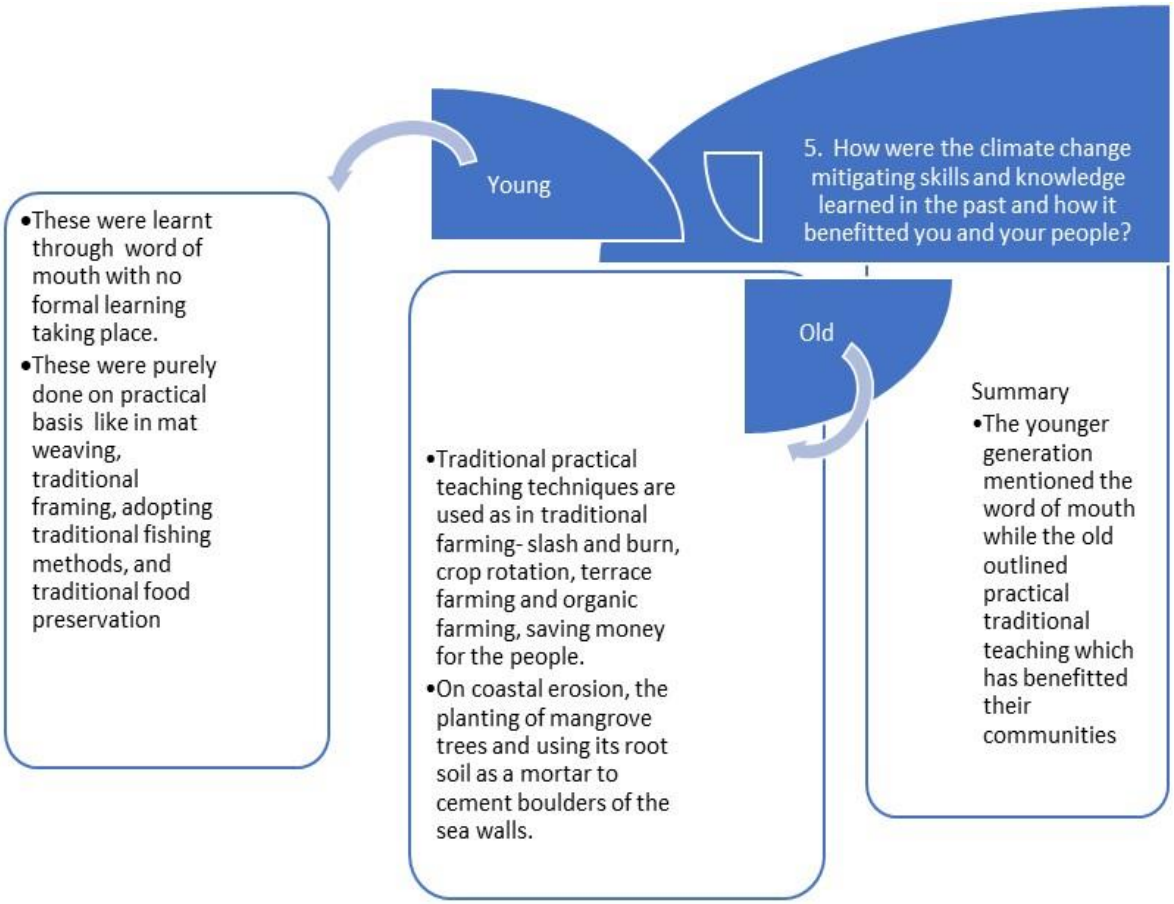
*Table 10 with seven questions 1,2,3,4,5,6 and 7: Summary of Results and Analysis of age grouping interview***.**

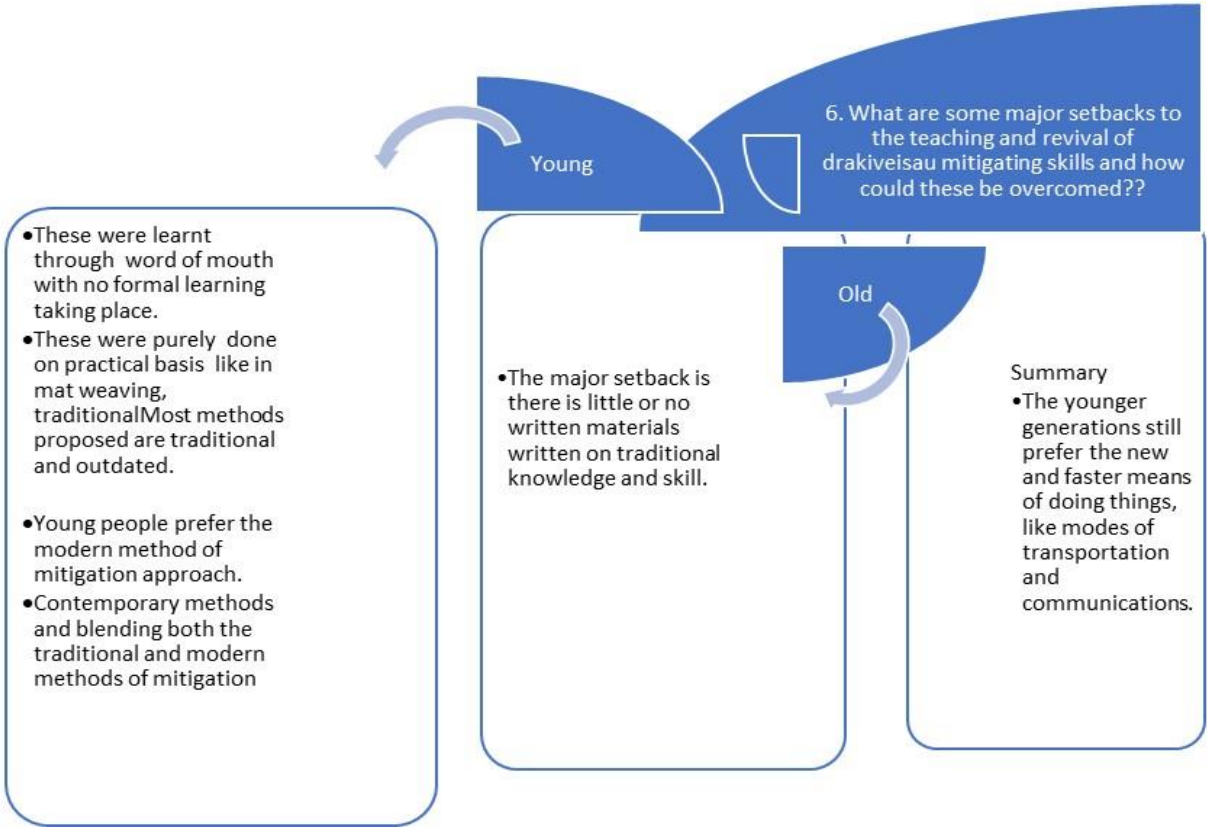


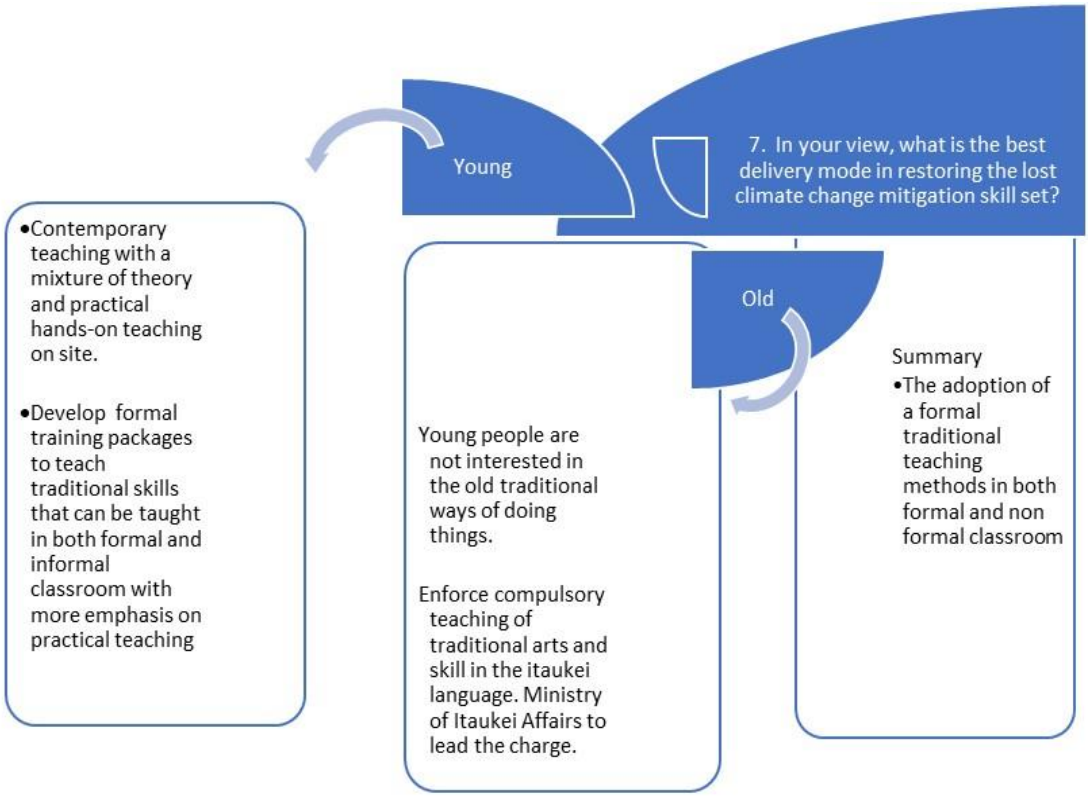

2. What are some available traditional mitigating factors used against climate change in your village?
Young
Old
• Rebuilding of sea wall using boulders and large rocks
• Land and sand reclamation
• Compulsory marine protected areas or taboo sites.
• Land and sand reclamation
• Compulsory marine protected areas- taboo
• Rebuilding of sea wall using mangrove mortar soil to cement boulders and large rocks
• Slash and burn farming method
Summary
•The youger preferred the modern means of mitigation while the older prefer the traditional methods


3. Identify major climate change mitigating factors?
Young
Old
•Revival of traditional fishing method-
•Planting of mangrove trees
•Revival of traditional fishing method-
•Planting of mangrove trees
•Use of traditional canoe sailing for transportation rather than powered boats
Summary
•The revival of traditional skills which also support drakiveisau mitigation


4. What can you do to save your land and people from the devasting effect of climate change and what traditional methods of mitigation do you use?
Young
•Enforce the use of both traditional and contemporary mitigation techniques
•Build strong concrete houses that can withstand category five tropical cyclone winds.
Old
•Enforce the practical teaching and use of traditional mitigation methods in farming, fishing, sailing for transportation, cooking, food security, traditional medicines, etc
Summary
•The younger generations still prefer the new and faster means of doing things, like modes of transportation and communications.


5. How were the climate change mitigating skills and knowledge learned in the past and how it benefitted you and your people?
Young
•These were learnt through word of mouth with no formal learning taking place.
•These were purely done on practical basis like in mat weaving, traditional framing, adopting traditional fishing methods, and traditional food preservation
Old
•Traditional practical teaching techniques are used as in traditional farming- slash and burn, crop rotation, terrace farming and organic farming, saving money for the people.
•On coastal erosion, the planting of mangrove trees and using its root soil as a mortar to cement boulders of the sea walls.
Summary
•The younger generation mentioned the word of mouth while the old outlined practical traditional teaching which has benefitted their communities





Source: village interview 2019: Village with age grouping interview data and report, 2017-2020

B6.4.3 Traditional Mitigation and Adaptation Methods

Drakiveisau has had positive and negative impacts on the livelihood of all the study areas in numerous ways. A positive effect was the excess number of crops and fruits harvested due to weathering effect resulting from cyclone winds spraying salt water inland of the islands. This provided sodium chloride for the soil making it more fertile. There was also evidence of an increase in farm productivity across all the study areas of Qoma, Uluiloli, Kadavu and Vanualevu. More taro, kava and vegetables have been harvested due to a fair distribution of rainfall, especially for Kadavu, Cakaudrove, Bua and Macuata provinces. The increase in farm production led to more food for the people as well as an additional income generated through selling the surplus at markets in Labasa, Savusavu, and Suva.

However, an increase in the water temperatures of the sea and rivers have negatively affected the amount and sizes of fish stock and supply of '*sasalu ni waitui'* (other edible seafoods). There has been a decrease in the amounts of fish, sasalu and prawns available and fish caught were smaller than the ones they used to catch in the past. Smaller harvests led to more time being spent when out fishing and less income from selling any surplus.

Other evidence of the negative impact of drakiveisau include the rising water-levels due to the increase in ocean temperatures and associated heavier rainfalls and stronger winds, causing coastal erosion and washing away of riverbanks, especially true for Qoma, Navunievu, Nagigi and Saqani villages. However, villagers have relied on their traditional knowledge and skills over the years which have help them cope with such changes and have made them resilient. Some of the adaptation methods mentioned by the village headmen and the elders during the talanoa sessions include MPA, replanting of mangroves, food preservation methods, building store houses, inter-cropping, and fish-trapping discussed in the following paragraphs below.

Marine protected areas (MPA), or taboo sites, or *'vanua sauvi*', are land and sea areas that are restricted and preserved for larer use. These restrictions help the area regain the regrow of its resources and ensures sustainability When these areas are taboo or 'sauvi', the traditional kava presentation makes everyone aware of the restriction and will respect it. To mark the commencement of the taboo period, coconut leaves are woven around the trees or poles to mark the area both on land and on sea and will be removed only when the taboo ends. In the case of Qoma, certain areas of land fruit trees and sea are usually put on taboo or 'sauvi' for three to five months to make sure there would be enough food resources available during any

chiefly occasions like the ‘vakataraisulu’ after the death of a chief, or at Christmas time, when most members of the village are present. Another reason, according to the elders, was that the forest also acts as a reservoir, filtering and storing water for their daily use.

Certain fishing area or *‘iqoliqoli*’ have on several occasions been put on taboo or *‘vanua sauvi’* to allow for the regrowth of marine food resources on Qoma over the last ten years. Hence, fish, prawns, crabs, and sasalu ni waitui have increased in amount and have migrated with spill over effect to the other non-taboo arears where people could fish. It is believed that those who violate such restrictions are penalised in some way by the vanua and will be subjected to traditional punishment called ‘ore’. The offender would be expected to take kava or ‘yaqona’ to the chief priest or ‘*bete’* and offer his soro or apology and if he failed to do so, the spirit god or ‘sau ni vanua’ would befall the person or his family member.

There is an increase in the planting and replanting of mangroves in all villages studied They are a major source of food to the villagers Mangrove forests growing in the ‘*vanua sauvi’* areas are sometimes restricted in usage to allow marine food resources to breed and grow in their habitat. The mangrove forest acts as a nursery for the marine lives. More importantly, mangroves are wave and wind barriers that protect the coast from surging waves and rising sea level.

The Qoma case, like the other study areas, have food preserving methods such as making ‘madaraiviti’ which involves the soaking of cassava in a special pool of fresh water for five days before cooking and eating and keeping it for up to a week. Fish smoking and drying in the sun, and the use of earth oven or ‘lovo’ are practical ways of keeping food longer which could be consumed during long fishing trips in the sea or times of famine or ‘lauqa’, when there is not much food available.

Similarly, the practice of building a ‘lololo’ or a small, thatched bure as a store house of traditional root crops like yams (uvi) and tivoli after they are harvested help sustain crop supplies and ensure food security in times of disasters. Maintaining the ‘lololo’is important for every itaukei farmer so their crops can be stored safely. Yams are usually divided into different sizes depending on their uses. Banana leaves are hung in the ‘lololo’ to monitor the storage room temperatures and crops can be stored in the ‘lololo’ for up to one year or more.

Yam crop is an important traditional staple food, with a high social value, and is usually presented as first harvest (*isevu*) to the chief and to God through the church chaplain. The

itaukei Fijians plant many varieties of yams and they grow into different sizes that dictate their use. Yams are often presented during important traditional ceremonies or used for soup or in feasts for consumption.

Inter-cropping or 'teiveicurumaki' is commonly used as a traditional farming method. Different kinds of crops are planted together on a piece of land and while waiting for the main crop to mature, other short- term crops and vegetables that are planted in between the main crop can be harvested and consumed. For instance, in Qoma, villagers' plant cassava or 'vakatabani' and banana-(musasapientum) or' vudi' around the yam plantation waiting for the main crop to mature. The villagers of Kabariki in Kadavu plant hibiscus manihot or 'bele' plant, which is a common vegetable food, banana or jaina and vudi in between dalo plants so that they can be consumed while waiting for the dalo to mature. This intercropping technique not only help maximize the use of land but also add to the soil's fertility and promotes sustainability in food crop farming.

Fish trapping is a common practice in most villages in the coast. The stone weir or '*moka*' is a traditional fishing method where rocks are piled and arranged in a U-shape to trap fish during low tides. During high tides, the fish swim inside the moka and get trapped inside when the tide goes down. It's illegal and taboo to wade across the tide to reach the moka as the fish would be sacred off and swim away.

Figure 19: Traditional fish trapping method on Qoma Island

Women conducting fish trapping called 'tuva salisali' around the coastal seashore of Qoma. The stone weir or 'moka' or salisali traps the fish and nets are used to catch the fish trapped in the weir.

Source: E. Naisele, 2019.

6.4.3 Revival and survival technique

In all villages visited, all traditional skills are orally taught with emphasis on skills demonstrations like in weaving of mats, coconut basket and turtle net weaving in Qoma

island, or planting yams in Kadavu, or sailing a canoe in Uluiloli. Moreover, these skills were often passed on orally through dances, stories, games, artwork, observations, and imitations.

Figure 20: Revival and teaching of tradition weaving of traditional fishing nets.

1

2

3

4

Traditional Skill of weaving turtle net.

Source: Naisele, 2012.

Similarly, skills in reading signs and interpreting weather changes and patterns with traditional adaptation strategies are also part of the traditional teaching and learning. As such, they do not usually wait for the weather indicators, but refer to the traditional seasonal calendar to predict and prepare for changes in the weather. These special skills have been passed down orally from the elders and through observation and village life experience.

Figure 21: Traditional net fishing method on Qoma Island

Source: Naisele, 2012.

A few key traditional skills have now been part of the itaukei curriculum in a formal classroom setting. As such, children now have the support to also learn this at school. According to the

elders during the interview, it's quite common to have traditional knowledge orally passed down using folk songs, games and meke or traditional dances. For example, lullabies that are performed as meke often describe events or tell a story that embedes traditional knowledge and skills. It is encouraging to know that some of these songs, plays and dances are now taught and used in schools. In addition, some of these traditional performing arts are taught in the itaukei language in elementary schools.

Figure 22: Traditional food preservation on Qoma

The traditional process of 'toni kora' requires grated cassava mixed in coconut cream and wrapped in broad green leaves, placed in a coconut busket and soaked in salt water for a week before it can be consumed. Source: Naisele, 2012.

Many African countries are like Fiji in that people are strongly informed by orality. This means that their cultural and literary forms of expression are often based on storytelling, verbal, and oral traditions. Thus, knowledge is usually produced and passed on via word of mouth. This is particularly true of traditional, indigenous knowledge which includes knowledge about ways of living together, medicine, agriculture, myths, fairy tales and initiation rites. All of this information is orally transmitted from one generation to the next and are rarely fixed in written form (Oppenneer, 2009).

Chapter Summary

Most of the traditional skills associated with drakiveisau mitigation and adaptation are already on the verge of disappearing if nothing is done soon to save them. A very few of these traditional skills are still in use and have been proven to be very effective measures when natural disasters like cyclones strikes traditional village communities.

The overall village analysis reflected on the most needed awareness to revive traditional practices have mostly had a positive inclination towards the mitigation of drakiveisau. Yes, most itaukei Fijians, young and old, are for the proposal to adopt traditional knowledge and skills that will help mitigate drakiveisau in traditional village communities. Many generations of itaukei Fijians have survived devastating weather conditions over the years by resorting to traditional methods of doing things. As noted in the study, 32.5% of the total traditional skills

have disappeared completely, there are chances that 51.2% can still be revived, while 16,2% of these skills are still being practiced today. It is also important to note that 67.5% of the traditional skills identified have some relations in contributing to mitigation of drakiveisau effects on the villages.

For the Qoma case study alone, the percentage rating of the current practices of traditional skills for the past ten years stood at 46% regular occurrences. The work on revival of the traditional skills which supports the mitigation of drakiveisau is ongoing on the island of Nabulebulewa as well as in many other village communities.

The age- group analysis on the other hand, shows the younger generation presenting a strong preference for the modern and contemporary means of mitigation of drakiveisau as opposed to the traditional methods while the older generation prefer a more aggressive revival approach to traditional mitigation which will not only contributes to mitigation of drakiveisau but help sustain traditional culture and skills.

The next chapter focuses on the development of the training package for sailing a waqavakaviti/ waqakau. Written in the itaukei Fijian language with English translation, the chapter describes in detail the process of canoe sailing and its proposed program of study that will eventuate in a recognized qualification document.

CHAPTER SEVEN

THE TRAINING PACKAGE IN SAILING A WAQANIVITI

(Including unit standards and assessment guides, in itaukei and translated into English language)

This chapter has five sub-titles under the following: 7.1, 7.2, 7.3, 7.4 and7.5

Chapter Introduction

7.1 A Typical Fijian Canoe (Waqaniviti)

7.2 The Basic Principles of Sailing

7.3 Prepare for Sail

7.4 Traditional Sailing Method

7.5 Program of Study: Qualification Document

Chapter Summary

Chapter Introduction

The previous chapter outlines the findings and analysis of the research project. It brings to the fore the importance of using traditional knowledge and skills in sustaining traditional lifestyle and surviving the devastating effects of drakiveisau in this time and age. The importance of including and integrating certain aspects of the taukei traditional skills with the modern measures of mitigating and adapting to drakiveisau cannot be over emphasised as it has been proven to be very effective survival skills for itaukei Fijians in their traditional village setup over many years. As supported by the results obtained, the study shows that 51.2% of the traditional itaukei skills can be revived through informal and formal training with the support of the Ministry of Itaukei Affairs, while only 16.2% are still being used today. Most surviving elders from selected villages have registered their interest in sourcing their traditional knowledge and skills for the revival of these traditional skills. It is important to note that 67.5% of the traditional skills studied contribute directly or indirectly to the mitigation of

drakiveisau in village communities. Furthermore, the percentage rating of the current practices for the past ten years stood at 46% regular occurrences. Additionally, the research favored education and training as the best available way to revive these skills which also support the work on drakiveisau mitigation.

In view of these findings, it is proposed that a training package on 'Traditional Canoe Sailing' is developed to enhance the journey metaphor of sailing, reflecting on the importance of communal living and caring for one another. The case study focuses on the belief systems that this traditional skill can be revived by developing a training package to be taught to the younger generations first for the people of Qoma and later to young itaukei in Fiji.

The Qoma case study with its traditional sailing skills, anchors on the belief systems that it is not only a means of mitigation extreme weather conditions, but more so to help revive and sustain the skills by developing a training package and program targeting the younger itaukei villagers.

This next chapter outlines in detail the training package to be delivered in an informal classroom in the village with a competency-based training approach. Written in the itaukei language with an English translation, the training package is pegged in 'Certificate Level 1 in Sailing' and is expected to be registered on the Fiji Qualifications Framework.

7.1 A Typical Fijian Canoe (Waqaniviti)

Traditional canoe sailing is a high-level skill and art which must be mastered after having completed a thorough practical hands-on training. This requires the ability to manoeuvre the canoe while on sail with varying wind directions, wind strengths and understanding the capability and functions of each of the parts. The skill to set sail with the winds, against the wind and perpendicular to the wind direction is the underpinning knowledge to sailing a canoe. The weight of the cargo on board with the passengers, the angle of sail, the sail size, must match the canoe's ability to withhold the 'gush of wind' and movement of waves and ocean current. The sailor must know his sailing bearings and weather signs, landmarks, neighbouring reefs, guiding beacons, or the presence of other canoes or canoes in the sea. Additionally, the sailor must know how to sail to 'starboard' and 'port sides', ensuring the safety of the passengers and canoe.

Outlined below are the parts of a Fijian canoe with their roles in sailing.

The apex or 'vu': a point at the bow of the canoe where the sail booms are tied together to the front of the canoe. (*Na vu-vuni laca ka toka ena mualiu ni waqa. E dau vesu na vu ena dali ni kelekele ni waqa kina soka ni muailiu ni waqa).*

The shroud or 'iloba': On a *sailing* canoe, the *shroud* is the rope that supports the standing rigging and hold both the mast and sail up from side to side and helps maintain the balance of the sail during sailing. Usually, a *shroud* will connect the top of the mast and sail to the canoe side, where is it tied to the boom vang. (*Iloba- na dali ka vesu mai nai dumu kina qara ni roloka me na vakarau taki kina na kaukauwa ni cagi ena gauna ni soko kei na vanua ena bale kina na laca, me rau na veiraurau vinaka. Qo e rawa ni qaravi ena gauna taucoko ni soko).*

The spar/mast/pole or 'idumu': The mast of a sailing vessel is a tall spar or a pole, erected vertically on the centre-line of a canoe. The mast holds the sail and shroud in upright position during sailing. *(Idumu- na kau balavu ka kaukauwa se kau dau vakayagataki me dau laveta cake ka taura matua na laca ena gauna taucoko ni soko. Ratou dau cakacaka vata nai dumu, iloba kei na sila ena kena maroroi na laca ena gauna ni soko).*

The mainsheet or 'sila': The mainsheet is a rope that controls the angle of the sail against the wind and should be adjusted to keep the sail wind- filled, and is either held by the sailor or can be attached to a hook on the side hull. The mainsheet is attached to the boom and is used to control the mainsail. *(Sila- na dali e dau vesu ena karikari me vakarautaki kina na kaukauwa ni cagi kei na vanua me na mua kina na soko).*

The rudder or 'iuli': The rudder is located at the stern of the canoe and submerged in water. It is a flat piece of wood with a handle(tiller) that is used to steer the canoe. While big sail canoes control the rudder via a wheel, the smaller sail canoes have a steering mechanism directly on the tiller and rudder. *(iUli- na kau siviraki vakamatau ka tiko kina na yamena levu a dau toni e loma ni wai ena gauna ni soko, kei na kena i tautauri(tiller) ka dau vakayagataki me ulia sobu, se ulia cake, se vakadodonu taki kina na waqa ena gauna ni soko).*

The mainsail or 'laca': A triangular sail made of either mat or canvas, held on both sides of the sail by the boom, and fixed to the bow. The sail is tied also to the mast and shroud to maintain its upright position during sailing. Running along its lower edge, the mainsail has a

thick wooden frame called the boom. *(Laca ibe se laca - ni wili kina na vu, vaga ka dau vesu ena magimagi na ucuna ruarua).*

The boom or 'karikari': The boom is the horizontal pole which extends from the lower end and the top part of the sail and is attached to the apex of the canoe. Adjusting the boom towards the direction of the wind is how the sail canoe can harness the wind strength that will move the canoe forward or backwards. *(Ikarikari – na kau ni laca ena yasana i ra, ka dau vakayagataki me vesu kina na sila).*

The vang or 'cebolo': The vang is a mechanical fixture that links the shroud to the hull on the side of the canoe. It allows vertical adjustment of the shroud and is an extremely important tool that shapes the sail for speed. The vang can be adjusted to tighten the shroud and flatten the sail (*Cebolo – na dali ka dau vesu ena qara ni roloka ka na dau vesu kina nai loba ni sa vakarewa na laca).*

The skeg / takele: A skeg is a jet-out submerged extension at the bottom of the canoe to keep the canoe moving straight and to protect the rudder from any underwater obstacles *(naitakele lailai ka davo koto ena mua i muri ni ruku ni waqa).*

The rudder holder or '*dai ni uli'*: The rope tied to the rudder and tiller to help maintain direction while sailing *(Dai ni uli- dali e dau vesuka toka nai uli levu ena gauna ni soko).*

The sail and boom holder or 'k*aweki'*: Small ropes or strings that bind the boom and sail together *(Kaweki-na dali edau vesu ena karikari ni laca me dau vesuka tiko na laca kina karikari kei na vaga ena gauna ni vakarewa laca*).

The hull or 'dago ni waqa': A hull is the watertight body of the canoe. The hull may open at the top like in a wooden canoe or it may be fully or partially covered with a deck. On top of the deck may be found a deckhouse and other superstructures, such as a funnel, derrick, or mast. The line where the hull meets the water surface is called the **waterline** *(Vaqaniviti- mua i liu, mua i muri, kaukabi, reveni, cote, qara ni roloka, roloka, dali ni kelekele, kelekele).*

The push pole or 'ikara'- a long wooden piece of timber used for steering the canoe from the shallow to the deep *(i kara- na kau e dau vakayagataki me karataki kina na waqa ni bera na vakalaca).*

The oar or 'ivoce': a wooden tool for paddling the canoe when the wind is not blowing *(i voce- nai uli lailai dau tomani voli ena lomani waqa mei sasabai ena gauna ni soko ni sa mate na cagi. Qo ena dau vakayagataki me na vocetaki kina na waqa).*

The sail frame support or 'ose': A wooden upright structure that holds the sail in the canoe when the sail is not in use *(Ose -nai taqataqa ni laca ni sa uru sobu).*

The water bailer or 'i nima': an empty container with a handle used for bailing out excess sea water in the canoe *(i nima- na bilo edau vakayagataki ni gadrevi me nima laivi na wai ena loma ni waqa).*

The close-hauled sails - up-wind sail or '*qasila'*: To sail towards the direction of the wind at a 45degree angle *(Qasila- soko cake ena matanicagi).*

The broad reach -down/hind wind sail or 'sorosila': Sail with the wind or behind the wind *(Sorosila- vakamuri cagi se murisavu).*

The front piece master frame or 'soka': The wooden solid frame of the hull structure that holds the canoe together *(Soka ni waqa- na soka e muailiu kai vakadei ni soko).*

Bow and stern.

The bow is the front part of a canoe while the rear part is called the stern. When sailing, the left-hand side of the canoe is the **port** side, and the right side is the **starboard**.

Haul in the jib sheet -this is to pull the rope attached on the boom according to the direction of the wind.

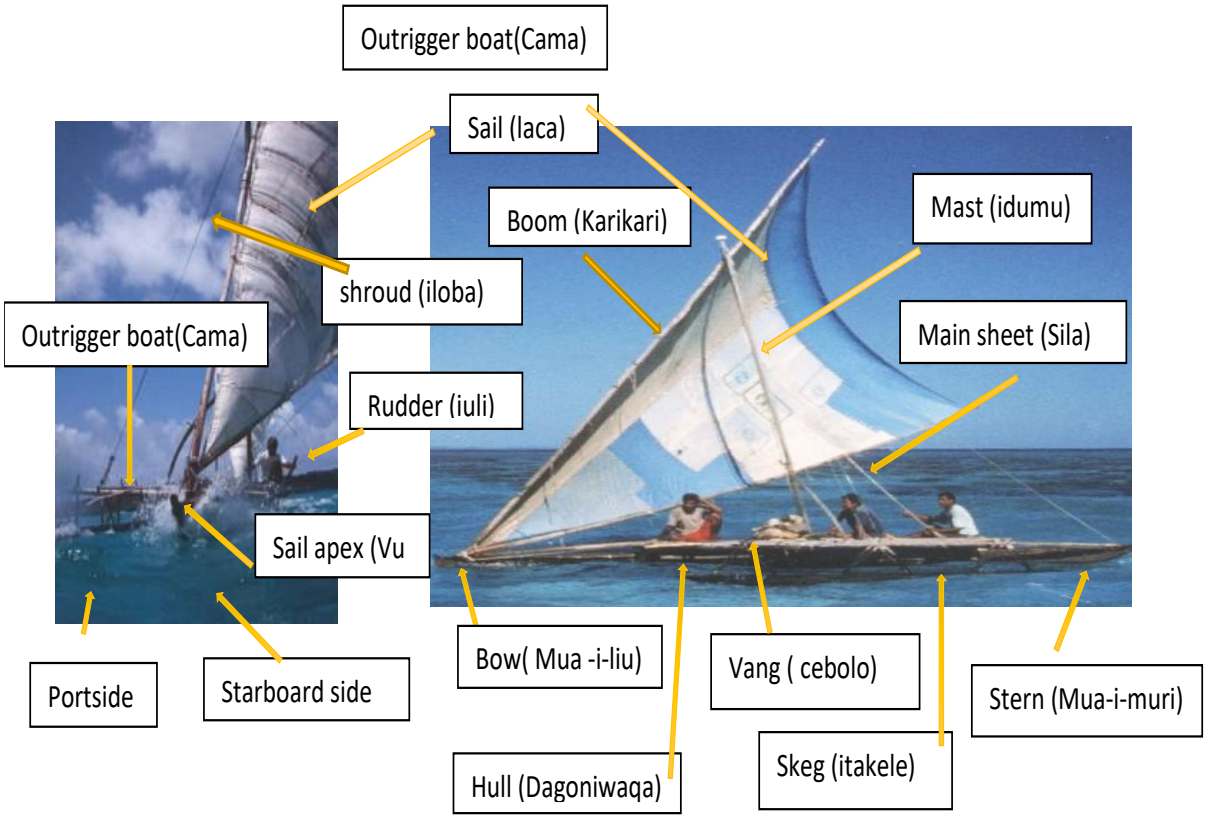
'*Rig the Canoe'* - is first by putting on sails and making other preparations before sail. Rope tying techniques was also demonstrated with diagrams as this are critical to traditional canoe sailing. In sailing, winds direction is always the leading component as this determines the direction of canoe and sail. Therefore, understanding the angle of sailing is important whether it is sailing into the wind.

"No-go zone" - where a canoe may be **"in irons" or beating** (close-hauled sails) which is sailing at an angle of about 45 degrees toward it or **'*Beam reach'*** is when the canoe is sailing across the wind, with the wind coming directly from either side or **'*broad reach;*** is when the

canoe is sailing at a broad angle off the wind, but not directly downwind or **'*running downwind*'** when the canoe is sailing directly downwind (Harold, 1938), (Ben, 2017), (Lochhaas, 2013).

Figure 23: The Fijian Canoe (Waqaniviti)

Parts of a Traditional Fijian Canoe



Source: Naisele, 2021.

The four sides of a canoe

When looking towards the bow or the front of a canoe, the portside would be the left and the starboard side would be the right. The stern is the rear side of the canoe.

Source: Naisele, 2021.

7.2 The Basic Principles of Canoe Sailing

Traditional sailing, like modern sailing, involves both specific knowledge and skills. The following gives an overview of learning to sail as much as anyone can learn while not actually on a canoe. On the onset, it's important for a sailor to know the basic sailing terms and rules regarding sailing. The technical words and the skills that are used in sailing are important even well before boarding a canoe for sailing. 'Haul in the jib sheet', 'rig the canoe', '**dock** or **anchor the canoe'** are some examples (Ben, 2017).

Haul in the jib sheet' means to pull the rope attached on the boom according to the direction of the wind. **'Rig the Canoe' is** putting up the sails first and making other preparations before you set sail. ***'Manoeuvring'*** the canoe means to safely steer the canoe in a guided direction that is reasonably easy to eventually change course. This often involves '*tacking' and 'gybing'*. The gybe, like a tack, takes place when the sailor turns a canoe through the wind and take it from one tack (say port) to another (say starboard) or vice versa. The difference is in the case of a gybe as opposed to a tack, where the sailor must turn the stern or back of the canoe through the wind (Ben, 2017).

'Dock or Anchor the Canoe' is when the canoe has been sailing and under control, but it needs to be brought to slow and stop at a port. A dock is a structure that's made for bringing canoes into the shore for loading or unloading of goods and passengers. When canoe docks, the sailor pulls the canoe up to a dock or a pier. Anchors are placed and dipped into the seabed to hold the canoe in position. They serve as a safety role by keeping the canoes out of the surf or off the rocks. They also allow the sailors to secure the canoe temporarily while fishing, or taking a break or spending the night in the sea (Ben, 2017).

'Tying Knots in sailing' is a special seaman skill which sailors learn and adopt about different rope tying techniques. Knots are important on a sail canoe and is important to learn some basic sailing knots tying technique such as bowline knot, 8 knot or stopper knot, square knot or reef knot, a quick and easy knot for temporarily joining two ropes together (Ben, 2017).

'Bowline'. The most useful knot aboard a sail canoe is the bowline. It forms a fixed noose at the end of a line that cannot run or slip and is commonly used to secure sheets to the clew of a headsail. Two bowlines can also be used to connect two bowlines (Ben, 2017).

8knot OR Stopper Knot

It is the most often used at sea to stop the end of lines from running through the hand or unreeving. The figure-eight is the most used stopper knot by sailors. Even after a heavy load, it loosens much easier than other knots (Ben, 2017).

Square Knot (Reef Knot) is a quick and easy knot for temporarily joining two ropes together (Ben, 2017).

Parts of the Canoe

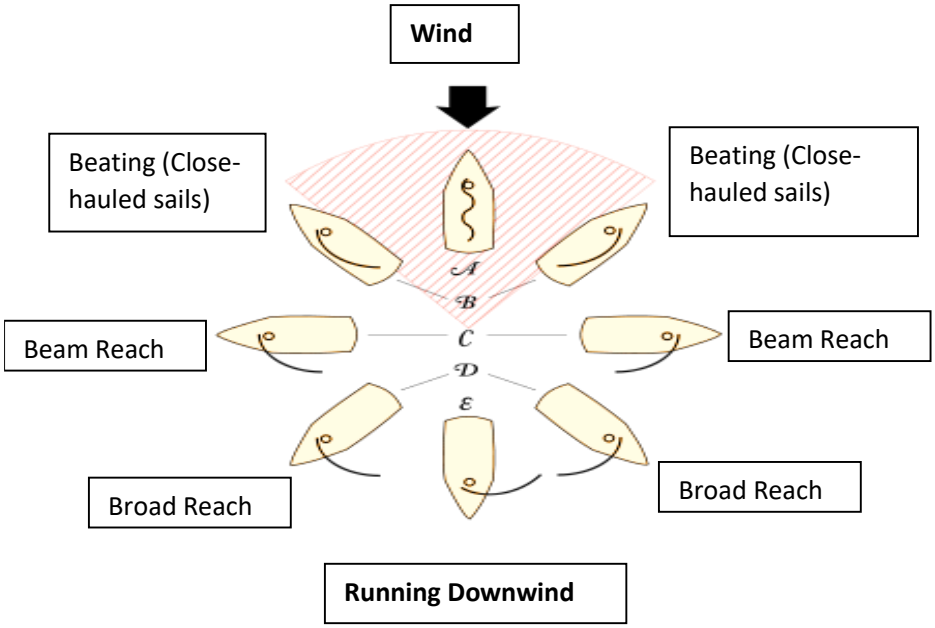
Knowing the words used in different parts of the canoe like hull, shroud, keel, boom, van, skeg to name a few, is important.

'Sail Safely' is an important concept to remember at all times while at sea. As the ocean can be very dangerous, safety is therefore paramount at all times before, during and after sailing.

According to Lochhaas (2019), one of the most important things to remember when learning to sail, is to always know where the wind is coming from in relation to the canoe. The diagram below illustrates the primary points of sail at which the position of the canoe is relative to the wind direction. All the arrows pointing outward from the circle are directions a sail canoe can take.

*Figure 24: The points of Sail and Wind Direction (*Ben, 2017), (Lochhaas, 2013)

The Points of Sail and the Wind Direction (During Sailing)



Source: Naisele, 2021.

A. Into the wind; shaded: "no-go zone" where a canoe may be "in irons".

B. Beating (close-hauled sails): A sail canoe cannot sail directly into the wind but can sail about 45 degrees toward it; this is called '*being close hauled'*.

C. Beam reach: When the canoe is sailing across the wind, with the wind coming directly from either side (the "beam"), the canoe is on a '*beam reach'*.

D. Broad reach: When the canoe is sailing at a broad angle off the wind, but not directly downwind, the canoe is on a '*broad reach'*.

E. Running downwind: When the canoe is sailing directly downwind, it is said to be '*running.'* (Ben, 2017).

7.3 General Preparation for Sail / Vakarautaki na Soko.

Sailing is a journey from one point of destination to another and return. Like any journey, one must have a plan for the trip. It's always important to know the weather forecast for the day

and days ahead. Sailing crew for the trip whether its fishing, leisure, etc must be identified. Appropriate dress for marine wear is important and must be always worn during sailing. Know and applying the occupational health and safety rules is important and first aid and check that sailing equipment are in proper working order.

7.3.1 Set sail

Sailing begins when the main sail is raised while the mainsheet is tightened to allow the canoe to move forward.

The canoe is turned until the wind fills the sails from one side. A canoe on a mooring is when the sail is naturally blown back that the sail faces directly into the wind. Being stalled facing the wind is called being ‘in irons.’ To move the canoe out of irons, the boom is pushed out to one side. This pushes the back of the mainsail into the wind called "backing the sail” and the wind is pushed against the sail which will rotate the canoe.

A sailing canoe is said to be "in irons" if it is stopped, with its sails unable to generate power in the no-go zone. If the canoe moves too slowly or otherwise, loses forward motion while heading into the wind, the canoe will coast to a stop.

7.3.2 Canoe Positioning

The canoe must be positioned relative to wind direction as this determines how the sailor sets the sail with the body weight positioning (Lochhaas, 2019). A good way to check for the wind direction is to tie short pieces of light strings to the canoes’ shrouds and keep an eye on which direction they are blowing.

7.3.4 Wind Direction

While sailing, it’s important to understand that the motion of the canoe affects wind direction, because the canoe’s movement through the air creates its own wind. For example, the actual wind may be blowing exactly across the canoe, beam reach, when the canoe is at rest. As it picks up speed, however, it makes its own wind by moving forward through the air. This added wind from the front adds to the wind over the side to produce a more combined wind at an angle from ahead. Thus, the canoe may be ‘close hauled’. If you want to sail to a point directly upwind from the canoe, perhaps a dock or a mark, you must sail a zig-zag course to

get there. This point of sail is known as **close- hauled**. During this turn, the **s**ail**s** and the sailor must switch sides because after the tack, the wind will be on the opposite side of the canoe.

7.3.5 Getting Underway

According to Trubavin (2019), the easiest way to learn to sail a canoe is from a mooring or having a permanent anchor line in the water. The wind will blow the canoe straight back, so that the bow faces the wind. This is the one direction in which we can't sail, so the canoe must be turned so that the wind is coming across the canoe from either side.

7.3.6 Turn the Sail Canoe

To turn the sail canoe after it is released from the mooring line, the boom is pushed out to either side. Wind will blow against the back of the sail, rather than past it on both sides, and the canoe will rotate. This is called "*backing the sail."* Now the canoe can begin to sail as you pull in the mainsheet to tighten the mainsail.

7.3.7 Sailing off a Dock or Beach

It is a little more difficult to learn to sail off a dock or beach. If the canoe is being blown sideways against the dock, it can be almost impossible to get started. In this case, walk the canoe to the end of the dock and turn it there to face outward into the wind, then back the sail to get started.

The canoe can't move if the sails are loose and flapping in the wind. As soon as they are tightened up and the wind is coming from the sides, the canoe will begin to move forward.

7.3.8 Basics of Steering

As soon as the sails are drawn and the canoe is beginning to move, the sailor must maintain the balance of the canoe by sitting on the opposite of the wind direction. The wind blowing against the sails will make the canoe heel or lean over, and the weight of the sailors is needed on the lifted side to keep the canoe in balance and prevent it from capsizing.

7.3.9 Steer with the Tiller

As soon as the canoe starts moving, water is streaming past the rudder and the canoe can be steered with the tiller. The steering mechanics is like steering an outboard motor on a small

canoe, by pushing the motor's tiller arm, since the tiller works in the same principle. Therefore, to turn the canoe to the left port, the tiller is moved to the right starboard, or to turn the canoe to starboard, the tiller is moved to port.

7.3.10 To Move the Tiller

Generally, to steer the canoe towards the port side in an engine canoe, the tiller (handle) is also pushed towards the port side forcing the rudder (blade) to move in the opposite direction.

The same steering mechanics apply in traditional sailing. However, the tiller and the rudder in a traditional canoe belong to the same piece of timber. The force of water from steering the tiller towards the starboard side will push the stern (back of the canoe) to move to the port side (opposite direction) and vice versa.

7.3.11 General Sail Handling

The mainsheet is pulled in and collects the wind into the sail. Pulling the mainsheet brings the mainsail closer to the centreline of the canoe. A mainsheet is a line connected to the boom which allows a sailor to control the speed of a canoe.

7.3.12 Position the Tiller

Once the canoe starts moving forward, position the tiller so that the canoe is steady and not turning to either side. If the sails are loose and flapping, pull in the mainsheet until the mainsail stops flapping and takes shape, then you will feel the canoe speed up.

7.3.12 Navigate the Sails

There is one simple general principle about where to position the sails. The closer the canoe will sail toward the wind (close hauled), the more the canoe will pull in the sails via the mainsheet and boom. The farther away the canoe sail off the wind (broad reach), the more the canoe will let out the sails via the mainsheet and boom.

7.3.13 Trim the Mainsail

In traditional sailing, adjusting the mainsail using the sheets is called ‘trimming’. It’s important to trim a sail to give it the best shape for the direction you are sailing, relative to the wind.

7.3.14 Let Out the Mainsheet

The general principle for trimming the mainsail perfectly is to allow the mainsheet to get the mainsail to luff and then pull it in until it stops luffing.

7.3.15 Making a Turn

The most important thing about handling a sail canoe while sailing is to always know the direction of wind flow. Full attention must be observed when preparing to turn and the turn must be in the correct direction. The high probability of capsizing the canoe when there is a wrong turn, especially if it's too windy, is a risk that must be avoided at all costs.

7.3.16 Three General Turns

Relative to the wind direction, there are three types of turns depending on the canoe's position. They are:

1. **Tacking –** This is associated with **close-hauled sails,** which is turning the canoe and sail across the wind from one side into the opposite direction.
2. **Gybing or Jibing –** This is to do with **beam reach - side sails**, when the wind is blowing from one side (side wind) perpendicular to the canoe and sail on one side.
3. **Running downturn** - when the wind is behind the canoe on the port side and the canoe turns to the right.

7.3.17 Close-hauled sails

If the wind is blowing on the sail and the canoe is sailing at 45 degrees beam reach, the canoe is turned left (port side) into and across the wind. This forces the canoe to steer towards the wind direction to the "no-go zone" where the canoe is said be "in irons". This allows the sail to trim, "flap" or "luff". This allows the sailor to shift the sail and canoe on the starboard side and adjust it for a close haul rather than a beam reach. This is called **tacking,** which is turning the canoe and sail across the wind from one side into the opposite direction.

7.3.18 Beam Reach - Side Sails

Similar technique is applied when turning a canoe on a 'broad reach' with the wind behind blowing from one side (either port or starboard) and the canoe is turned right to allow the stern to cross the wind direction. With the wind blowing behind the sail and the canoe on the

other side, now with starboard or right. This is called gybing (or jibing) which is turning the canoe across the downwind. **Jibing** is the opposite of **tacking** which is the basic sailing manoeuvre of turning the stern of the canoe through the wind so that the wind changes from one side of the canoe to the other side. The boom of a canoe will always shift from one side to the other when performing a tack or a jibe.

7.3.19 Running Downwind Sails

When the wind is blowing behind canoe on the port side, and the sailor may be ‘close-hauled’ with the wind coming from ahead on one side (for example, port side) and you turn right, “bear off” the wind, about 90 degrees. The wind is still on the port side except now the sailor is on a ‘broad reach’ with the wind behind on the port side.

7.3.20 Positioning the Sails

In situation where **tacking** and **jibing** canoe turns are taking place, the sail must flip over or move to the other side of the canoe where the sailor change sides to keep the canoe balanced. The easiest kind of turn happens when the sailor keeps the wind on the same side of the canoe– the third type above. All the sailors must do is make a turn upwind into the ‘no-go zone" where a canoe may be "in irons”, and then trim the sails to change to a new course.

The closer the sailor is to the wind, if you “head up” toward the wind, the more you will pull in the mainsheet. The farther you are off the wind, if you “bear off”, the more you will let out the mainsheet. When the sailor prepares to turn either way, always keep one hand on your mainsheet to let it out quickly when the canoe turn downwind, to prevent it from being blown over sideways.

7.3.21 Sailing Downwind

When the wind blows sideways against the canoe, the sailsand will allow the boom on the sail upon the release of the mainsheet, to move out at a wider-angle during sailing. In sailing, speed is the goal to reach a destination. For most sailors, the goal is to sail as fast as they can to their destination. A sailor must know how to slow the canoe down sometimes, such as when approaching a dock or mooring or an obstruction. ‘Spill wind’, ‘let out the sheets’, and ‘turn the canoe towards the wind’, are techniques that can be used when slowing down a canoe.

One of the best ways to slow down the canoe is to ‘spill wind’ from your sails by letting out the mainsheet until the sails are luffing, or even until they start flapping. This means they're not effectively working to drive the canoe forward and so the canoe will begin to slow down. You will need to tighten up the sheets once gain to regain speed if you want, or you continue to let the sheets out until the sails flap uselessly and the canoe comes to a stop.

On a ‘beam reach’, tightening the sheets may slow the canoe but can drastically increase the canoe's heeling, and could capsize the canoe. Instead, it is best to let out and release the mainsheet. **Heeling** is when the canoe is tipping onto one side or the other and it is caused primarily by the force of the wind on the sails, although it can be caused by excess weight.

It is usually simple to turn the canoe directly into the wind to stop it by turning the tiller starboard or port if it’s on close haul or beam reach. As the canoe turns towards the wind, the sails flutter loose and does not fill to move the canoe, and the canoe comes to a stand still.

Sail upwind: As the sailor steers more toward the wind direction, the sails are trimmed in tighter to keep them full and generating lifts. But if the sail is too close to the wind, the sail will ‘luff’, the forward edge will start to flutter in and out, and the canoe will start to slow down.

Sail downwind: Downwind sailing refers to sailing in the direction to which the wind is blowing (Harold, 1938), (Ben, 2017), (Lochhaas, 2013).

7.4 Itaukei Traditional Sailing

7.4.1 Preparation for Sail /Vakarautaki ni Soko

Like any sailing trip, itaukei Fijian sailing is a journey from one point of destination to another and return. One must have a plan for the trip, and it is important to know the weather forecast for the day and the days ahead. The sailing crew for the trip must be identified and appropriate costume for marine travel is worn. Every crew must know about the occupational health and safety rule and first aid items available and check that sailing equipment are in proper working order. ‘*Na vakavakarau ni soko e tekivu ena kena vakarautaki nai yaya ni soko ena waqa vakalaca. Me tiko na i tuvatuva ena gauna taucoko ni soko. Me dikevi vinaka nai yaya ni waqa ka na vakayagataki ena soko kei nai yaya ni laca. Me tauri nai tukutuku ni draki ena*

siga ni soko kei na siga veitaravi. Nai yaya ni vakavakarau ena leqa tubu koso ena gauna ni soko, me na vakarautaki vinaka ka biu tu vakarawarawa'.

7.4,2 Position of Canoe

It is important to position the canoe relative to the wind direction as this determines how the sailor sets the sail in-line with the body weight positioning. One way to check the wind direction is to tie short pieces of light strings to the canoe's shrouds and keep an eye on which direction they are blowing. Itaukei Fijian sailors also observe the flights of birds or the movement of currents to help them position the canoe for direction to sail.

7.4.3 Prepare to Set Sail / Coka Nai Dumu me Vakarewa na Waqaniviti.

Firstly unfold the sail to get ready to sail. Using the stopper knot, tie a rope to the top boom at the middle of the sail's mainframe, then tie both parts to the main mast. This rope is called the **shroud** and it is tied to the canoe via a 'block and tackle' technique. 'Sereka na laca, v*esuka nai loba ena veimama ni karikari e cake qai vesu ki na i dumu. Me tau cake i matani cagi na waqa, ka me qai vakalakala cake i na matanicagi na laca sa vakarau tu'.*

The s*hroud* is the main rope used in standing rigging, which holds the mast up from side to side. Standing rigging comprises of the fixed lines, wires, or rods, which support each mast or bowsprit on a sailing vessel and reinforces those spars against the wind loads transferred from the sails. While there is frequently more than one *shroud* on each side of the canoe in modern sailing, traditional sailing has only one shroud and mast. A **block** is a set of pulleys or sheaves mounted on a single frame. An assembly of **blocks** with a rope threaded through the pulleys is called **tackle**. The process of threading ropes through **blocks** is called "reeving", and a threaded **block** and **tackle** is known as "rove"(Harold, 1938), (Ben, 2017), (Lochhaas, 2013).

Secondly manually raise and lift the sail frame with the sail and make sure the mast and shroud should all be in position. Concentrate on the main mast during lifting, ensuring the canoe is up head winds. *'Dumuka na laca- tu vakarau ena nomui gu taucoko mo laveta se dumuka na laca mai na loma donu ni waqa'.* The following is important in sailing:

A sail canoe cannot sail directly into the wind but can sail about 45 degrees toward it; this is called ***being close hauled***. When the canoe is sailing across the wind, with the wind coming

directly from either side of the beam, the canoe is on a ***beam reach*.** When the canoe is sailing at a broad angle off the wind, but not directly downwind, the canoe is on a ***broad reach*.** When the canoe is sailing directly downwind, it is said to be ***running*.**

Continue lifting the mast upwards at an angle and place the lower end at the corner frame inside the canoe adjusting the shroud to match the height of the mast while the canoe is still up head wind. *'Laveta ka biuta na vu, ni dumu ena mua ni cote ka donumaka na soka ni waqa kei na lalaga se kaukabi e loma ni waqa'.*

Check to make sure that the shroud is adjusted correctly and according to an estimated height of the sail to the mast. *Qarauna mo na raica vinaka nai loba ka me kakua ni loba cuva se loba ere se vatara cagi'.*

Once the mast is firmly fixed in position, continue to adjust the shroud to affirm the balance between the mast, sail, and shroud. The sailor at the rear of the canoe must hold on to the tiller that drives the rudder and continue to manoeuvre the canoe in the headwind position while hoisting the sail, shroud, and mast. The mainsheet must not be engaged at this early stage of sailing and therefore must be left lose. Do not tighten the mainsheet as this might be dangerous on a 'beam reach' course which may slow the canoe but can drastically increase the canoe's heeling and could capsize the canoe. **Heeling** is the tipping of the **canoe** to one side.

The boom is pushed out to either side to allow the canoe to move forward after it is released from the mooring line. Wind will blow against the back of the sail, rather than past it on both sides, and the canoe will rotate. This is called ***backing the sail***. Now the canoe can begin to sail as you pull in the mainsheet to tighten the mainsail (Harold, 1938), (Ben, 2017), (Lochhaas, 2013).

7.4.4 Setting Sail / Tekivu na soko

To start sailing, the main sail is raised while the mainsheet is tightened to allow the canoe to move forward. *'Yadrava vinaka tiko na laca kei na soko ni waqa vakalaca ena gauna ni soko. Dreta tiko na sila ka me na veiraurau tiko kei na kaukauwa ni cagi. Raica nai loba kei na idumu merau dei vinaka tiko ena gauna ni vakalaca/vakarewa'*.

Turn the canoe so that the wind fills the sails from one side. **The canoe on a mooring** is when the sail is naturally blown back so that the sail directly faces the wind. Being stalled facing

the wind is called being **"in irons."** To turn the canoe out of irons, simply push the boom out to one side. This pushes the back of the mainsail into the wind called "backing" the sail, and with the wind pushing against the sail, it will start rotating the canoe. Just be sure you're ready to take off! (Harold, 1938), (Ben, 2017), (Lochhaas, 2013).

7.4.5 Wind Direction / Matanicagi

During sailing, it's important to know that the motion of the canoe affects wind direction, because the canoe's movement through the air creates its own wind. '*Yadrava vinaka na matanicagi ena gauna taucoko ni soko. Mo kila na ka mo cakava ni sa vakilai ni sa vakarau veisau na matanicagi. Sarava tiko na vuso ni ua ka semata ena totolo ni toso ni waqa'.*

For example, the main wind may be blowing directly across the canoe (beam reach) when the canoe is at rest. As it picks up speed however, it makes its own wind by moving forward through the air. This added wind from the front adds to the wind over the side to produce a combined wind at an angle, so the canoe may be 'close hauled'. If you want to sail to a point directly upwind from the canoe (perhaps a dock or a mark), you must sail a 'zigzag' course to get there. This 'Point of Sail' is known as "close- hauled." During this turn, the sails and the sailor must switch sides because after the tack as the wind will be on the opposite side of the canoe.

Hold on to the tiller firmly and carefully once the canoe starts moving forward, so that the canoe does not turn sideways. If the sails are loosely trimmed and flapping, pull in the mainsheet until the mainsail stops flapping and takes shape, while the canoe starts speeding up. *'Na totoka kei na malumu ni soko ena vakatau ena kaukauwa ni cagi. Vakadavoya na laca kina vanua o via lako kina ka ni vanua talega oya sa na mua kina na soko. Ni sa dei na laca ka cebuta na cagi qai dre na sila me veiraurau kei na kaukauwa ni cagi kei na waqa. Vakabia nai uli na golea na waqa o via mua kina'*(Harold, 1938), (Ben, 2017), (Lochhaas, T. (2013)..

The mainsheet is pulled in as the wind forces its way into the sail. By pulling the mainsheet, it brings the mainsail closer to the centreline of the canoe. A mainsheet is a line connected to the boom which allows a sailor to control the speed of a canoe. Moving the tiller to one direction will rotate the rudder to the other side and water moving against the rudder will push the stern of the canoe to the other direction. The **stern** lies opposite the **bow**, which is the foremost part of a sailing canoe.

In traditional sailing, moving the tiller toward the port (left) side or inwards towards the sailor, automatically forces the submerged rudder out a little on the starboard (right) side or pushes the water away from the canoe. Traditional sailing has both the tiller and rudder in a single piece of timber or a big oar with a handle (tiller) and a blade (rudder) submerged in seawater. The water against the rudder's starboard side causes a pushing motion that moves the stern to the other direction to port.

It's important to always note the direction of the wind during the whole course of the journey as the motion of the canoe is affected by wind direction while the canoe's movement through the air creates its own wind. If a main wind is blowing directly across the canoe (beam reach), then the canoe is at rest and the ride will be enjoyable. However, as it picks up speed on 'beam reach', it makes its own wind by moving forward through the air. In traditional sailing, adjusting the main sail using the mainsheet is called 'trimming'. It's important to trim a sail to give it the best shape for the direction you are sailing relative to the wind.

As the canoe begins to move forward, the sails are drawing. All sailors are to maintain the balance by sitting on the side of the canoe opposite to the direction with back of the sailor to the wind is, opposite of the sails. The wind against the sails will make the canoe heel or lean over, and the weight of the sailors is needed on the high side to keep the balance in the canoe and keep it from capsizing.

The rope tied to the boom is called the 'mainsheet'. *'Soro sila-e dau soro vakabalavu na sila ni sa tau donu na matanicagi, ka cobota na laca ni dau vakayacori na soko savu-muri.*'

The mainsheet controls the speed and forward movement of the canoe and support the rudder and tiller that determine the direction of the canoe. The wind blows sideways against the canoe and sails and allows the boom on the sail upon the release of the mainsheet to move out at a wider-angle during sailing. Downwind sailing refers to sailing in the direction to which the wind is blowing. The closer the canoe move toward the wind (close hauled), the more the canoe will pull in the sails via the mainsheet and boom. The farther the canoe sails off the wind (broad reach), the more the canoe will let out the sails via the mainsheet and boom. '*Qasila (close hauled)- ena dau soro se dre vakalekaleka na sila ni dau vakayacori na qasila, sai koya na soko me ravita cake na matanicagi'*(Harold, 1938), (Ben, 2017), (Lochhaas, 2013).

7.4.6 Prepare to stop */Tau Cake na Waqa*

In sailing, speed is the goal to reach a destination. For most sailors, the goal is to sail as fast as possible, whether a fishing activity, racing or just having fun. A sailor must know how to slow the canoe down sometimes, such as when approaching a dock or mooring or an obstruction. 'Spill wind', 'let out the sheets', and 'turn the canoe towards the wind', are techniques that can be used when slowing down a canoe. *'O koya e tauri uli ena mua i muri ni waqa me laveta se vadrudruya na i uli me rawarawa na kena gole cake i matanicagi na waqa kei na laca, me na yacova ni sa revurevu na laca'. Caveta cake nai dumu ka biuta ena yasana e wai me yacova ni sa lutu sobu na laca, qai laveta cake na karikari ka roqota vakavinaka na laca. Ke so era vodo tiko ena loma ni waqa, era rawa talega ni veivuke ena kena maroroi na laca. Vivika na lewe ni laca ka vakataqara ena ose, sa vakarautaki tu me na taqa kina na laca ena loma ni waqa. Sereka nai dumu mai na laca ka vakadavora ena loma ni waqa. Na ose ni laca edau vakayagataki talega me valelaca kai vakaruru ena gauna ni moce e waqa ena bogi se vakaruru ni siga tunumaka'*(Harold, 1938), (Ben, 2017), (Lochhaas, 2013).

7.4.7 Take the Sail Down as you Prepare to Stop/Uru na laca ni sa vakarau kele na waqa

One of the best ways to slow down the canoe is to 'spill wind' from your sails by letting out the mainsheet until the sails are luffing, or if needed, until they start flapping. This means they're not working efficiently to drive the canoe forward and the canoe will quickly slow down. You will need to tighten up the sheets again to regain speed if you want or continue to let the sheets out until the sails flap uselessly and the canoe coasts to a stop. Do not try to slow down on other points of sail by tightening the mainsheet. On a 'beam reach', for example, tightening the sheets may slow the canoe but can drastically increase the 'canoe's heeling', and could capsize the canoe. Instead, let out and release the mainsheet. Heeling is when the canoe is "tipping" to one side or the other and it is caused primarily by the force of the wind on the sails. However, it can also be caused by excessive weight from the crew or excess cargo.

It is usually simple to turn the canoe directly into the wind by turning the tiller starboard or port if on close haul or beam reach to stop the canoe. As the canoe turns towards the wind,

the sails flutter loose and do not fill to move the canoe while the canoe comes to a standstill (Harold, 1938), (Ben, 2017), (Lochhaas, 2013).

7.5 Program of Study: Qualification Document

Certificate and Sailing Standard (Level 1)

Programme

Certificate in Traditional Canoe Sailing

Level

1

Credits

45

Credit Range

Level 1	30
Level 2	15
Total Credits	**45**

Purpose

The Certificate Program is geared towards reviving the traditional skill in sailing a canoe. It also entails the underpinning purpose of mitigating climate change effect.

Rationale

There is no written material nor a training package available to ensure the revival and sustenance of this traditional skill and activity. Similar training applications and flexibility will be employed to the teaching and delivery of the training package for sailing a Fijian canoe (waqaniviti). With CBT Training Model, a theoretical component of the course will accompany the practical sailing component in shared teaching mode in a real canoe and sailing.

Graduate Outcomes

The program lists the following Graduate Outcomes for the components of the program.

Upon Completion of a Certificate in Traditional Canoe Sailing, a graduate will be able to:

i) Demonstrate the ability to know and understand the parts of a canoe, parts of the sail and the sailing activity.

ii) Demonstrate the ability to prepare the sail of a canoe(waqaniviti).

iii) Demonstrate the ability to successfully sail a canoe(waqaniviti).

iv) Demonstrate the ability to teach others about sailing a canoe(waqaniviti).

Process of Development

Identify the relevant stakeholders for the qualification and their specific interest.

Key stakeholders include the elders of Qoma island, Tailevu Provincial Administration staff, Ministry of Itaukei Affairs' senior staff and FHEC, being the national agency for qualifications accreditation.

Admission Criteria

Admission to the programme is granted to: i) Young men and women of 15 years and above.

Requirements for Award of Qualification

Certificate in Traditional Canoe Sailing will be conferred on students who have successfully completed: 1. 3 months of practical training using CBT training model

Overview of Program *(by year of study and sub-disciplines)*

Week	Code	topic
1	SL001	**A. Preparation or 'Vakavakarau' Prepare for sail:**
2		1. Plan for the sailing trip. (Na i tuvatuva ni soko e tekivu ena kena vakarautaki nai yaya ni soko ena waqa vakalaca). 2. Know and interpret weather forecast for the day and days ahead (Me tiko na i tuvatuva ena gauna taucoko ni soko**.** Mo kila na draki ni siga ni soko). 3. Identify sailing crew for the trip whether its fishing, leisure, etc must be identified **(**Me dikevi vinaka nai yaya ni waqa ka na vakayagataki ena soko kei nai yaya ni laca. 4. Brief crews on the trip ahead (Me ra bulagoci na lewe ni waqa ni vakarau na soko) 5. Dress appropriate for marine wear and seafarers' attire (Daramaka nai sulu ni soko kei na gonedau). 6. Know and apply OHS (Mo kila na ka me dau caka ena leqa tubu koso).
	SL002	**Teaching sailing:** Practical sailing
4		1. Prepare to sail **(***Coka nai dumu me vakarewa na waqaniviti).* - Know the positioning of the Canoe. - Know the position of the canoe relative to wind direction.

		- Determine the sailor body weight positioning. - Check and determine the wind direction relative to the canoe.
		2. Unfold the sail and prepare for sail (*Sereka na laca).*
		3. Tie the rope in the middle of the sail mainframe of the top boom, then tie both parts to the main mast using the 'stopper knot' (*Vesuka nai loba ena veimama ni karikari e cake qai vesu ki na i dumu).*
		4. Position the canoe upwind to allow and support the process of raising the sail (*Me tau cake i matani cagi na waqa, ka me qai vakalakala cake i na matanicagi na laca sa vakarau tu*).
5		1. Manually raise and lift the sail frame with the sail, the mast and shroud all in position. Concentrate on the main mast during lifting to ensure the canoe is up head wind *(Dumuka na laca- tu vakarau ena nomui gu taucoko mo laveta se dumuka na laca mai na loma donu ni waqa).*
		2. Continue lifting the mast at an upward angle and place the lower end at the corner frame inside the canoe adjusting the shroud to match the height of the mast while the canoe is still up head wind *(Laveta ka biuta na vu (vunidumu) ena mua ni cote ka donumaka na soka ni waqa kei na lalaga se kaukabi e loma ni waqa).*
		3. Check to make sure that the shroud is adjusted correctly and according to an estimated height of the sail to the mast. Once the mast is firmly fixed in position, continue to adjust the shroud to affirm the balance between the mast, sail and shroud. The sailor at the rear of the canoe must hold on to the tiller that drives the rudder and continue to manoeuvre the canoe in the headwind position while hoisting the sail, shroud and mast (*Qarauna mo na raica vinaka nai loba ka me kakua ni loba cuva se loba ere se vatara cagi).*

6		1. The mainsheet must not be engaged at this early stage of sailing and therefore must be left loose. Do not tighten the mainsheet as this might be dangerous for a 'beam reach' course which may slow the canoe but can drastically increase the 'canoe's heeling' and could capsize the canoe. **Heeling** is the "tipping" of the **canoe** to one side *(Sereka na sila ka qarauna ni sa tekivu cobota mai na laca ka toso ki li una waqa).*
		2. To start sailing, the main sail is raised while the mainsheet is tightened to allow the canoe to move forward (*Yadrava vinaka tiko na laca kei na soko ni waqa vakalaca ena gauna ni soko. Dreta tiko na sila ka me na veiraurau tiko kei na kaukauwa ni cagi. Raica nai loba kei na idumu merau dei vinaka tiko ena gauna ni vakalaca/vakarewa).*
		3. During sailing, it is important to know that the motion of the canoe affects wind direction because the canoe's movement through the air creates its own wind. For example, the main wind may be blowing exactly across the canoe at beam reach when the canoe is at rest. As it picks up speed, however, it makes its own wind by moving forward through the air. This added wind from the front adds to the wind over the sides to produce a combined wind at an angle. Thus, the canoe may be 'close hauled'. If you want to sail to a point directly upwind from the canoe, perhaps a dock or a mark, you must sail a 'zigzag' course to get there (*Yadrava vinaka na matanicagi ena gauna taocoko ni soko. Mo kila na ka mo cakava ni sa vakilai ni sa vakarau veisau na matanicagi. Sarava tiko na vuso ni ua ka semata ena totolo ni toso ni waqa).*
7		1. Hold on firmly and carefully to the tiller once the canoe starts moving forward so that the canoe is not turning to either side. If the sails are loose and flapping, pull in the mainsheet until the mainsail stops flapping and takes shape. You will feel the canoe speed up *(Na totoka kei na malumu ni soko ena vakatau ena kaukauwa ni cagi. Vakadavoya na laca kina vanua o via lako kina ka ni vanua talega oya sa na mua kina na soko. Ni sa dei na laca ka cebuta na cagi qai dre na sila me veiraurau kei na kaukauwa ni cagi kei na waqa. Vakabia nai uli na golea na waqa o via mua kina).*

		2. The rope tied to the boom is called the 'mainsheet'. The mainsheet controls the speed and the forward movement of the canoe and supports the rudder and tiller that determine the direction of the sail. The wind blows sideways against the canoe and sails and allows the boom on the sail upon the release of the mainsheet to move out at a wider-angle during sailing. Downwind sailing refers to sailing in the direction to which the wind is blowing. *3. (Soro sila-e dau soro vakabalavu na sila ni sa tau donu na matanicagi, ka cobota na loca ni dau vakayacori na soko savu-muri).*
		4. The closer the canoe sails toward the wind (close hauled), the more the canoe will pull in the sails via the mainsheet and boom. The farther the canoe sails off the wind (broad reach), the more the canoe will let out the sails via the mainsheet and boom (*Qasila (close hauled)- ena dau soro se dre vakalekaleka na sila ni dau vakayacori na qasila sai koya na soko me ravita cake na matanicagi).*
8	SL003	1. End of sailing and stop the canoe (*Uru na laca ni sa vakarau kele na waqa).*
		2. Moor the canoe to upwind and release the boom; release the shroud to allow the free movement of the mast and the sail to prepare for stopping. *'Tau cake na waqa: 'O koya e tauri uli ena mua i muri ni waqa me laveta se vadrudruya na i uli me rawarawa na kena gole cake i matanicagi na waqa kei na laca, me na yacova ni sa revurevu na laca.*
		3.Lift the mast bottom corner from the side of the canoe, with upward push to release the mast from the canoe to the water and fold the sail and boom using a wrapping technique (*Laveta cake nai dumu ka biuta ena yasana e wai me yacova ni sa lutu sobu na laca, qai laveta cake na karikari ka roqota vakavinaka na laca. Keso era vodo tiko ena loma ni waqa, era rawa talega ni veivuke ena kena maroroi na laca).*
		4. Fold the sail and keep it inside the wooden canoe (*Viviga na lewe ni laca ka vakataqara ena ose sa vakarautaki tu me na taqa kina na laca ena loma ni waqa).*

9		*5.* Untie the rope on the mast and the shroud and place these inside the canoe *(Sereka nai dumu mai na laca ka vakadavora ena loma ni waqa).*
		6. The sail folding frame is used to support the folded sail inside the canoe (*Na ose ni laca edau vakayagataki talega me valelaca kai vakaruru ena gauna ni moce e waqa ena bogi se vakaruru ni siga tunumaka).*

Detailed Requirements

A. ***Compulsory Set (expand as required)***

Course	Learning Outcomes	Assessments	Level	Credits
SL 001: A. Preparation (Vakavakarau): Prepare for sail:	At the end of this course the students will be able to: 1. Plan for the sailing trip (*Na vakavakarau ni soko e tekivu ena kena vakarautaki nai yaya ni soko ena waqa vakalaca).* **2.** Know and interpret weather forecast for the day and days ahead (*Me tiko na i tuvatuva ena gauna taucoko ni soko).* 3. Identify the sailing crew for the trip (*Me dikevi vinaka nai yaya ni waqa ka na vakayagataki ena soko kei nai yaya ni laca).* 4. Brief the crews about the trip ahead (*Me ra bulagoci na lewe ni waqa ni vakarau na soko).* *5.* Dress appropriately - marine wear and sea-farers attire (*Daramaka nai sulu ni soko kei na gonedau).*	Storytelling 6 verbal theory: 10% 1 week	1	15

	6. Know and apply OHS (*Mo kila na ka me dau caka ena leqa tubu koso).*			
SL002 Teaching sailing: Practical sailing	At the end of this course the students will be able to: *1.* Sereka na laca *(Unfold the sail and prepare for sail).* *2.* Vesuka nai loba ena veimama ni karikari e cake qai vesu ki na i dumu (*Tie a rope 'using stopper knot' on the top boom in the middle of the sail mainframe and tie both parts to the main 'mast').* Me tau cake i matani cagi na waqa, ka me qai vakalakala cake i na matanicagi na laca sa vakarau tu *(Position the canoe upwind to allow and support the process of raising the sail*). *3.* Dumuka na laca, tu vakarau ena nomui gu taucoko mo dumuka na laca (*Manually raise and lift the sail frame with the sail, the mast and shroud all in position)* *4.* Laveta ka biuta na vu (vunidumu) ena mua ni cote ka donumaka na soka ni waqa kei na lalaga se kaukabi e loma ni waqa (*Continue lifting the mast at an angle upwards and place the lower end at the corner frame (sokaniwaqa) inside the canoe adjusting the shroud to match the height of the mast while the canoe is still up head wind).* *5.* Qarauna mo na raica vinaka nai loba ka me kakua ni loba cuva se loba ere (vatara cagi)	Practical sailing 80% Due weeks 8-14	1	15

	(Check to make sure that the shroud is adjusted correctly and according to an estimated height of the sail to the mast. Once the mast is firmly fixed in position, continue to adjust the shroud to affirm the balance between the mast, sail and shroud. The sailor at the rear of the canoe must hold on to the tiller (iUli) (that drives the rudder) and continue to manoeuvre the canoe in the headwind position while hoisting the sail, shroud and mast). *6.* Sereka na sila ka qarauna ni sa tekivu cobota mai na laca ka toso ki liu na waqa. *(The mainsheet must not be engaged at this early stage of sailing and therefore must be left lose. Do not tighten the mainsheet as this might be dangerous on a 'beam reach' course which may slow the canoe but can drastically increase the 'canoe's heeling' and could capsize the canoe.* ***Heeling*** *is the "tipping" of the* ***canoe*** *to one side).* *7.* Yadrava vinaka tiko na laca kei na soko ni waqa vakalaca ena gauna ni soko. Dreta tiko na sila ka me na veiraurau tiko kei na kaukauwa ni cagi. Raica nai loba kei na idumu merau dei vinaka tiko ena gauna ni vakalaca/vakarewa *(In order to start sailing the main sail is raised while the mainsheet is tightened to allow the canoe moving forward).* 8. Na totoka kei na malumu ni soko ena vakatau ena kaukauwa ni cagi. Vakadavoya na laca kina vanua o via lako kina ka ni			

	vanua talega oya sa na mua kina na soko. Ni sa dei na laca ka cebuta na cagi qai dre na sila me veiraurau kei na kaukauwa ni cagi kei na waqa. Vakabia nai uli na golea na waqa o via mua kina. *(Hold on to the tiller firmly and carefully, once the canoe starts moving forward, so that the canoe is not turning to either side. If the sails are loose and flapping, pull in the mainsheet just until the mainsail stops flapping and takes shape; you will feel the canoe speed up).* *9.* Soro sila-e dau soro vakabalavu na sila ni sa tau donu na matanicagi, ka cobota na laca ni dau vakayacori na soko savu-muri (*The rope tied to the boom is called the 'mainsheet'. The mainsheet controls the speed, forward movement of the canoe and support the rudder and tiller that determine the direction of the canoe. The wind blows sideways against the canoe and sails and allows the boom on the sail upon the release of the mainsheet to move out at a wider-angle during sailing. Downwind sailing refers to sailing in the direction to which the wind is blowing).* 10. Qasila (close hauled)- ena dau soro se dre vakalekaleka na sila ni dau vakayacori na qasila sai koya na soko me ravita cake na matanicagi. *(The closer the canoe sails toward the wind (close hauled), the more the canoe will pull in the sails via the mainsheet and boom. The*			

	farther the canoe sail off the wind (broad reach), the more the canoe will let out the sails via the mainsheet and boom).			
SL003: Uru na laca ni sa vakarau kele na waqa (End of sail and stop the canoe)	At the end of this course the students will be able to: *1.* Tau cake na waqa: O koya e tauri uli ena mua i muri ni waqa me laveta se vadrudruya na i uli me rawarawa na kena gole cake i matanicagi na waqa kei na laca, me na yacova ni sa revurevu na laca. (*Moor the canoe to upwind and release the boom; release the shroud to allow a free movement of the mast and the sail and prepare for stopping).* *2.* Laveta cake nai dumu ka biuta ena yasana e wai me yacova ni sa lutu sobu na laca, qai laveta cake na karikari ka roqota vakavinaka na laca. Ke so era voso tiko ena loma ni waqa, era rawa talega ni veivuke ena kena maroroi na laca *(Lift the mast bottom corner from the side of the canoe, with upward push to release the mast from canoe to the water and fold the sail and boom on a wrapping technique).* 3. Vivika na lewe ni laca ka vakataqara ena ose, sa vakarautaki tu me na taqa kina na laca ena loma ni waqa (*Fold the sail in the wooden canoe.)*	Presentation 25% (Outcomes 1-2) Final Exam 10% (Outcomes 1-4) Due week 15	2	15

	4. Sereka nai dumu mai na laca ka vakadavora ena loma ni waqa (*Untie the rope on the mast and the shroud and place these inside the canoe).* *5.* Na ose ni laca e dau vakayagataki talega me valelaca kai vakaruru ena gauna ni moce e waqa ena bogi se vakaruru ni siga tunumaka (*The sail folding frame is used to support the folded sail inside the canoe).*			

Chapter Summary

This chapter provides the proposed outline of the training package of a Certificate Level 1 in Traditional Canoe Sailing, hopefully to be delivered in an informal classroom in the village, with a competency-based training approach. Before that, there is a brief discussion about sailing the typical Fijian canoe or waqaniviti. The main parts of a waqaniviti and the main terms used in sailing are outlined first before the basic principles of sailing the Fijian canoe are described. The actual sailing process is further discussed step by step before the canoe comes to a stop at the end of sailing. The final part of the chapter explains the traditional method of sailing with itaukei Fijian translation. It describes the three main stages of sailing from preparations, putting up the sail and sailing, and bringing the canoe to a stop by heading the canoe head winds and putting down the sail. Critical to canoe sailing is understanding the position of boat from the stern (back) to the bow (front) during sailing whether it is portside or starboard side. Ropes and knot types are critical in sailing and sailors must know how to apply the right type of rope and knot tying method to use for different parts of the sailing boat.

The chapter concluded with the training package which is written in the itaukei language with English translation. The training package is pegged in '**Certificate Level 1 in Sailing'** and aligned to the **Fiji Qualifications Framework.** The purpose of this training program is to revive the traditional itaukei sailing skills with the view that it will help contribute to mitigating climate change in some ways. It is hoped that this training program will attract young unemployed village youths, who at the end of their training will put into practice their

sailing skills which could provide a source of income and food supply for their families, and at the same time champion the teaching of the canoe sailing skills to other villagers nearby. It should also be a source of encouragement to the village elders to work together using the 'solesolevaki' method of collaborative work on the construction of a few village canoes for the implementations of the traditional sailing skills learnt. However, the purpose of all this is to mitigate against the challenges of drakiveisau.

Since the teaching delivery is competency based, 80% of the training will be spent outside of the classroom, on a sailing canoe/waqaniviti, with supporting theoretical teachings. The programme will include both day and night training so that learners can easily adopt and learn traditional navigation for both day and night canoe sailing. The assessment is 100% practical with learners showing full competency in canoe/waqaniviti sailing.

The final chapter provides the summary of the research paper which begins with the view that the research outcomes strongly support the use of life-long traditional knowledge and skills which is pivotal for our survival in this era of drastic climate change challenges.
The chapters summarise the following three key findings:

a. Traditional Mitigation Knowledge and Skills of Drakiveisau as in Totems of Itaukei Fijians, Traditional Fishing Methods, Marine Resource Protection, Food Preservations, Fijian Canoe or Waqaniviti, Seawalls, Warming System, Fijian Bure, Weather Predictions and Communal Work
b. Modernized Qoma as in Transmission of Traditional Knowledge and Skills, Drakiveisau on the Vanua o Nabulebulewa, Fishing and Navigation, Skills Reviving the Loss of Traditional Skills, The Urgency to Eradicate the Evil of Colonialism, Informal Teaching and Use of Traditional Skills, Integrating Traditional Mitigation Skills to School Knowledge System, The Analogy of Canoe Sailing
c. Key recommendations and implications of the Study regarding Policy, Education, Community Leaders, The Young, and Implications for Future Research.

CHAPTER EIGHT

CONCLUSION, RECOMMENDATIONS, AND IMPLICATIONS

There are five subtitles in this chapter outlined under 8.1, 8.2,8.3,8.4 and 8.5.

Chapter Introduction
8.1 Conclusion
8.2 Traditional Mitigation Knowledge and Skills
8.3 Modernized Qoma
8.4 Recommendations
8.5 Implications of the Study
Chapter Summary

Chapter Introduction

The previous chapter highlights the training package to be delivered in an informal setting in the village, with a competency-based training approach, written in the itaukei Fijian language and translated into the English language.

The training package is developed based on the research outcomes which favor education and training as an effective way of reviving important dying traditional knowledge and skills, with particular interest on canoe sailing skills, which should support the work of mitigating drakiveisau impacts at local communities.

Having established the community support in terms of education and training, the notion of developing a training package for traditional canoe sailing was surfaced through the journey metaphor of sailing, likened, and reflected in the itaukei Fijian communal way of living and its significant aspect of working together (solesolevaki) and caring for one another**.** The island of Qoma is like a canoe made up of crews, who are the village people, with the chief of the village as the captain, and different members carrying out their traditional roles, providing directions, weathering the storms with their traditional knowledge, and ensuring smooth sailing and achieving productivity, continuity, sustainability, and resilience. This study focuses on the ideology that the traditional canoe sailing skill can be revived by developing a training package to be taught to the young people of Fiji. This could also open opportunities

for other traditional mitigation skills to be documented and incorporated into the school curriculum signifying their important role in addressing the impacts of drakiveisau.

As proposed, the islanders of Qoma are to pilot the canoe sailing skill training using a competency-based training approach with emphasis on practical hands-on training. The training package is pegged as a 'Certificate -Level 1 in Sailing' on the Fiji Qualifications Framework.

This chapter concludes with the notion that the mitigation of drakiveisau for our local itaukei Fijian communities lies in the revival and reuse of the dying and lost traditional knowledge and strengthening skills that have been proven important survival strategies for itaukei Fijian people. These traditional skills and knowledge have helped them over many generations to prepare and adapt to disastrous weather conditions and could still be effectively used by the present generation, and therefore must be considered by policy makers and community leaders in their development plans on climate change. The recommendations focus on key areas identified in this research to be critically important and threatening to the survival of the itaukei Fijian cultural tradition.

8.1 Conclusion

'When an elder dies, a library burns' (Lindsey, 2011: 43)

This study has two main intentions. Firstly, to find out those traditional skills that are important in the mitigation of drakiveisau in itaukei Fijian communities; skills that are still in practice, and those that are dying or on the verge of extinction.

Secondly, to present the best ways of reviving the loss and dying traditional skills important for the survival and continuity of the traditional culture of itaukei Fijians, but more importantly, those skills that can help address the impacts of drakiveisau for itaukei Fijians.

This research is grounded on the Vanua, supported by the Vanua Research Framework (Nabobo Baba, 2006), and uses the 'Draki Veisau Research Framework (DVRF), in which climate change with its traditional mitigation skills help in understanding the Fijian ways of knowing, ways of being, ways of doing things, and local ways of living that support the researcher to comprehend the research participants' standpoint, ecological, socio-cultural, and social learning systems and processes.

The various ways in which these traditional skills have protected and saved itaukei Fijians against the impacts of drakiveisau over many generations are evidence of how important it is for policy makers to include the use of traditional skills in their climate change programs and when planning for the mitigation of drakiveisau in traditional itaukei Fijian communities.

Itaukei Fijians have relied heavily on their environment for the survival and continuity of their vanua, and traditional knowledge and skills passed down through many generations have helped them and their culture survive for centuries. Traditional knowledge of the weather and long- term seasonal conditions of the atmosphere, and traditional adaptation methods have helped them prepare and survived worst climatic scenarios with resilience and have successfully weathered different storms of life.

As a source of sustenance and well-being, indigenous people depended entirely on local biological diversity, ecosystem services and cultural landscapes. Their simple lifestyle with low-carbon traditional living had little to contribute to climate change effects. However, they are still the most unfavourably affected by drakiveisau.

Drakiveisau is an existential threat to the small island states of the Pacific and its impacts are becoming more severe as the occurrences of devastating weather conditions are becoming more frequent than ever before. Given this situation, it is everyone's responsibility to take care of our natural environment and vanua so that we can be sustainable and resilient to drakiveisau. It is equally critical for national leaders to create effective and supportive policies that would not only mitigate drakiveisau, but also protect lives, communities, and nature. This research argues that for the mitigation of drakiveisau to be effective, it is vital to revive and include the use of traditional itaukei Fijian mitigation skills into government mitigation plans and policies and help empower and support local community leaders in reviving the dying and lost traditional skills that support the work of mitigating drakiveisau in all communities.

8.2 Traditional Mitigation Knowledge and Skills of Drakiveisau

The island of Qoma was selected as the study area for this study due to its ongoing initiative by the village chief and elders to revive traditional skills with underpinning knowledge in climate change awareness and adaptation methods for the past ten years. Most of these selected skills discussed below are strategic because they have proven effective and have saved the people of Qoma from the drastic impacts of drakiveisau over many generations.

a. Totems of Itaukei Fijians

Many itaukei Fijians in traditional villages have these beliefs in totems or spiritual power that have been passed down for many generations and their manna continue to be used by the people as a source of sustenance and survival.

The "mana" of the consecrated "bitu ni ceva" ('bamboo of the easterly wind') growing on the hill of Qoma Levu island is believed to be the gift of the 'Kalou Vu' or the spirit god named Rokomoutu to the vanua o Nabulebulewa still remains effective today, that when the priest (bete) shakes its leaves, strong easterly winds would blow for seven days and nights, and this would help guide fishermen to sail back to the village safely after a week-long fishing in the open sea. Today, Qoma villagers know and talk about this but they hardly practice it because there is no more waqaniviti or traditional canoe used, however, the mana of the bamboo tree is still intact and could still be useful when disaster strikes at sea.

b. Traditional Fishing Methods

The widely used traditional fishing method called silitikawa in Qoma or 'yavirau'as commonly known, uses vines and leaves as net to catch fish and this provided the much-needed supply of fish for village functions as well as for daily consumption in the olden days. Tuva moka, tuva salisali, vakavoka and samu busa are also common traditional fishing methods that sustain the environment and effective in supplying fish for the villagers. These traditional methods of fishing are not commonly practiced nowadays because of the use of modern technology in fishing. Similarly, the people of Qoma are well known turtle fishermen in which the use of traditional kava ceremony called 'yaqona ni lawa' is performed before the fish drive takes place with the belief that turtle will be trapped in the weaved net of coconut husk and seashells sinkers. This traditional practice is mostly carried out during very special occasions, like the installment of Tui Nabulebulewa or during the death of a high chief in the vanua of Verata.

c. Marine Resource Protection

The protection of marine resources around the island involves imposing restrictions or taboo of certain fishing areas and of catching certain fish species or under sized fish, continues to be an important traditional practice to ensure sustainable fish supply for the villagers, a move

fully supported by the Fisheries Department through their MPA program of conservation and management of fisheries.

d. Food Preservations

In terms of traditional food preservation, the people of Qoma either smoke or dry their fish, cook in earth ovens or lovo, and soak cassava for five days in a special pool of water located in Qoma Levu before they are wrapped in leaves and cooked to make 'madrai ni viti' (cassava bread) which could be kept for three to five days. Additionally, the use of a 'lololo' or storage shed ensures root crops like yams can be kept longer for the next meal or planting season.

e. Fijian Canoe or Waqaniviti

The construction and use of traditional waqaniviti or canoe is no longer practiced in most itaukei Fijian coastal villages. Made from local timber with weaved mats used as sail, this was the main mode of transport to the mainland and other islands and also used for fishing by the islanders. Villagers now depend on outboard motors which are faster and more convenient, but harmful to the environment. The knowledge and skill to construct and sail the waqaniviti is still alive among the elders of Qoma, and the proposal to revive this skill should help in the mitigation of drakiveisau and for survival and continuity of itaukei Fijian culture.

f. Seawalls

The construction of seawalls or 'bainiua' on Qoma island involves the piling of coral boulders and sand with the use of mortar soil collected from the roots of mangroves trees to cement the boulders and helps strengthen the sea walls. This practice has to be done after every three months if the seawall is to be maintained. Similarly, protecting the growth of mangroves around the island also help stop waves from breaking into land, but due to increase in the islands' population, the need to build new houses and increase in the use of firewood has resulted in the loss of mangroves around the island. These practices help protect the islanders from the impacts of rising sea levels and storm surges during stormy weather.

g. Warming System

Another common traditional practice was the use of 'irara' or fireplace for house heating during the cold season, where selected dry logs for firewood are placed at the centre of the

Fijian ‘bure’ to source heat and energy for the family. This practice is not common any more due to the wide use of electronic cooling systems.

h. Fijian Bure

Having thatched bures or traditional Fijian houses used to be popular on the island of Qoma but no longer available as this has been replaced by the corrugated iron and concrete houses. Thatched Fijian bure is unique as it promotes natural conditioning, providing cool condition during hot days, while the roof reeds keep the house temperature warm during the cold nights. These traditional bures are believed to be very safe and stable when strong wind or cyclones strike and can be reliable for evacuation purpose.

i. Weather Predictions

Equally important is the skill in predicting the weather condition or *‘kila na draki ni se bera mai*’, by interpreting signs in the sky like cloud formation, color of the sky, and wind-movement, ocean -currents, appearance, and migration of certain birds, fruiting of certain trees, to name a few. The knowledge and use of these natural signs to determine the weather have helped people prepare for bad weather and have saved lives and property of itaukei Fijians for many generations. A few examples of these include:

‘Sa kuru o Wainunu’, meaning rainfall and sudden thunderstorm around Wainunu in Bua, on Vanualevu, is a sign that rain around nearby locations will be heavy and thunderous. If it was fine weather in Qoma for example and thunders are heard from the direction of Bua, people will expect heavy rain on the island and nearby areas.

“*Ni ketekete ni bici na lomalagi, se ni botaira na vanua, se ni levu na kalokalo ena bogi, se tibi na liva ena gauna ni draki ca, qo sa ivakaraitaki ni draki vinaka ena siga tarava”.*

Signs of fine weather or approaching fine weather would include a clear blue sky, during the day or a red sky in the evening, or when there’s lots of stars at night, or there is lightening but no rainfall, often guides in daily activities of islanders.

“*Ni kui na boto ni waitui qai vuvu na loma ni wai*’ se ‘*ni kune na vutia, lecau kei na co ni waititobu ni kasa mai ena baravi”.* When debris and sea weeds from the seabed are washed up on the seashore and the water looks murky, people immediately know there is an approaching cyclone and will prepare for it1.

When out fishing and the sea current is so strong at the bottom of the submerged reefs while diving and the ocean becomes murky, it also means a cyclone is approaching.

"*Ra sa vuka e vanua na manumanu ni cagi mai Vatuira, qori e ivakaraitaki ni vakarau liwa e dua na cagilaba",* meaning when flocks of frigate birds from the island of Vatuira are seen flying over land, they signal an approaching cyclone.

j. Communal Work or Solesolevaki

The traditional practice of 'solesolevaki' or communal work not only makes the work easy and faster but bring unity in the village where the whole village community take part in helping complete tasks like construction work, farming, fishing and events like weddings and deaths in the village. Celebrating the completion of a communal task involves chanting, singing, and dancing to the tune of a wooden 'lali', bamboo drum or 'derua' and hand clapping or 'cobo', sitting around and drinking kava, is still a common practice.

8.3 Modernized Qoma

The change and the challenges in sea travel by the islanders of Qoma have seen new travel dimension with technology shifts causing great concern for the village elders for their younger generation who are beginning to lose out on their traditional culture with particular interest in itaukei canoe sailing skill. The faster the motor-boat glides on the ocean surface, the more carbon it releases into the atmosphere. Extreme sea-level rise has become a common sight on the coastal areas around the three islands of Qoma. The island of Nabulebulewa (Qoma) has been worst hit by this extreme sea level rise causing seawater to damage part of the village seawalls and often flooding the village green. The surrounding environment and peoples' livelihood on the island are greatly affected. Repeated tropical cyclones over the past ten years, devastating the islands, have added to the calamity and wrath of climate change effect with limited traditional mitigation methods applied, either because of ignorance or lack of knowledge by the people of Qoma. The contrasting ideology remains a priority in alleviating today's fight to better mitigate drakiveisau effects by reviving traditional skills and techniques.

a. Transmission of Traditional Knowledge and Skills

'If we tape a single hour of conversation with a grandparent, think what a legacy their voice will be for the grandchildren. We must educate students to understand the culture into which

they are born and teach them to drink from its rich waters as they educate future generations' (Hoffman, 2013: 23).

The significant role of adults in children's learning process can never be ignored as the elders in traditional societies play a critical role in facilitating and supporting children to know and practice their traditional roles that enable them to use the knowledge of the Vanua for their long-term survival. According to the Vygotsky's theory of "Zone of Proximal Development" it is the role of the elders to bridge this knowledge gap and ensure that the child knows and applies knowledge effectively (Hoffnung et.al, 2010).

Most traditional knowledge and skills, transmitted orally from village elders, parents and grandparents to their children and grandchildren, and learnt mainly through observations and imitations, have disappeared and are being replaced by the modern way of doing things.

With only five elders left in Qoma during the phase of this study, they provided the main sources of traditional information for this thesis and have continued to pass on their traditional knowledge to the young people of Qoma. They transmit these knowledge and skills orally through stories, songs, dances, chants, and the children through their observations and practices, imitate and practice these skills which are useful for their livelihood and survival. The traditional skills of fishing, farming, food preservations, canoe construction and canoe sailing, construction of waves breaks, and their knowledge and use of the Itaukei Fijian calendar of weather indicators, are all important when considering mitigation methods against drakiveisau now. The skill of sailing a traditional Fijian canoe was learnt from their fathers and grandfathers through observation and imitations. There was no written record of this traditional skill, and everything was learnt by word of mouth and through hands-on demonstration of canoe sailing in their younger days.

b. Drakiveisau on the Vanua o Nabulebulewa

Growing up on the island and witnessing the changes that has taken place due to rising sea level and extreme weather conditions, affecting almost every aspect of the livelihood of my people has instilled a strong desire to do something about protecting my vanua and its traditional culture.

This study is based on my personal experience as an itaukei Fijian and a former schoolteacher in Fiji, having to return to my island home only to find that less and smaller fish have been

caught by my people. Most of the fish that are normally found in shallow reefs have migrated further into deep-waters and shallow water fishing has become unproductive too. Lobsters for example, which used to be fished around the reefs of Qoma are no longer found, and fishermen have to sail further into deeper waters for a sizable catch.

Changing climate and heavy downpour continue to cause frequent floods and soil erosion from the nearby Lawaki, Nasoni and Dawasamu rivers on the mainland of Vitilevu, polluting the surrounding Qoma sea. Nearby commercial farmers are also to be blamed for the chemicals that wash down to the sea during the heavy rains. Murky fresh water mixing with sea water and toxic chemicals have killed the corals around the islands of Qoma causing the fish to migrate to deeper waters.

Over the years, the effect of drakiveisau on the three islands of Qoma has greatly impacted the natural ecosystem and the people's livelihood. The blitzing effect of coastlines washing into the sea, regular extreme high tides breaking the seawalls and flooding the village, off-seasonal tropical cyclones ravaging the islands, loss of fish into the deep sea and decrease in daily catch; the prize of paying the cost is unexpectedly life threatening. The fight to champion traditional skills and knowledge as a mitigation strategy for drakiveisau is critical and important for the revival and continuity of traditional and cultural itaukei Fijian practices. There may have been some form of reclamation and rebuilding of washed away coast land on the island of Qoma, however, reallocation of islanders to the mainland villages and increase urbanization are viewed as indirect mitigation strategies that help control the effects of drakiveisau on the islands of Qoma.

The urgency to find a solution on how best they will continue to survive and revive their cultural heritage, value system, traditional skills and technical know-how remains as a major uphill challenge for the people of Qoma.

c. Fishing and Navigation Skills

'Preserve nature and nature will return the favour' (Ni da maroroya na vanua, na vanua e na maroroi keda) (Naisele, 2019).

As an everyday activity for those who live on the island of Qoma, fishing is a major source of income and food for the island villagers. The use of modern fishing technology like large nets, metal fish traps, big lines, and sinkers, refrigerated containers, fuelled outboard motors to travel long distances, are the order of the day for those engaged in commercial fishing. For

subsistence purpose, the use of simple traditional fishing methods like tuva moka, tuva salisali, and silitikau are still being used, however, with some moderations to the make-up of fishing gears, the distance and time spent, the fish types, sizes, and amount of catch. Fishing nets, lines and sinkers, and crab traps are now used by women to catch fish in nearby waters. Traditional method of turtle fishing is still practiced.

Drakiveisau has greatly affected the traditional practice of fishing for the people of Qoma. Villagers who own outboard motorboats are the ones engaged in fishing, both for cash and for family consumption, and they often stay out fishing for days and nights before they can return home with a good catch. Women have lost interest in fishing and are now more dependent on modernised lifestyle of purchasing fresh fish from local fishermen and processed food items.

Not only are the natives of Qoma well- known traditional fishermen, but they are also highly skilled navigators in sailing. They are skilful in observing the behaviour of the ocean, sea, wind direction, weather conditions, and study the sky, the clouds, air movement, the bird's movement, the ocean currents, the sun, moon, and stars, and predicting the weather that would guide and direct them in their fishing trips and sailing across the sea.

d. Reviving the Loss Traditional Skills

To restore and revive the dying and the loss of traditional skills for the mitigation of drakiveisau in Fiji, it will require firstly, empowerment and complete change in the mindset of itaukei Fijians to know who they are and what they are capable of for their survival and continuity, strengthen informal teaching of traditional skills in villages by parents and grandparents, and documenting and integrating traditional knowledge and skills into the school curriculum. For the people of Nabulebulewa, reviving the canoe sailing skills should complement their dependence on the surrounding sea for their sustenance and livelihood, and more importantly in their fight against drakiveisau.

The traditional skills presented below have been identified in this research as important strategies for the mitigation of drakiveisau and therefore should be revived and reused. They are simple, effective, efficient, cheap, more environment friendly, and can be used by anyone and by any community in Fiji, provided there is the political will and the commitment and determination to do so. The traditional skills identified cover basic aspects of traditional itaukei Fijian lifestyle, to include housing type, fishing and farming methods,

food preparations and preservations, resource conservation, environment protection, housewarming and cooling method, belief system, entertainment, all of which are inclined to the Vanua protocol and the system of solesolevaki.

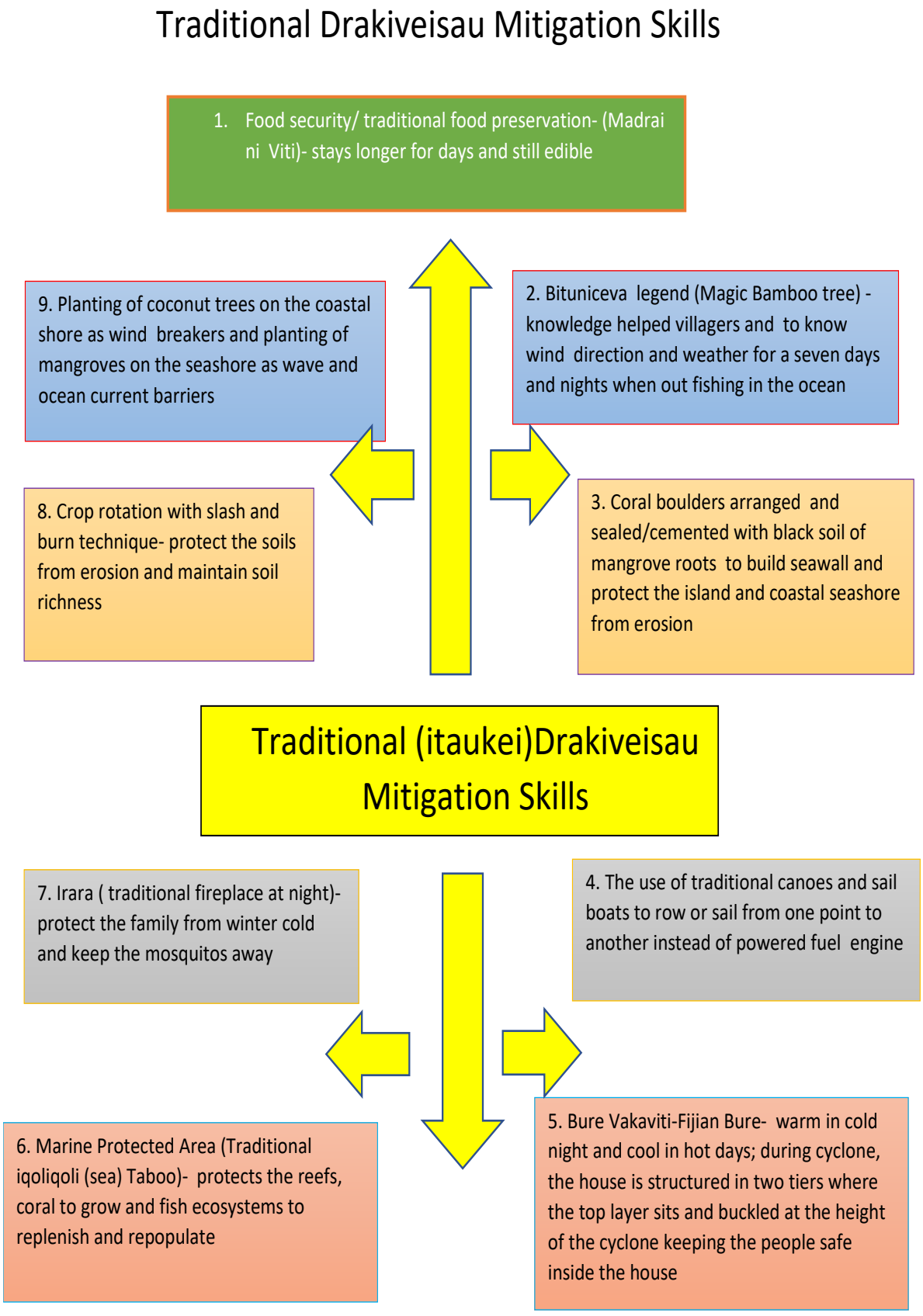


Figure 25: Drakiveisau Mitigation Skills (Naisele, 2019)

e. The Urgency to Eradicate the Evil of Colonialism

Itaukei Fijians need to free themselves from the so called “neocolonialism attitude”. The notion of complete freedom is at hand, but the suppression and bondage of colonialism is still huge and locked within self. This has somehow strangled the decolonizing process in the minds of itaukei Fijians after the 1970 independence. The pre-colonial era saw a primitive iTaukei Fijian society living their simple traditional lifestyle, totally surviving on their natural surroundings, and having very high respect for the white colonisers. The colonial era saw a shift from the traditional ways to modern ways of doing things and delivery of services with foreign rule. The post-colonial era saw a continued shift away from the traditional ways to a modern, contemporary iTaukei Fijian approach and with the sudden boom in modern technology inventions, the momentum is unconsciously uncontrollable.

Colonizers failed to understand that the iTaukei Fijians had a working system of living on their own, primitive that maybe, but one that was functioning well prior to the arrival of the first colonizers. However, when referring to the pre-contact era of the iTaukei Fijian traditional protocol and cultural system, it almost confirms that: ‘The Fijians at this time had a stable social, political, and economic organization of their own; one little understood by missionaries and other Europeans who visited their shores or came to reside in their islands. So much of their old ways of living has been misunderstood by Europeans, abandoned by them, modified, and spoiled by Western contacts that we shall never know or appreciate the finer points in their old social structure’ (Coulter, 1942: 42).

The itaukei Fijians in the modernized Fiji are still wrapped up with unconscious conviction of white supremacy overdosed and controlled by colonizers who still lingers on after fifty-one years of independence.

Modernisation and technology continue to push traditional identity aside, seen as obsolete with little written materials developed and supported. For more than a century, torn between modernization and traditionalism, itaukei Fijians have struggled to live in a dual world system within the villages. Modernisation represents the new foreign life that leads many itaukei Fijians to view their traditional itaukei ways cynically and question whether tradition is worth retaining.

The urgency to find a solution now remains within the people of Qoma, on how best they will continue to survive and revive their cultural heritage, value system, traditional skills, and

technical know-how. The level of abuse at all facets of traditional village life and the modern Qoma and Fiji is alarming.

f. Informal Teaching and Use of Traditional Skills

The island of Qoma was selected as the study area for the research due to its ongoing initiative by the village chief and elders to revive traditional skills with underpinning knowledge in climate change awareness and adaptation methods, for the past 10 years. Most of these selected skills are strategic because they have proven effective and have saved the people of Qoma from the drastic impacts of climate change for many generations.

Parents, grandparents, and village elders should invest their time and knowledge in teaching their young people traditional skills that will help them live sustainably and be resilient to drakiveisau. These skills could be showcased and presented in the form of games and competition, craft shows, market days or during village celebrations. The yavusa o Nabulebulewa has taken the lead in this and with the support of the Ministry of Itaukei Affairs, and the media and social networks could be used to channel learning of traditional skills.

g. Integrating Traditional Mitigation Skills to School Knowledge System

The importance of using traditional knowledge and skills in sustaining traditional lifestyle and mitigating drakiveisau will require the integration of certain aspects of the taukei traditional skills with the modern measures of mitigation of drakiveisau. As supported by the study results obtained, 51.2% of the traditional skills are dying but can be revived through informal and formal training with the support of the Ministry of Itaukei Affairs, while only 16.2% of the skills are still practiced today. Most surviving elders from selected villages have registered their interest in sourcing their traditional knowledge and skills for the revival of these traditional skills. It is important to note that 67.5% of the traditional skills studied contribute directly or indirectly to the mitigation of drakiveisau in village communities. Furthermore, the percentage rating of the current practices for the past ten years stood at 46% regular occurrences. Additionally, the research favored education and training as the best available way to revive these skills which should also support the work on drakiveisau mitigation.

The proposal to revive and teach the itaukei Fijian traditional skills set is a major strategy to mitigate against climate change, with special focus on the sailing of a traditional Fijian canoe.

This will require the support of the Ministry of Education to formulate and integrate traditional mitigation skills into the curriculum and prepare teachers accordingly.

Itaukei traditional knowledge and skills must be taught in schools to enhance people's understanding of drakiveisau and their implications on people and what mitigation strategies are available to help them in times of disasters. Nasilisili (2012), emphasized that the educational dilemma for indigenous Fijians may only be resolved adequately if Indigenous Knowledge System becomes part of and is integrated into the School Knowledge System.

h. The Analogy of Canoe Sailing

The sovereignty of itaukei Fijians on their land and protecting their traditional canoe sailing skills as a mitigation strategy against drakiveisau is the main intention of this study, with the chance to revive and reuse the skill of canoe or waqaniviti sailing. It is proposed that a training package on 'Traditional Canoe Sailing' is developed to enhance the journey metaphor of sailing, reflecting on the importance of communal living, and caring for one another.

The Qoma case study with its traditional sailing skill anchors on the belief that it is not only a means of mitigation extreme weather conditions, but more so to help revive and sustain the skill by developing a training package and program targeting the younger itaukei Fijians in village communities. The training package of teaching the standards in a village set up could also be later taught in normal schools that will eventually give a qualification award of a Certificate Level 1 in Canoe Sailing.

The use of the analogy of sailing the Fijian canoe as a metaphor for the itaukei tribal set up, with traditional skills acquisition of sailing on unchartered waters and safely reaching its destination, the canoe epitomises our identity as itaukei, who we are and where we come from and where are we going to (Koya, 2007).

In a communal traditional Fijian village- set up, the system of support and care for one another is paramount. Village protocol allows each tribe daily to perform duties for the family, clan, sub clan, tribe, and the chief.

The sailing depicts the forward movement of the itaukei people, learning and practically applying traditional skills and knowledge to allow the canoe with people on board to safely reach their destination. Transforming the sailing of the Fijian canoe implies a review of current paradigms back to the traditional set up and set sail to better and improved traditional

and knowledgeable itaukei society (Koya, 2007). The foundation of this transformation is embedded in the belief that self-determination, revival of the past and focus to the future is the cornerstone of the pillars of sailing the canoe. It is therefore critical and fitting that we understand the need to revive the skills in sailing a canoe from the given case study.

The sailing analogy outline four key principles of itaukei Fijian life's journey; the boat and sail, forward movement together of the itaukei people, learning and practically applying traditional skills and knowledge to allow the canoe to safely reach their destination, and abiding by the marine laws of sailing. In the same way, the itaukei Fijian language and dialects, and itaukei customs and rules must be enhanced, embraced, and always protected at all costs and all times.

8.4 Recommendations

A sense of urgency of the impacts of drakiveisau we are witnessing needs to be cultivated by everyone, young and old, and we cannot afford to take lightly our responsibilities in mitigating drakiveisau. To help us realise and put into action these responsibilities, the following are recommended:

- The effect of colonial rule needs to be realized and understood by every itaukei Fijian and the fight to capitalize on itaukei cultural strengths and behavioral supremacy be made a priority, hence the need to unwind and decolonize the bondage of neo-colonialism which has unequivocally cocooned the systems of embodiment of itaukei soul, body, and spirit. This bullying tactic must end to allow itaukei traditions and culture to revive and survive.
- The political will to uphold itaukei identity focused on revival of itaukei traditional skills set as the number one priority in mitigating climate change and its effect can be coordinated by the Ministry of Itaukei Affairs in consultation with traditional village leaders.
- As the contemporary borrowed culture and systems creeps in, several critical traditional skills that are forgotten or on the verge of dying can still be revived through Government initiatives with the Education and Itaukei Fijian Affairs Ministries.
- The Ministry of Fisheries in consultation with other stakeholders, to strengthen the enforcement of conservation measures and management of Marine Protected Areas (MPA) to increase the marine life ecosystem and encourage re-migration of marine lives back to their natural habitat. This could also include the planting and replanting of mangroves around the seashore which is the breeding ground for small fish and crustaceans and the banning in the harvest of under sized fish and crabs.

- Enforcement of village Bi-Laws on taboo of selected areas (qoliqoli) within the surrounding reefs and proper control of wastes and pollutants from agricultural, residential, and industrial sites around the shores and into the sea is important, to protect coral reefs and marine resources.
- Organized and targeted education on traditional itaukei mitigation strategy can help curb climate change impacts and protect their indigenous identity as itaukei of this land. This must be taught and encouraged both from home, churches and in schools around Fiji.
- Clear guidelines and control for foreign, government, and privately aided itaukei development projects by appropriate authority is vital.
- Promote and sort financial support for the Draki Veisau Research Framework'-DVRF on Climate Change with Traditional Mitigation Strategy, that supplements the Vanua Framework and aligned to the National and Global Policies on Climate Change.
- Develop and implement an innovative itaukei pedagogical research framework based on the revival of traditional mitigation strategy used to be adopted by our forefathers, with the support of the Itaukei Fijian Affairs Ministry.
- Both the Ministry of Education and Ministry of Itaukei Affairs to promote the inclusion of traditional skills in the school curriculum and through close village monitoring to maintain and preserve these traditional skills and culture of itaukei Fijians.
- It must be ongoing for Itaukei Fijian parents, grandparents, and village elders to make it their priority to teach their children and young people their indigenous rights, the values of their vanua, traditional rules and customs, and traditional skills.
- The Ministry of Education, Cultural Heritage and Arts must promote inclusiveness of cultural language, tradition, arts, and skills at all levels of the education sectors.
- Those aspects of traditional knowledge that will help itaukei Fijian sustain their livelihoods can be integrated into their modern way of life, to ensure continuity of their culture.
- If traditional knowledge and skills are to be protected and accessible to every itaukei Fijians, then it is time to have them documented. We cannot continue to rely on the knowledge of village elders because they have gone through several phases of modern changes that could have modified tradition.

8.5 Implications of the Study

The findings from this study have implications for policy, education, community leaders and the young generation.

a. Policy

The documentation of traditional information should help policy makers value traditional knowledge and make policies that will promote the protection and continuity of itaukei Fijian culture. The vanua o Nabulebulewa and those selected villages in this study should benefit from the findings that will enhance sustaining their Vanua.

In addition, the MOE National Curriculum should emphasize and formalize the teaching of traditional knowledge and integrate this with the scientific school knowledge of Climate Change.

More research could also be conducted so that the current Fiji National Framework for Climate Change would include the use traditional mitigation knowledge together with scientific knowledge in their National Programs.

More awareness program of drakiveisau impacts could also be organized by the Ministry responsible for Climate Change and channeled through the media and social networks which would require extra funding and support from NGOs and donor agencies.

The Ministry of iTaukei Fijian Affairs will need to take the leading role in providing incentives for reviving the practice of traditional skills at national level.

b. Education

The information provided will enhance teachers and children's understanding of traditional knowledge and skills of climate change mitigation and help them to value and respect their own cultural traditions and Vanua.

Documentation of traditional knowledge and skills will not only culturally prepare teachers well, but also inform them of the importance of creating active student learning process where both the teacher and students can relate to their own traditional culture and upbringing.

When it comes to recruitment of Specialized Educators it is important to include village elders, because of their rich traditional knowledge and skills.

The itaukei Fijian language as the appropriate language to transmit Itaukei Fijian traditional knowledge and skill could also provide encouragement for the teaching and speaking of the vernacular language.

Educators could be encouraged to make use of the media and social networks to teach about traditional knowledge and skills of climate change mitigation. This would cover a wider section of the community and the transmission process would be more effective and far reaching.

c. Community Leaders

The teaching and learning of traditional knowledge and skills must start from home. Parents and grandparents must transmit their knowledge to their own children and grandchildren so children can value and respect their vanua early in life.

To ensure continuity and sustainability of culture, village occasions should provide an opportune time to display and showcase traditional skills that are sacred to the vanua. Preparation of traditional food delicacy and performances in traditional dances and chants associated with the vanua could provide an effective learning ground for the young people of the village.

Village meetings would be the right place to discuss and learn about traditional knowledge associated with the Vanua protocol.

d. The Young

Village youths should be empowered to take ownership of their roots and origin and its embedded feelings to know what theirs in terms of traditional values, language, skills, and culture is rightfully.

They must also be motivated to write and publish their own traditional stories, articles, journals, videos, for the future generations in school.

In addition, they must be inspired to continue to teach and practically pass on the traditional mitigation skills, culture, skills, language known for their tribes, villages, and communities.

The wide use of social network nowadays can provide zoom platform for cluster peer group learning of traditional skills across villages, provinces, or countries.

Similarly, the use of informal talanoa or tarakoro around a kava bowl to practically talk about and learn these traditional survival skills could be very effective.

Finally, cluster peer grouping feedbacks within and across villages or provinces would carry more value if formalized.

e. Implications for Future Research

The presentation of a Training Program Standards on the traditional skill of Canoe Sailing as a mitigation strategy of drakiveisau in Fiji is new in terms of the documentation and transmission mode of traditional knowledge and skills in villages and schools of Fiji. This study rests on the belief that the best way to revive traditional knowledge and skills is through teaching it first in a village setting, which later could be formalized for use in trade schools and institutions.

- Canoe Sailing Skill is only one traditional skill that is documented for a Certificate Level 1 Qualification as proposed in this study. Further research could collect and document all other traditional itaukei Fijian knowledge and skills from different provinces of Fiji, that are important for the mitigation of drakiveisau so that they could be easily accessible to everyone to enhance understanding of sustaining livelihood and being resilient to drakiveisau.
- The potential to do further research on climate change and the use of traditional knowledge and skills to mitigate against it is huge, provided there is the political will and availability of fundings to carry out the task.
- The study was conducted in fourteen coastal villages of five different provinces in Fiji, and similar studies could be done to collect more information and validate data by extending the study to other villages in the nine other provinces of Fiji.
- Lastly, since Fiji is multi-cultural, similar studies could be done on Indo- Fijians and other Pacific islanders who have spent most of their life in Fiji, to share their own traditional ways of adapting themselves and mitigating against drakiveisau, which could be documented and become valuable knowledge for policy makers, educators, and the young people of Fiji.

f. Summary

Understanding and incorporating traditional knowledge and skills with scientific knowledge is vitally important a tool for combating the issues associated with drakiveisau.

The Draki Veisau Framework, in supporting the recognition and use of traditional skills in the mitigation of drakiveisau in Fiji, view the stability of itaukei Fijian traditional lifestyle pre and even post colonialism, mainly because they value, love and respect their vanua and its traditional culture, and most importantly, everyone understands and carry out their identified

traditional role through the practice of ‘solesolevaki’ or working together, for the common good of achieving a peaceful, stable, sustainable and resilient livelihood and continuity of their cultural tradition.

The importance of traditional knowledge and skills for the purpose of sustainability, resilience survival, and continuity in Fijian communities can no longer be set aside or considered secondary when it comes to development, especially in this era of severe and frequent drakiveisau we are faced with. Everyone and every level of society is affected, from those in authority, policy, NGOs, social groups, right to the grassroot people, and we all have responsibilities to play. This research paper has recommended for the revival of traditional skills that are dying or on the verge of extinction at the same time strengthen the use of skills that are still in practiced. The best way to do this is to document and teach these traditional skills in the village, in schools, in church, through the media and social networks, in the hope that more and more people can have access to these traditional knowledge and skills and help them understand, appreciate, and value their contribution towards the mitigation of drakiveisau and sustainable living. If we want our Vanua to be sustainable for our next generation, then we need to equip our young people to become ocean warriors, climate champions and environment leaders.

The way forward to enhance the climate change resilience of itaukei through the preservation of culture and promotion of tradition within the metaphor of sailing is built-in and embedded within the village structural system with specific cluster role and traditional leadership of the Vanua. The Vanua is guided by the yavusa within each tribe (Mataqali), clan (Tokatoka) and family (Vuvale). Each ascribed traditional roles, Chief (Turaga), Chief Executive (Sauturaga), Priest (Bete), Herald (Matanivanua), Craftsmen (Mataisau), Fisher folks (Gonedau)) comes with allegiance to the chief, commitment, respect for one another during a sailing journey. Their strong resilience factor capped with decolonial mindset is measured on the variable weather conditions faced together in the journey as the tribe of the Vanua, under the spirit of teamwork (solesolevaki), and spiritually connecting to nature and its ecosystem with reverence for God. The diagram illustration below depicts this life’s sailing journey metaphor on the resilience of the people of the Vanua, weathering the storms of climate challenges.

The Itaukei Village-Waqaniviti Metaphor

For the people to be resilient, sustainable and be able to cope with challenges of drakiveisau, it is important for members of the community to work together. It is likened to the waqaniviti/canoe sailing, applying traditional roles (2), upholding and practicing traditional skills(4), embedding DVRF(5) and decolonising thinking and attitude (6), to reach its destination(7) safely and in time achieving both revival and teaching of traditional skills.

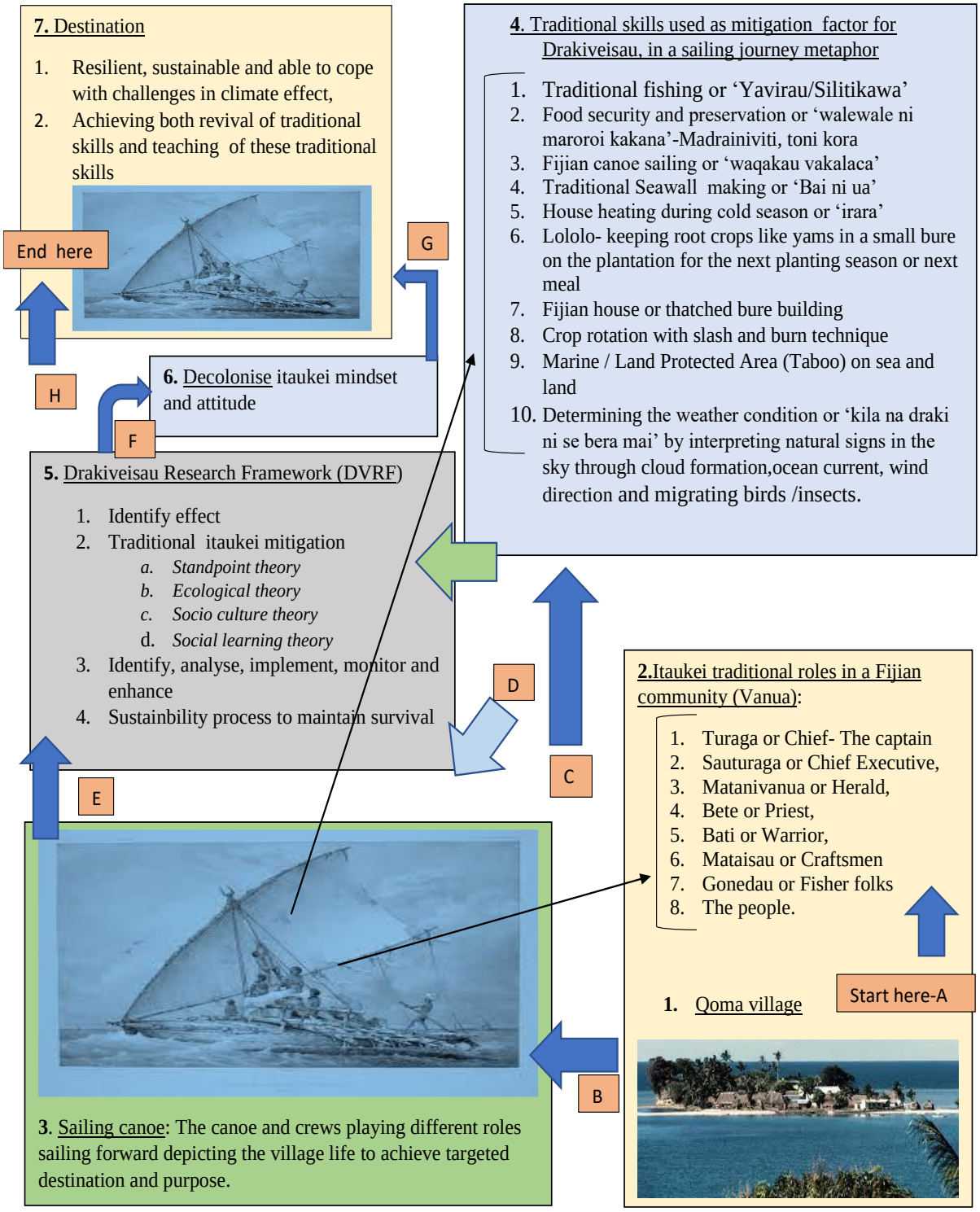


Figure 26: The Itaukei Waqaniviti Metaphor (Naisele, 2019).

Chapter Summary

The last and final chapter has five underpinning principles that summarise and lock the research study under sixteen (16) key recommendations. The five included. 1.The Innocent Upbringing and the Fight to Survive; 2. In-depth Analysis-Fishing and Marine lives; 3. The Research Framework and Application; 4. The Sailing Journey; Itaukei Philosophies at Stake; 5. Mitigation and Skills Revival Technique. The recommendations focus on the following guiding principles:

1. The urgency to stand together as itaukei of this land Fiji with grounding principles on identity, revival of culture, traditional skills set, as the number one priority in mitigating climate change
2. The enforcement of marine/ natural conservations, management of Marine Protected Areas (MPA) to increase the marine life ecosystem and encourage migration and re-migration of marine lives.
3. Promote to support the Draki Veisau Research Framework'-DVRF, (Climate Change with Traditional Mitigation Strategy) that supplements the Vanua framework aligned to the National and Global Policies on Climate Change
4. Consult with the Ministry of Education Cultural Heritage and Arts to enhance the teaching of itaukei language, culture, and traditional skills in schools in Fiji.
5. The 'sailing training package' CBT course, as a mitigation strategy that can both revive the traditional itaukei canoe sailing to compliment the fight against climate change.

APPENDICES

Appendix 1: Copy of Ethics Approval letter.

MINISTRY OF iTAUKEI AFFAIRS
ITAUKEI TRUST FUND BUILDING COMPLEX
87 QUEEN ELIZABETH DRIVE, SUVA
P.O.BOX 2100, GOVERNMENT BUILDING, SUVA, FIJI

MFA 42/2 8th February 2019

Eci Naisele, Researcher and PhD student

Te Whare Wnanaga Awanuiarangi-Aoteroa, New Zealand

RESEARCH APPROVAL — ECI NAISELE- Topic: 'Climate Change an additional challenge to decolonising, revival of traditional skills with ideology shifts, with contemporary world; a value proposition that must be nurtured'- Climate Change challenges come in the form of environmental (physical, social, political and traditional climate.

Mandated to oversee the welfare and good governance of the iTaukei under the iTaukei Affairs Act 1944; this letter of support is granted on the following conditions: -

1. That the Roko Tui of the respective province of Vanua Levu is appropriately informed, prior to the research being undertaken.

2. That iTaukei protocol is adhered to and respected, and that Sunday is respected as a day of rest.

3. Aligned to the FPIC (free Prior Informed Consent) principles; proper awareness must be facilitated, and consent letters obtained prior to the research being carried out proper.

4. Copies of the consent form must be forwarded to the Ministry of iTaukei;

5. In the event that the information gathered in this exercise are used for publication, a stipend received should be injected back into the community.

6. You are also obligated to provide a copy of your research to the community, including the Ministry of iTaukei Affairs.

A copy of the will be forwarded to the responsible Roko Tui for validation purposes.

Submission of the documents stated herein, including further clarification please contact Salaseini Naiduki via email on salaseini.naiduki@govnet.gov.fj or call 3100909 ext 1026.

Yours faithfully,

S. WAIBUTA, DEPUTY SECRETARY, ITAUKEI AFFAIRS

Appendix 2: Consent Letter

CONSENT AND AGREEMENT

PhD study: Te Whare Wananga O Awanuiayaragi

Consent Agreement to conduct interview using one on one questions and answers, for the purpose of my doctoral studies and research.

Topic of Research: **'**Climate Change an additional challenge to decolonising, revival of traditional skills with ideology shifts, with contemporary world; a value proposition that must be nurtured'- *Climate Change challenges come in the form of environmental/physical, social, political, and traditional climate.*

'Na revurevu ni vakacaca ni draki veisau e Viti kei na bolebole ni kena maroroi ka mareqeti nai tovo se i vakarau ni veqaravi vakaitaukei ka dau vakayagataki me valuta na vakacaca oqo ni veisau ni draki.'

I……. agree to participate in this project interview and also agree to record my interview either on audio or video method. I understand that all recordings and interview will be strictly confidential for the purpose of this doctoral studies.

I also understand that the research topics will help me and my people/vanua to revive the traditional mitigation factor to climate change and help strengthen my traditional skills and knowledge, specific for my people and yavusa (tribe)

Vakadewa VakaViti:

O au…… ……..sa vakadonuya me'u na vakaitavi ena vakadidike oqo, kau na solia na noqu itukutuku, ena galala, me na ganita ka sotava nai naki e mai qaravi kina. Au nuitaka ka vakabauta ni tukutuku au na solia ena vukea cake na noqu vanua ena kena valuti na draki veisau ka vakauasivi ena kena talevi lesu tale ka vakavulici nai solisoli bibi oqo vei ira na neimami kawa ni mataka.

……

Participant

Eci Naisele

Researcher and PhD student, University: Te Whare Wnanaga Awanuiarangi-Aoteroa), New ZealandCurrently working at the Fiji Higher Education Commission, Suva

Appendix 3: Research Questions

PhD -Eci Naisele

Title: **Climate Change an additional challenge to decolonising, revival of traditional skills with ideology shifts, with contemporary world; a value proposition that must be nurtured'**

Climate Change challenges comes in the form of environmental/physical, social, political, and traditional climate.
Itaukei:

Na revurevu ni vakacaca ni draki veisau e Viti kei na bolebole ni kena maroroi ka mareqeti nai tovo se i vakarau ni veqaravi vakaitaukei ka dau vakayagataki me valuta na vakacaca oqo ni veisau ni draki.

Questionnaires/ Na Taro

To achieve the aim as described above, the research seeks to first answer a number of questions.

Na cava e rua (2) se tolu (3) na ka e rogo ka kilai kina na nomuni vanua/koro

1. What are some major climate change effects visible in your village?
   Na cava so a veimataqali vakatakilakila e raici rawa ena nomuni vanua ka vakaraitaka na draki veisau?

2. What are some available traditional mitigating factors to climate change in your village?
   Na cava beka eso nai yaragi vakaitaukei ena nomu vanua edau vakayagataki me valuti kina na revurevu ni draki veisau?

3. Identify your main mitigating factor, for example boat sailing, traditional food storage, etc. What is the history of this traditional activity in your village and what is the status?
   E rawa beka ni ko ni vakaraitaka e dua na sala se i vakarau vakavanua esa vakayacori tiko ena nomuni vanua/koro me valuti kina na raki veisau? O ni rawa ni vakadeitaka ni sala oqo e sega walega ni walia na leqa ni draki veisau, ia sa vukea talega ena kena vakabulabulataki mera vulica nai taba gone na i tovo makawa ni nomuni vanua ka sa tekivu me sa yali tiko yani?

4. What was the history of the different types of similar practices in other locations in Fiji that you know of?
   E dua tale beka na vanua e Viti oni kila ni se vakayacori tiko kina na cakacaka ni veivakabulabula taki oqo?

5. How are the skills taught in the past and what are the advantages of using this mode of mitigation?
   Na cava beka nai walewale ni kena vakatavulci na vuli oqo vei ira na nomudou i taba gone me na vukea kina ena kena wali na draki veisau ka vakauasivi ena kena talevi lesu tale ka vakavulici nai vakarau vakamareqeti makawa ni nomuni vanua/koro?

6. What do you see as major setback to the teaching and revival of the skills over the years and what do you think are some challenges faced?
   Na bolebole cava e tiko, oni raica ni vakadredretaka se vakataotaka na kena vakatavulici tiko na i-solisoli oqo?

7. In your view, what is the best delivery mode in regaining the lost skill set? Is it a normal classroom/ school environment/ village hall or practical demonstration of skill in a real sailing situation, as in a boat sailing in the open/coastal sea?
   Na cava na nomuni vakatutu ena I walewale ni kena vakatavulici na I yau vakamareqeti oqo ena nomuni vanua/koro?

Data storage

During interviews, data were audio recorded, questionnaires were analyzed and filed with written notes added, all photos were also taken were sorted and filed. In order to ensure privacy and confidentially, all participants were coded with a number. A master copy for all information was compiled in one location and safely stored as hard copies as well as e-copies. Backups to the master copy of data was also stored in hard drive and emails. Each folder was labelled and itemized clearly to allow easy access for analysis and verification.

Appendix 4: Ethics Approval: Te Wananga

TE WHARE WĀNANGA O AWANUIĀRANGI

EC2019.07

22/07/2019 Student ID: 2171380

Eci Tekuru Naisele

Lot 10 Matana Street

Nakasi Suva

Fiji

Tēnā koe Eci

Tēnā koe i roto i ngā tini āhuatanga o te wā.

Article I. Ethics Research Committee Application Outcome: Approved

The Ethics Research Committee met on Wednesday 03rd July 2019, and I am pleased to inform you that your ethics application has been approved. The committee commends you on your hard work to this point and wish you well with your research.

Please contact your Supervisor Associate Professor Te Tuhi Robust as soon as possible on receipt of this letter so that they can answer any questions that you may have regarding your research now that your ethics application has been approved.

Please ensure that you keep a copy of this letter on file and use the Ethics Research Committee document reference number: EC2019.07 in any correspondence relating to your research, with participants, or other parties; so that they know you have been given approval to undertake your research. If you have any queries relating to your ethics application, please contact us on our free phone number 0508926264; or e-mail to ethics@wananga.ac.nz.

Nāku noa nā
Kahukura Epiha

Ethics Research Committee Administrator
WHAKATĀNE TĀMAKI MAKAURAU (AUCKLAND) TE TAITOKERAU (WHANGAREI)

www.wananga.ac.nz
13 Domain Road Building 1 12A Murdoch Crescent
Private Bag 1006 19 Lambie Drive Raumanga Heights Te Whare Wānanga o Awanuiārangi
Whakatāne 3158 Papatoetoe Whangarei 0110
New Zealand Auckland 2104 Private Bag 9019
Telephone: +64 7 307 1467 PO Box 76035 Whangarei

EC2019.07

Ethics committee document reference number: EC2019.07

Supervisor Name: Associate Professor Te Tuhi Robust Supervisor Email:

Appendix 5: Initial Research Results

Research findings to the questionnaires posted to the participants in selected villages.

1. **Island of Vanualevu- in the provinces of Cakaudrove, Bua and Macuata**

Village	Traditional/Itaukei skill identity known	Description	Significance	Replacement skill	Effect	Current Mitigation
Navunievu, Bua	Vakalolo-Ravoravo	Well known for its taste and make	Only known in Bua	none	Lost skills	Reviving the skills thru itaukei affairs and provincial office in Bua
	Qoli-Tuvamoka	Selected Stones and special leaves weaves in ravines for a specified length	Only big fish are caught	Day and night spear fishing	Big Fish disappeared in into the ocean	Marine Protected Areas-MPA
	Farm clearing- were bula	1st clearing of the land without disturbing the richness of the soils/land	High yield for crops and vegetables	Weed and insects Spray	Toxic Chemical presence is health risk for both land and people	Crop rotation method and allow mineral in the soil to have natural recovery
	Fishing- canoes	Either row or sail to the reefs for fishing	Manual exercise and relying on ocean current and waves	Outboard motors	Loss of traditional skills in rowing and sailing	Reviving the skills thru itaukei affairs and provincial office in Bua

	Baniua-Sea wall-washed away	Big rock piles at the waterfront to act as barriers to sea water and currents	Protect sea water from entering the village	Concrete, rocks and blocks	Hurricanes and cyclones damaged the concrete sea wall	Panting of mangroves
Village	**Traditional/Itaukei skill identity known**	**Description**	**Significance**	**Replacement skill**	**Effect**	**Current Mitigation**
Nawaido, Solevu, Bua	Fishing- canoes	Either row or sail to the reefs for fishing	Manual exercise and relying on ocean current and waves	Outboard motors	Loss of traditional skills in rowing and sailing	Reviving the skills thru itaukei affairs and provincial office in Bua
	Baniua-Sea wall-washed away	Big rock piles at the waterfront to act as barriers to sea water and currents	Protect sea water from entering the village	Concrete, rocks and blocks	Hurricanes and cyclones damaged the concrete sea wall	Panting of mangroves
Village	**Traditional/Itaukei skill identity known**	**Description**	**Significance**	**Replacement skill**	**Effect**	**Current Mitigation**
Nakalou, Macuata	Relocation of village in the 1920 to the current location	Village elders think that instead of doing the sea wall, relocation is the best solution to this	Old village sites prone to rise in sea water level	Old site still visible with old house foundation including the church now under sea water	Relocation to the new village site	Relocation

	Fishing- using traditional spear fishing technique- Tukidodo	Fishing- Tukidodo- a one iron spear with wooden handle to spear fish under water	Traditional way of catching fish	Spear gun and night diving	All fish disappear into the deep ocean	MPA and also reverting to traditional ways of catching fish- yavirau and moka
	Annual fish-drive harvest- Nuqa/Volaca	Annual and traditional fish drive	Only happens in one year	No replacement but must be practiced and maintained	Not being annually practiced	Elders encouraged younger generations to revise skill
Village	**Traditional/Itaukei skill identity known**	**Description**	**Significance**	**Replacement skill**	**Effect**	**Current Mitigation**
Mataniwai, Macuata	Baniua-Sea wall- washed away	Big rock piles at the waterfront to act as barriers to sea water and currents	Protect sea water from entering the village	Concrete, rocks and blocks	Hurricanes and cyclones damaged the concrete sea wall	Planting of mangroves
Village	**Traditional/Itaukei skill identity known**	**Description**	**Significance**	**Replacement skill**	**Effect**	**Current Mitigation**
Nagigi, Cakaudrove	Planting of coconut trees and preservation of soil close to the beach front	Natural ways of supporting the beach front from soil/sand erosion	Act as sea wall and protect the village from sea water flood during high tides	Cutting of coconut trees and dredging of sand and gravels	Soil /sand erosion on the village front having exposed	Re-planting of trees along the coastal beach front and stopping the sand and gravel dredging from nearby rivers and beach front

	Planting yearly crops like yams and present the 1st yield to the chief and church	Traditional protocols in planting following the planting seasons and natural signs	- Itaukei traditional protocol of respect is fully observed with big harvest. -Spirit of sharing and respect is observed	Unfortunately, the practiced is slowly decreasing especially the younger generation	The practiced is slowly decreasing which leads to mark of less respect	Encourage the vanua/chiefs and church elders/leaders to engaged their young people into these rituals and realise its importance and significance
	Building of Fijian Bure-traditional itaukei house	Can withstand strong winds and humid /hot weather conditions	- Partly burning of the middle portion of the pole to preserve the timber from decay and insects. - Cutting of timber at dark night with no moonlight - Weaving of bamboo mats at dark night with no moonlight	Modern building techniques using chemically treated timbers, cement, and blocks	Prone to strong winds, hurricanes, and cyclones	Hard to convince the young people to revert to traditional ways of building traditional bures
	Fishing – traditional fishing	Tukidodo spear, Yavirau and moka	Traditional methods of fishing	Night diving using strong lazer diving torch	Kills small creatures that feeds on sea creatures and fish	No night diving and re-introducing of traditional fishing methods
			Fishing at dark night only	None- fishing even done on moonlight night	Fish exposed to moonlight normally goes bad in the morning	Encourage fishing only at dark nights and not during moonlight nights
Village	**Traditional/Itaukei skill identity known**	**Description**	**Significance**	**Replacement skill**	**Effect**	**Current Mitigation**

Buca, Cakaudrove	Well-mannered youths and always followed elder's advice	Part of itaukei protocol	Family unity and care for one another- obedience and follow orders is paramount	Drunkards and bad behavioural habits uncommon for the village lifestyle	Disobedience and shun away from the parents and village elders	Encourage youth meeting on weekly basis and routine reward system for the good deeds
	Fishing/Qoli -Yawa and Malaivi (Fish type)	Fish harvest for the year- Qoli ni yabaki	Fish only comes ashore once in a year- around December	No longer practiced as the fish no longer comes ashore on their expected time	Lost the traditional skills to catch this type of fish	-Thru MPA approach where a taboo is enforced around the Buca reefs and ocean -replanting of Mangroves as breeding place for the fish including yawa and malaivi
	Tapa making -Masi	A traditional art known for the village	For income generation	none	Losing the skills as most do not know how to do this	Youth group learning and teaching from adults
Village	**Traditional/Itaukei skill identity known**	**Description**	**Significance**	**Replacement skill**	**Effect**	**Current Mitigation**
Saqani, Cakaudrove	Fishing/Qoli ni yabaki-Kuita (Fish Type-Octopus)	Fish harvest for the year- Qoli ni yabaki	Octopus only comes ashore once in a year- around December	No longer practiced as the creature no longer comes ashore on their expected time	Lost the traditional skills to catch this type of fish	- MPA approach where a taboo is enforced around the reefs and ocean -replanting of Mangroves as breeding place for the fish
	Fishing type- Yavirau	A method of fishing using leaves, reeds and vines	Traditional way of catching fish	None	Fish have gone/disappeared into the deep ocean	replanting of Mangroves as breeding place for the fish

	Farming/planting-Sevu ni yabaki	Uvi- root crop is famous yearly crop	Well look after and must be well maintained	none	This practice is slowly disappearing	Teaching & encourage the young folks to plant the crop again
Village	**Traditional/Itaukei skill identity known**	**Description**	**Significance**	**Replacement skill**	**Effect**	**Current Mitigation**
Tawake, and Wainigadru Cakaudrove	Fishing -Yavirau - ika ni Yabaki-Balolo/Deu/sirisiriwai	Traditional way of fishing using leaves, reeds and vines	Only practiced in three villages in the Tawake district- Wainigadru, Tawake, Saqani	none	Danger of losing these skills	Teaching youngsters these traditional methods of fishing
	- Susu kanace-Mallet fishes are only fished when they come out of the Natewa bay and not when they are going into the bay	It's a preservation technique by allowing this fish to give birth at the bottom of the bay	Elder respect this taboo as a way to continue to preserve the fish and allow them to multiply	none	Not being followed and therefore the number of fish is decreasing over the years	Teach young fisherman to respect this ritual taboo for the future generation of kanace fish
	Farming - Terrace farming - Planting special root crops-Dalo and uvi	Traditional method with irrigation and drainage in-and out flow	Only practiced in three villages in the Tawake district- Wainigadro, Tawake, Saqani	none	Danger of losing these skills	Teaching youngsters these traditional methods of farming

	Traditional crafts and rituals -Fijian bure -Fijian canoe	Traditional method of skills craftsmanship	Only practiced in three villages in the Tawake district- Wainigadru, Tawake, Saqani	none	Danger of losing these skills	Teaching youngsters these traditional methods of traditional crafts
Village	**Traditional/Itaukei skill identity known**	**Description**	**Significance**	**Replacement skill**	**Effect**	**Current Mitigation**

2. Vitilevu-Tailevu: selected villages

Village	**Traditional/Itaukei skill identity known**	**Description**	**Significance**	**Replacement skill**	**Effect**	**Current Mitigation**
Qoma Tui Nabulebulewa	Fishing -Yavirau/Silitikawa	Traditional way of fishing using leaves, reeds and vines	Still practiced but slowly disappearing	none	Danger of losing this traditional fishing technique	Elders regrouped to teach this traditional method of fishing to the younger folks
	Fishing -Qoli vonu (turtle fishing and catching)	Traditional way of catching turtle	The only village in Fiji that is practicing this method using traditional kava ceremony	None	Danger of losing this traditional fishing technique	None- as government and fisheries department has regulated rules against catching and killing of turtle

	Traditional Food preservation	1. Cooking food- Madaraiviti (Fijian delicacy) The soaking of cassava in a special pool of fresh water for 5 days before wrapping in leaves and cooking	This type of food can be stored up to 5/6 days without refrigeration and will never go bad. Used when they go out fishing for days as staple food in the sea while fishing or catching turtle	Used of modern-day food and tinned foodstuff as a replacement	Loss of this traditional food preparation technique known for the village	Revival of skills by the elders
		2. Smoked fish drying technique.	Our forefathers had traditional ways of preserving food for longer days. Example 2, the smoked fish drying technique was used to preserve fish for more than 3/7 days. This was done by laying the fish on the netting above the fireplace to allow the smoke to dry out the moist conte	Fried fish on frying and using oil	Oil has detrimental effect on human body	Elders trying to revive this traditional skill. Still practicing times and again
		3. Earth Oven (Lovo/Hangi)	Another method used by heating the stones red hot with the food placed on the stones and buried under earth for 2/3 hours.	Electric and Gas Ovens	Both Gas and electricity have detrimental effect on human body and the environment	Still practicing this traditional skill but time consuming

		4. Lololo-Small house like structure for storing yams and kawai root crops	Traditional way of keeping root crops in a small bure house on the plantation, especially yams waiting for the next planting season or next meal	none	No longer practiced	none
	Sailing of canoes	Traditional canoes made from local timber and using mats as sail; Then Home-made wooden boat (Waqakau) with canvas sail as a contemporary measure	For fighting in the oldens days and fishing in the lagoons and reefs	None	No longer practicing this skill today.	To enforce the teaching of younger generation on the use of waqakau with sail for sailing
	Tei Uvi Traditional yearly root crop	Yams are special to Qoma males like in other Fijian itaukei village. It is a sign of manhood and strength.	The 1st harvest is given to the chief and the church around April each year. The ceremony is called 'sevu ni yabaki'	None	Still practicing today	Because yams can stay longer duration, a special house/shed called 'lololo' are normally built in the garden, away from home and village to store the yams,
	Marine Protected Area (MPA)-Vanua/Qoliqoli vakatabui- 'sauvi'	A portion of sea/reefs around the three islands that are forbidden to fish in	This normally comes with a traditional ceremony of tabu-taboo where the chief and the vanua agree in a 'kava ceremony' to respect the	None	Still practicing today	However, there are some law breakers that get tempted to break this taboo when there are plenty marine lives in the taboo areas, even

			taboo areas, in a given duration. This is to allow for marine life restoration and sustenance.			spilling over to the non-taboo areas. Normally, there are selected village guards that take turns during day and night to see that this is strictly observed and followed. Offenders caught are punished by planting and getting some fish for the chief or provide traditional apology to the vanua – bulubulu and 'matanigasau'
	Sea-wall- 'Bainiua'	Extreme high tides with regular hit of tropical cyclone had damaging effect on the coastal shorelines of the islands.	Black-mortar soil beneath the roots of the mangrove trees would be placed in between the stacked rocks seawall. The soil material had a glue sticking effect that would last for months before they could be replaced.	Concrete cement and blocks sea wall	Costly to repair and replace concrete seawall	Continue to repair and rebuild the seawall
	Traditional house heating during	During cold winter season, a fireplace heater	The elders would chant evening lullabies	none	No longer being practiced	To enforce the teaching of younger generation on

	cold/winter season- 'irara'	(i-rara) with few selected dry logs as firewood placed at the centre of the Fijian bure (house) to source heat and energy for the family.	(vucuvatu- traditional songs) around the fireplace with stories in between breaks.			the traditional house heating-irara
	Traditional chats- vucu vatu, meke and vakalutivoce	Raditional chanting and singing after a communal task in a community hall. It comes with lali – wooden bell, baboo drum -derua and clapping (cobo)	It's a way to maintain togetherness and family within the village community by the sharing stories, traditional dances, in between the traditional songs- vucuvatu, meke	Guitar and ukulele; Big stereos, voice box with soundtracks	Has quickly discouraged and slowly kill the traditional songs and chants	Elders slowly reverting to the use of chants, vucuvatu and meke during village meetings
	Tuva Moka – fish trapping technique	Stone weir- in a u or circular shape placed on the reef during low tide and visited during the next low tide	Its one of the traditional methods of catching fish	None	Slowly disappearing out	Itaukei affairs staff spent one week on the island to help revive this skill
	Traditional Fish drive - Samu busa	A fish drive technique where women and children are engaged in. there are two groups for this activity: 1. The swimmers with a long stick called isamu, to drive the fish called 'busa' (barred garfish).	It's one of the traditional methods of catching fish	None	Slowly disappearing out	Still practicing but seldom. Itaukei affairs staff spent one week on the island to help revive this skill

		2. The netters- holding the big bets with wooden handle called ‘taraki’ and ‘rede’ to catch the fish with.				
	Traditional Fish drive-Vakavoka and Vakauwa	A fish drive technique where a group of women are engaged. Fish nets are used to catch fish when the tide is coming in both at night and going out during the day.	It’s one of the traditional methods of catching fish	None	Slowly disappearing out	Still practicing but seldom. Itaukei affairs staff spent one week on the island to help revive this skill
	Fijian house-itaukei bure building	Building of thatched bure or traditional Fijian houses. This used to be popular on the island of Qoma but no longer being practised as this has been replaced by the corrugated iron and block houses.	This type of house is unique as it promotes natural conditioning by being cool in hot sunny days and the roof reeds wrapped in vives keep the house temperature warm during cold nights.	Building concrete and tinned roof houses	Slowly disappearing out	Still practicing but seldom. Itaukei affairs staff spent one week on the island to help revive this skill
Village	**Traditional/Itaukei skill identity known**	**Description**	**Significance**	**Replacement skill**	**Effect**	**Current Mitigation**

Uluiloli Ratu mai Verata	Sailing of canoes	Traditional canoes made from local timber and using mats as sail	For fighting in the oldens days and also fishing in the lagoons and reefs	Home-made wooden boat (Waqakau) with tubulin sail as a contemporary measure to the traditional sail using mats	Still practicing this skill today. They still have seven (7) boats currently in use	Continue to enforce to the younger generation on the use of waqakau and sail for sailing across the oceans for fishing
Kadavu						
Village	**Traditional/Itaukei skill identity known**	**Description**	**Significance**	**Replacement skill**	**Effect**	**Current Mitigation**
Levuka, Nabukelevu and Muainuku village- one tribe but live in two different villages next to each other's. Tuilevuka- right hand man and chief to the Tui Nabukelevu (District chief). He drinks the 2nd	Fishing Turtle/ikabula/vonu are fished for a special ceremony for the chief -Tui Levuka, consumption	2 known worriers are known to the Levuka tribe- Dau Tamata (on a form Human_ and Dau Dabea (in the form of a sea eel)	Whenever the the Chief-Tuilevuka wants to eat turtle meat, the Dau Dabea would attack a turtle at the mouth of the reef, leaving the creature helpless and float ashore for the people to see and cook the meat for the chief	Free diving using spear guns to kill a turtle	The traditional old method is obsolete and rarely practiced today	Other forms of fishing and catching turtles- spear guns, netting, etc
	Fishing-Yavirau	Traditional way of fishing using leaves, reeds and vines	Still practiced but slowly disappearing	none	Danger of losing this traditional fishing technique	Elders regrouped to teach this traditional method of fishing to the younger folks

Yaqona (kava) bowl in the traditional ceremony of the Nabukelevu district	Dessert/food classic Vakalolo/vukitavu/ sivaro	Levuka is known for a variety of itaukei dessert served in roasted coconut milk nd brown sugar with root crops- dalo, tavioka, etc	This are done for special occasion- guests, new childbirth, etc	Still practicing this skill today	Younger generations are learning this tradition skill	Elder are having this more regularly as a practice mechanism for the younger generation to learn and acquire the skill
	Fishing-Balolo Ika ni Yabaki/ Ika ni balolo- Tulevu/Cigani/	Happen during the month between October-December; After a heavy rainfall with flooding	The fish – ika ni balolo would travel and move upstream after the flood, where they are trapped	None- it's a rare and special for this village only	Feasting in the village as there would be more than enough fish for everyone	None- it's a dying practise and elders are trying ways to maintain this traditional ritual
	Vatuniloka -	Special rock if stepped upon by the bete (chiefs warrior) signifies and causes earthquake and sea level rise- tsunami	The rock is significant that it has some powers over the ability to cause earth shakes and sea level rise- tsunami to show and warn the people of disobedience, etc	None	Still practiced today	None
	Vatuniuca	Special rock if stepped upon by the bete (chiefs warrior) signifies and causes heavy rainfall	The rock is significant that it has some powers over the ability to cause heavy down pour a flooding to show and warn the people of disobedience, etc	None	Still practiced today	None

	Traditional leadership	Has been vacant for some time but the sau/mana-traditional powers is still evident today.	The last title holder was leaving in Fijis biggest island in the province of Nadroga. There was a traditional delegation from the village of Levuka to seek the return of their chief to the village. When he refused, he was given a short time to decide before he died unexpectedly	The deceased chiefs 34-year-old son took over and straight away he moved to the village to over the leadership role in the village.	Respect, order and allegiance was restored in the village when the chief is present in the village	Other special traditional positions in the village were restored after the installation of the chief
Kabariki, Nabukelevu; Tui Kaba-Chief adviser to the Tui Nabukelevu; He drinks the 3rd Yaqona (kava) bowl in the traditional ceremony of the Nabukelevu district	Farming Uvi-Yam farming	Treated as respectable crop of the year and there is a feast at every stage of the farming. Were (weeding) – feast; cukucuki (ploughing)- feast; tei na uvi (boubou)- vacuruvolau- feast	Still practiced today	None- maintaining and keeping this traditional practice	Younger generations are also practicing this	Mixed crop and vegetable farming with uvi farming
	Fishing Yavirau Balolo- Vulaitalevou,	Annual fish harvest- Balolo; Yavirau- Traditional way of	practiced in three villages in the Nabukelevu district-	Other forms of fishing-Moka, spear diving, spear	Danger of losing these skills	Teaching youngsters these traditional methods of fishing

	Ligani- ika ni yabaki	fishing using leaves, reeds and vines	Levuka, Kabariki, Muainuku	fishing-cocoka ena baravi		

Appendix 6: Traditional Fijian Seasonal Calendar

The Fijian Traditional Seasonal Calendar is important for understanding Fijians as monthly activities are closely related to weather patterns as well as the flora and fauna of the villages.

The following section briefly describes what type of weather conditions as well as some common activities related to each month. This information was obtained from the elders and parents. During the talanoa and interview it became apparent that elders and adults were similarly well informed about the Traditional Seasonal Calendar.

January

Vula i Nuqalevu - Janueri (January) –This is the cyclone season, and a lot of rain can be experienced. It is the time when mangos and dawa (Pometiapinnata fruits) ripen and the flame tree flowers. If there is an approaching cyclone, Lago Kata (Yellowjacket bees) can be found nesting in the ground. The daniva (Sardinella) spawns and king tides can be experienced. Indigenous Fijians' Climate Indicators Uca Rain 1. Black clouds accumulate 2. Half-moon tilted to the left 3. Red skies in the morning 4. Rhematism 5. Cat licking its fur 6. Cockroaches flying in the house 7. Toad croaks Cagilaba Cyclone 1. Breadfruit fruitng in 3s or more 2. Bees nesting underground 3. Inflorescence of the banana is bent like a walking stick handle 4. Frigate birds fly inland Ua Loka Tsunami 1. Extremely low tide 2. Swift current below the sea 3. Kingtides experienced 4. Birds and animals move to higher ground Draki vinaka. Fine Clear Day 1. The sky is as blue as the stomach of the Banded Rail 2. Red skies in the evening 3. Galaxy of stars in the night 4. Lightening during rainy/stormy weather

February

Vula i Sevu - Veverueri (February) - This month is still part of the cyclone season which means high temperatures, humidity, and lots of rain. The men harvest yam and daniva (Sardinella) is sevutaki (offered) to the Tui Wailevu (chief) in Lovoni. In the sea, the nuqa (Siganusvermiculats) spawns and it is a good time for catching them.

March

Vula i Gasau - Maji (March) - This is the month of rain, the gasau (reed) flowers and fruits become cucula (piercing) and fall. In the sea, the Kabatia (Lethrinus) spawns and it is a good month to catch it.

April

Vula i Kelikeli - Epereli (April) - The sea temperature is high, and it is the last month of the cyclone season. The duruka (Saccharumedula) flowers as well as moli madirini (manderine) fruits. The Kabatia (Lethrinus) continue to spawn and the qari (sea crabs) matures and can be caught.

May

Vula i Doi - Me (May) - Temperature are still high and it is the last hot month when the cagi tokalau se tokalau cevaceva (south easterly winds) brings in the busa (half beak). The daniva (sardinella) and sara (white Sardinella) spawn and on land the doi (Alphitoniazizyphoides) flowers indicating that it is time to plant dalo (taro) if it has to mature by Christmas. The Yam leaves bota (turn brown) indicating that it is ready for harvest.

June

Vula i Werewere - Jiune (June) – The wi (Spondiasdulcis) flowers and the dawa (Pometiapinnata) fruits indicating that it is time to weed the Yam plantations. Salala (mackerels) and seni kawakawa (yellow finned grouper) spawn while the temperature decreases and so does the amount of rain.

July

Vula i Cukicuki - Jiulai (July) - The tivoli (wild yam) flowers and the kuita (octopus), seni kawakawa (yellow finned groper) and salala (mackerel) spawn. The temperature is still cool, and the rain decreases.

August

Vula i Kawakawa - Okosita (August) – This month is the Vula i matua (month when crops mature). The draladina (Erythrina variegate) flowers which indicates that it is the season for kawakawa (yellow finned grouper) fishing. Octopus and Yellow finned groper still spawn, and the sea temperature cools down. Men that drink a lot of yaqona (kava) during this month will experience dryness in their skin because it is the cool and dry season.

September

Vula i Vavakada - Seviteba (September) – Maqo (mango) flowers, bota na Tavola (Terminaliacatappa) leaves turn brown which indicates that the saku (Swordfish) and kuita (octopus) are spawning. The temperature remains cool and occasional rain is experienced. Currently the vegetation grows well. During this time when fishermen go diving for Octopus, they must watch out for Kuita Veiyalovi (Octopus swimming in pairs), so that when spearing one the other one does not attack.

October

Vula i Balolo lailai - Okotova (October) - Breadfruit and coconut mature, bua ni viti (frangipani), kavika (Malay apple) and jiale (Island Gardenia) flower, kuita (octopus), saqa (trevally), walu (kingfish), dulutoga (baby barracuda) and lairo (land crab) spawn. The temperature increases and veisolo na draki (temperature blends) indicating the beginning of the cyclone season.

November

Vula i Balololevu - Noveba (November) – Maqo (mango), pineapple, kavika (malay apple), uto (breadfruit) and dawa (pomtiapinnata) fruits ripen, bua ni viti (endemic frangipani) and jiale (island gardenia) flower, saqa (trevally), donu (spotted rock cod), walu (kingfish) spawn. It is still hot and draki tunumaka (hot and humid weather conditions) are experienced and veikere na cagi tokalaucevace vata keina vualiku (the south easterly and northerly winds blow alternatively). During this time, fishermen and people should watch out for the ogo buidromodromo (yellow tailed barracuda) which is poisonous.

December

Vula i Nuqa lailai - Tiseba (December) - This is still the cyclone season. The nuqanuqa (redup), vaivai (flame tree), bua ni viti (endemic frangipani) and jiale (island gardenia) flower, and the maqo (mango) and kavika (malay apple) ripen, the nuqa Siganusvermiculatus, vonu turtle, kawakawa Yellow finned groper, Trevally, kanace lalai (mullet) spawn. The hot and humid weather condition continues to be experienced and the Tokalau (easterly winds) blows. During this time children should watch out for lago kata se pi (bees) since there will be many of them breeding. In summary, the indigenous Fijians of the research site have a TEK of CC. Their TEK about CC is knowledge gained from their interaction with their vanua.

Source: itaukei Affaits Board, 2019

Appendix 7: Turtle Net Weaving in Qoma Island

Tei Lawani vonu: Qoma islanders

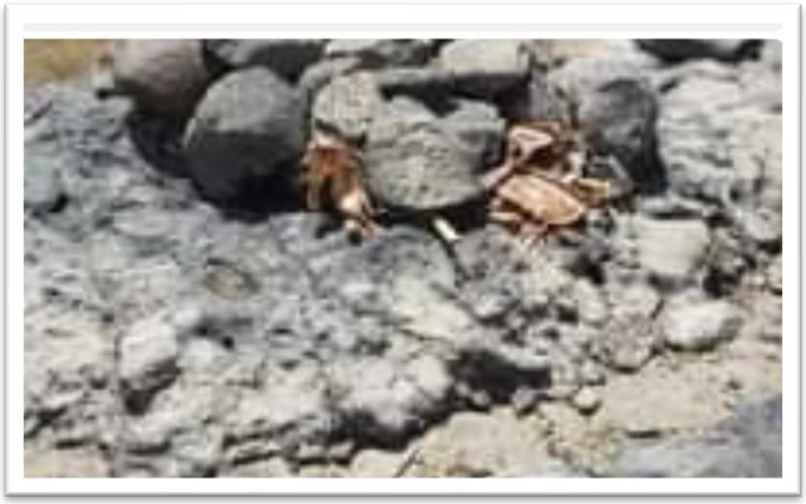
Jovesavata Bogidrau teaches the menfolks how to weave turtle net using coconut fibre.




Source: Naisele, 2019.

Appendix 8: Qoma Food Delicacy Preparation

Toni Kora-Niu (Sea food delicacy) -Qoma

Source: E. Naisele, 2019.

Appendix 9: A Fish Drive Technique in Qoma

Tuva Salisali-Qoma islanders

Tuva Salisali-Qoma: Using stines. were and nets (taraki). Source: Naisele, 2019

Source: Naisele, 2019.

Appendix 10: Pictures of the Magic Bamboo 'Bitu ni Ceva' and Fresh

Qoma island 2021-Bitu ni ceva, tonitoni ni madrai, drodro ni ivalu

Old War ditch

Source: Naisele, 2021.

Bitu ni Ceva-Magic Bamboo

Source: Naisele, 2021.

Fresh water Spring well for drinking- still used today.

Source: Naisele,2021.

Brackish water Spring well for soaking food delicacy- Madrai ni viti

Source: Naisele, 2021.

Appendix 11: Qoma Village-Clan Structure

Batisala Tuinabulebulewa		Batinisala Rokotuiloma	
Mataqali (Clan)	iTokatoka (extended family)	Mataqali (Clan)	iTokatoka (extended family)
Mataqali Tuinabulebulewa	1. Tuinabulebulewa 2. Naivakarube 3. Naveinuyaki 4. Taivunau	1. Mataqali Rokotuiloma	1. Rokotuiloma 2. Burematau 3. Vuniivi 4. Naisogocagi

Mataqali Nawavo	1. Navavo 2. Curuvotu	2.Mataqali Gonebati	1. Gonebati 2. Vuniuto 3. Natoto 4. Navitimaiwai
Mataqali Naivakacabe	1. Naivakacabe 2. Natoto 3. Delaivatukalou 4. Naivana	3. Mataqali Rara	1. Rara 2. Naisoro 3. Navunivutu
Mataqali Vuanisinu			
Mataqali Daunavatu	Daunavatu		

Source: VKB: Land Registers, itaukei affairs, Fiji, 2019

- Clan has migrated to Natuvu, wailevu west, Cakaudrove
- Mataqali kawaboko-extint clan

BIBLIOGRAPHY

Aalbersberg, W., Nunn, P.D. and Ravuvu, A. (1993). *Climate and Agriculture in the Pacific Islands; Future Perspectives*. Institute of Pacific Studies, Suva

Akana, K. (2012.) Hei, Hawaiian Strig Figures: *Hawaiian Memory Culture and Mnemonic Practice, Multi-Disciplinary Research on Hawaiian Well-Being,* Volume 8, pp 45-70

Alexander, C., Bynum, N., Johnson, E., King, U., Mustonen, T., Neofotis, P., Oettle, N., Rosenzweig, C., Sakakibara, C., Shadrin, V., Vicarelli, M., Waterhouse, J and Weeks, B. (2011) L*inking Indigenous and Scientific Knowledge of Climate Change*, Bio Science, Vol. 61, No.6, pp 477 – 484.

Allen, S. (2006). *The Consequences of Modernity for Indigenous People*s: An International Appraisal STEPHEN ALLEN International Journal on Minority and Group Rights; Vol. 13, No. 4 (2006), pp. 315-340 (26 pages) Published By: Brill

Andersson, N., Ledogar, R, J. (2008). *The CIET Aboriginal Youth Resilience Studies: 14 Years of Capacity Building and Methods Development in Canada*; *Published in final edited form as:* Pimatisiwin. 2008 Summer; 6(2): 65–88.PMCID: PMC2942846

Aporosa, A. (2019). *De-mythologizing and re-branding kava as the new 'world drug' of choice. Drug Science,* Policy, and Law 5, 1-13

Aporosa, S. A., Atkins, M., Brunton, R. (2020). K*ava drinking in traditional settings: Towards understanding effects on cognitive function. Journal of Human; Psychopharmacology: Clinical and Experimental*, e2725 (early view), 1-11. Available at: doi:10.1002/hup.2725

Arno, A. (1993). *The World of Talk on a Fijian Island: An Ethnography of Law and Communicative Causation,* 176pp, 6 1/8 x 9 1/4 1 volume, Praeger

Ary, D, Jacobs, L.C and Sorensen, C. (2010). *Introduction to Research in Education*, Wadsworth Cenage Learning Centre, Australia

Ali, J. B., Chebel-Morello, B., Saidi, L., Malinowski, S., & Fnaiech, F. (2014). Accurate Bearing Useful Life Prediction Based on Weibull Distribution and Artificial Neural Network. *Science Direct*, *0888*(3270), 150-172.

Allen, B, J. (2017). Standpoint Theory: Critical Intercultural Communication. Theories, Issues, and Concepts

AR5 Synthesis Report - Climate Change 2014 – IPCC: The Synthesis Report (SYR) distils and integrates the findings of the three Working Group contributions to the Fifth Assessment Report. (AR5

Bandura, A. (1969). *Social-learning theory of identificatory processes,* In M.R, Jones (Ed), Nebraska, symposium on motivation 1962, Lincoln University. New York" academic press

Bagele, C. (2012). *Indigenous Research Methodologies,* University of Botswana.

Barnett, B. (2009). *From Theory to Classroom: Some Practical Applications of Standpoint Theory, Feminist Teacher,* Volume 19, Number 3, pp.186-194

Barnett.J, McMichael, C. (2018). *The effects of climate change on the geography and timing of human mobility*; Published online: 24 April 2014. Springer science +Business, LLC

Bates, B.C., Kundzewicz, Z, W., S. Wu and JP Palutikof,(2008). *Climate Change and Water. Technical Paper of the Intergovernmental Panel on Climate Change, IPCC*

Barry W, (2015). A *Snapshot of the Fijian Economy;* Presentation to 2015 Budget Consultation Forum, p13

Becker, Anne E. (1995). *Body, Self, and Society: The View from Fiji*, University of Pennsylvania Press, Pages: 224, https://www.jstor.org/stable/j.ctt5hjkr6

Belshaw, Cyril S. (1964). *Under the Ivi Tree: Society and Economic Growth in Rural Fiji,* Publisher, Routledge & Kegan Paul, 1964; Original from, the University of California ; Digitized, Jun 16, 2008 ; Length, 336 pages

Ben, A.(2017). *The Complete Sailing Manual*, 4th Edition Hardcover – Illustrated, Publisher DK, Publication date, Language, English, Print length 448 pages.

Berkes, F. (1993). Traditional ecological knowledge in perspective. In J. T. Inglis (Ed.). Traditional Ecological Knowledge: *Concepts and Cases, International Program on Traditional Ecological Knowledge and International Development* Research Centre, Ottawa, pp1- 9.

Berkes, F. (1999). Sacred Ecology, *Traditional Ecological Knowledge and Resource Management*, Taylor & Francis, Philadelphia

Berkes, F. Colding, J. and Folke, C. (2000). *Rediscovery of Traditional Ecological Knowledge as Adaptative Management, Ecological Applications*, Vol. 10, No.5, pp 1251 – 1262.

Bevir, M., Kedar, A. (2008). *Concept Formation in Political Science: An Anti-Naturalist Critique of Qualitative Methodology*, *Perspectives on Politics*: journal article Vol. 6, No. 3 (Sep., 2008), pp. 503-517 (15 pages) Published By: American Political Science Association.

Biturogoiwasa, S., Anthony R. W. (2001). *My Village, My Life: Life in Nadoria, Fij*, Published by Institute of Pacific Studies, Suva., 2001, 2001

Blair, T. (1995). *Labour Leader's speech, Brighton 1995*, TUC Congress, Brighton, D Foden - Transfer: European Review of Labour 1995 - journals.sagepub.com

Boillat, S., Berkes, F. (2013). *Perception and Interpretation of Climate Change among Quechua Farmers of Bolivia*: Indigenous Knowledge as a Resource for Adaptive Capacity, on line (Available) http://www.ecologyandsociety.org/vol18/iss4/art21/

Borland, E (1990). *Standpoint theory:* Contributor to Encyclopedia of Gender and Society.
The Editors of Encyclopaedia Britannica, Last Updated: Article History

Brosius, J. P. (1997). Endangered Forest, Endangered People*: Environmentalist Representations of Indigenous Knowledge. Human Ecology*, *25*(1), 47–69.

Burger, J.(1990). *Indigenous knowledge sustainability: The Gaia Atlas of First Peoples: A Future* for the Indigenous

Bynoe, P. (2012). I*ndigenous Perception of Climate Change, its impacts and Coping Strategies for Sustainable Livelihoods in Guyana and Suriname, African Carribean-Pacific Forestry* Research Network, Montpellier, France

Countries and their cultures: *Culture of Fiji*, (2015), https://www.everyculture.com/Cr-Ga/Fiji.html

Craft, C. (2016). *Ecological Theory and Restoration*, National Acad Sciences

Coulter, J.W. (1942). *Fiji: Little India of the Pacific.* Chicago: University of Chicago Press.

Campbell, J.R. (2006). T*raditional disaster reduction in Pacific Island communities*, GNS Science Report 2006/038

Campbell, J, R. (2014). Climate-Change Migration in the Pacific The Contemporary Pacific 26(1):1-28, DOI:10.1353/cp.2014.0023, The University of Waikato

Charapa, C. (2012). *Indigenous Peoples and Climate Change in Africa*: Traditional Knowledge and Adaptation Strategies, World Bank, Trust Fund for Environmentally and Socially Sustainable Development

Chilisa, B. (2009). Indigenous African-centred ethics: Contesting and complementing dorminant models. In D.M. Mertens & P.E.Ginsberg (Eds.), The handbook of social research ethics (pp.407-425). Thousand Oaks, CA:

Clunie, Ferguson. (1986). Yalo I Vit*i: Shades of Viti–A Fiji Museum Catalogue*, An Introduction to Historical Linguistics, second edition.132 pages

Convention on Biological Diversity. (2006) What is traditional knowledge, online (Available) http://www.biodiv.org/programmes/socio-eco/traditional/default.asp

Cote-Meek, S. (2010). *Exploring the impact of ongoing colonial violence on Aboriginal students in the postsecondary classroom; A* thesis submitted in conformity with the requirements for the degree of Doctor of Philosophy Graduate Department of Sociology and Equity Studies in Education Ontario Institute for Studies in Education University of Toronto © Copyright by Sheila Cote-Meek 2010

Cortes, M., Chavero, E. (2011). *Indigenous perception of changes in climate variability and its relationship with agriculture in a Zoque community of Chiapas, Mexico.* Climatic Change, Springer, vol. 107(3), pages 363-389, August

Cutter-Mackenzie, A. (2011). *Teaching for environment sustainability*, in Gilbert, R. and Hoepper, B. (2011) Teaching Society and Environment, 4th Edition, CENGAGE Learning, Australia

Curriculum Advisory Services, MEHA, (2019). *Ministry of Education, Heritage and Arts Strategic Plan 2019-2023*

CATD Strategic Plan, (2019). *Strategic plan 2019, Nadave, Suva, Fiji*

Dei, G. J. S., Simmons, M. (2009). *The Indigenous as a Site of Decolonizing Knowledge for Gyampoh*. In Amisah, S., Idinoba, M. and Nkem, J. (2009) Using Traditional Knowledge to cope with climate change in rural Ghana. Unasylva 231/232c Vol 60

Derrick, R. A. (1951). *The Fiji Islands: A Geographical Handbook*., Publisher: Govt. Print. Dept Publication date: January 1, 1951

Di Piazza, A., Kempf, W., Pearthree, E. (2007) *Mapping Oceania past and present: movements, geographies; Publisher Société des océanistes;* Printed version Date of publication: 1 December 2007 Number of pages: 209-212 ISBN: 978-2-85430-010-9 ISSN: 0300-953x

Doubleday, N. (1993). *Finding common ground: Natural law and collective wisdom. In J.T (ed). Traditional Ecological Knowledge: Concepts and Cases,* Inglis, Ottawa: International Program on Traditional Ecological Knowledge and International Development Research Centre.

Durie, M., Hoskins, T., Jones, A. (2012). *Kaupapa Māori: Shifting the social*; Journal Article, New Zealand Journal of Educational Studies, 47(2), 21–29.

Dwyer, P.D. (1940). *Modern conservation and indigenous peoples:* in search of wisdom. *Pacific Conservation Biology* 1(2) 91 – 97.

Dyer, W.R. (1945). *Preliminary Note on Weather Lore of the Fijian*, Council of the Fiji Society, Suva, Fiji

Esquimaux**,** W. **(**2009). Promoting "Zest for Life": A Systematic Literature Review of Resiliency Factors to Prevent Youth Suicide.

Farrelly, T., Nabobo-Baba, U. (2012). *Talanoa as Empathic Research, Paper for presentation at the International Development Conference*, Auckland, New Zealand

Fanon (1986). *Black Skin, White Masks;* First published in 1986 by Pluto Press 345 Archway Road. London N6 5AA Originally published in France as Peau Noire, Masques Blanc
Fiji Bureau of Statistics, (2018). *Fiji Statistics at a Glance*

Fleming, J., Ledogar, R. J. (2008). *Resilience and indigenous spirituality*: A literature review. *Pimatisiwin, 6*(2), 47.

Fleming, J., Ledogar, R, J. (2008*). Resilience, an Evolving Concept: A Review of Literature Relevant to Aboriginal Researc***h,** PMID: 20963184**,** PMCID: PMC2956753. *Published in final edited form as:*Pimatisiwin. 2008 Summer; 6(2): 7–23.

Fleming, J., & Ledogar, R, J. (2008). *Resilience, an Evolving Concept: A Review of Literature Relevant to Aboriginal Research*

France, P. (1969). *The Charter of the Land: Custom and Colonization in Fiji*. Published by Oxford University press, Melbourne, 1969

Ford, J,D., King, N., Galappaththi, (2020). *The Resilience of Indigenous Peoples to Environmental Change.* Priestley International Centre for Climate, University of Leeds, Leeds, UK. Published by Elsevier Inc.

Fua, S.J., Manu, S., Takapautolo, T., Taufe'ulungaki, A. (2007). S*ustainable Livelihood and Education in the Pacific*: Tonga Pilot Report, Institute of Education, USP

Geddes, W. R. (1945). *Deuba: A Study of a Fijian Village*. The Journal of the Polynesian Society Vol. 54, No. 3 (September, 1945), pp. i-v, vii, 1-52 (67 pages), Published By: The Polynesian Society

Gegeo, D. (1998). *Indigenous knowledge and empowerment*: rural development examined from within, The Contemporary Pacific Vol. 10, No. 2 (FALL 1998), pp. 289-315 (27 pages)

Published By: University of Hawai'i Press

Geraghty, P. (1983). *The History of the Fijian Languages*. Oceanic Linguistics Special Publications No. 19, The History of the Fijian Languages (1983), pp. i, iii-iv, vii-xxv, 1-483 (505 pages) Published By: University of Hawai'i Press

Gonzalo., Oviedo, Sally Jeanrenaud, Mercedes Otegui Gland, (2005). *Protecting Sacred Natural Sites of Indigenous and Traditional Peoples*: an IUCN Perspective Hammersley, M. (1992). *What's wrong with Ethnography.* London: Routledge.

Gilman & Lavieren, (2006). *Pacific Island Mangroves in a Changing Climate and Rising Sea*. UNEP Regional Seas Reports and Studies No. 179

Graham, L (2020). Indigenous Fijians in business: Some early efforts to draw Taukei into business, OPINION: Fiji Times, 5 September, 2021, 12:20 pm

Gudova, I. (2018). *CONCEPT OF "A CULTURAL IMPERIALISM" AND ITS MEDIA AND COMMUNICATION EMBODIMENT TODAY*, Ural Federal University, Russia. Abstract, JASOS-International E-Journal of Advances in Social Sciences, Vol. IV, Issue 10, April 2018

Hancock, B. (2002). *An Introduction to Qualitative Researc*h. Nottingham, UK: Trent Focus Group.

Halapua, W. (2003). *Sailing for Sustaibility: Epistemological underpinning of the hypo-modern world. Waves express the rhythm of the moana;* https://openaccess.wgtn.ac.nz › thesis › files

Harold, U. (1938). *"Glossary". Sailng Ship Rigs and Rigging (Second, 1958 ed.). Glasgow:* Brown, Son and Ferguson. p. 114.

Hocart, A. M. (1929). *Lau Islands, Fiji*. Bernice P. Bishop Museum Bulletin 62; Honolulu: The Museum, 1929

Hoffman, R (2013). *Respecting Aboriginal Knowing in the Academy*: AlterNative- An International Journal of Indigenous Peoples, 9(3):189-203DOI:, University of Northern British Columbia

Howard, Michael C. (1991). *Fiji: Race and Politics in an Island State*. UBC Press, 1991 - Electronic books - 452 pages

Howard, L., Bruce, L. (2014). *Qualitative Research Methods for the Social Sciences,* 8th Edition, California State University, Long Beach, Hunter College; ISBN-13:9780205809387

Itaukei Affairs Board, (2019). *Report.* Parliamentary Paper Number has been allocated to your publication titled, PP NO. 178 OF 2020 - iTaukei Trust Fund Board Annual Report 2019

Fiji Constitution of 2013 - *Preamble and Section 27 –30; the iTaukei Affairs Act of 1944; the iTaukei Lands Act of 1905; the iTaukei Land Trust Act of 1940; the iTaukei Development Fund Act of 1965; the iTau*kei Trust Fund Act of 2004; the Fisheries Act of 1941; the iTaukei Lands & Fisheries Commission; the iTaukei Lands Appeals Tribunal; and the iTaukei Institute of Language & Culture

Janif, S. Z., P. D. Nunn, P. Geraghty, W. Aalbersberg, F. R. Thomas, and M. Camailakeba. (2016). *Value of traditional oral narratives in building climate-change resilience: insights from rural communities in Fiji.*

Katz, (1999)., Ravuvu. (1987). *Tomlinson, (2002, 2004). Perpetual lament: Kava drinking, Christianity and sensations of historical decline in Fij;* The Journal of the Royal Anthropological Institute, Vol. 10,

No. 3 (Sep., 2004), pp. 653-673 (21 pages), Published By: Royal Anthropological Institute of Great Britain and Ireland

Kalanda, J, M., Ngongondo, C., Chipeta, L., Mpembeka, F. (2011). *Integrating indigenous knowledge with conventional science: Enhancing localised climate and weather forecasts in Nessa, Mulanje, Malawi.* Physics and Chemistry of the Earth, Parts A/B/C 36: 996 –1003

Kenchington, R. (1985). C*oral-reef ecosystems: a sustainable resource. Nature and Resources* XXI (2): 18 - 27.

Kaplan, M. (1995). *Neither Cargo nor Cult: Ritual Politics and the Colonial Imagination in Fiji*

Katz, R. (1993). *The Straight Path: A Story of Healing and Transformation in Fiji*. Originally published: September 20, 1993.

Kelly, J. D. (1991). *A Politics of Virtue: Hinduism, Sexuality and Counter colonial Discourse in Fiji*.

Kenchington, R. (1985). *Coral-reef ecosystems: a sustainable resource.* Nature and Resources XXI (2): 18 - 27.

Kestel, D. (2020). *Fiji National development plans 5-and 20-yea*r: Transforming Fiji. Ministry of Economy, Republic of Fiji, Suva. Fiji.

Kirch, P. V. (1997). *The Lapita Peoples: Ancestors of the Oceanic World*. ISBN: 978-1-577-18036-4 January 1997 Wiley-Blackwell 376 Pages

Kivunja, C. (2018). *Distinguishing between Theory, Theoretical Framework, and Conceptual Framework: A Systematic Review of Lessons from the Field*; International Journal of Higher Education 7(6):44, DOI:10.5430/ijhe.v7n6p44

Koloto, A. (2000). *Kakala as a Framework for Research.* (Personal Communication), University of Auckland, New Zealand

Koya, C.F. (2010). *In the Absence of Land, All we have is each other, Art, Culture and Climate Change in the Pacific, Global Movements*, Local Initiatives

Kroma, S. (1995). '*Popularizing science education in developing countries through indigenous knowledge'.* Indigenous Knowledge and Development Monitor. 3(3): 13–15.

Kwa, E.L. (2008). *Climate Change and Indigenous People in the South Pacific.* University of Papua New Guinea, Port Moresby

Lal, B V. (1992). *Broken Waves: A History of the Fiji Islands in the Twentieth Century.* University of Hawaii Press 24 page, ISBN-13: 9780824814182. Published: October 1992

Larry, K. (2019). Hawaiian language activist in his article '*The Hawaiian Language nearly died' led the charge in the 1970s in getting Hawaii's department of education to sanction Hawaiian language immersion schools.*

Lawson, S. (2004). *The military versus democracy in Fiji*. Place of Publication: Canberra, ACT, Publisher: ANU E Press,pages 132-147

Leedy, P., Ormrod, J. (2014). *The Usefulness of Qualitative and Quantitative Approaches and Methods in Researching Problem-Solving Ability in Science Education Curriculum*; Journal of Education and Practice, v7 n15 p91-100 2016

Linda T.S. (2012). *Decolonizing Methodologies*: Research and Indigenous Peoples Zed Books Ltd LONDON & NEW YORK University of Otago Press DUN EO IN. University of Otago Press, Level 1/398 Cumberland Street, Dunedin, New Zealand Fax 64 3 479 8385, email univcrsity.press@otago.ac.nz in 1999

Lichtman, M. (2013).*Qualitative research for the social sciences:* Focusing on the integral role of the researcher, Qualitative Research for the Social Sciences uses a conversational writing style that draws readers into the excitement of the research*;* SAGE publications, 2013.

Loomba, A, (1998). *Colonialism/Post Colonialism: The new critical idiom.* First edition published 1998 by Routledge Second edition published 2005 by Routledge 2 Park Square, Milton Park, Abingdon, Oxon, OX14 4RN Simultaneously published in the USA and Canada by Routledge 270 Madison Ave, New York, NY 10016 Routledge is an imprint of the Taylor & Francis Groups

Lochhaas, T. (2013). *Sail World Cruising: Choosing a chartplotter program for ActiveCaptain users.* Sailboat Australia

Mataitoga, S. (2009). *Conceptions of ESD from Ono i Lau*: Implications for Education.

Mayer, A. C. (1961). *Peasants of the Pacific: A Study of Fiji Indian Rural Society,* 1961.

Macnaught, T, J (1981). *The Fijian colonial experience : a study of the neotraditional order under British colonial rule prior to World War II*

Merculieff, I., Roderick, L. (1984). *Stop talking Indigenous Ways of Teaching and Learning and Difficult Dialogues in Higher Education.* University of Alaska Anchorage. Published by: University of Alaska Anchorage Thomas Case, Chancellor 3211 Providence Drive Anchorage, AK 99508

McLean, K. (2012). Land use, climate change adaptation and indigenous peoples. United Nations University, Darwin

McNamara K.E., Prasad, S.S. (2013). *Valuing Indigenous Knowledge for climate change adaptation planning in Fiji and Vanuatu,* United Nations University Guest Article, July.

Ministry of Strategic Planning, National Development Annual Plan 2014, p13

Mlambo, H, B.T., Hebinck, P. (1996). *Formal and informal knowledge networks in conservation forestry in Zimbabwe*. *Indigenous Knowledge and Development Monitor,* 4(3): 1-6.

Priestly,M,. Miller, K. (2012). E*ducational change in Scotland: Policy, Context and Biography* Pages 99-116 | Published online:

Moeke-Pickering, T. (2010). *Keeping our fire alive:* Towards decolonising research in the academic setting (PDF Download Available). Available from Decolonisation as a social change framework and its impact on the development of Indigenous-based curricula for Helping Professionals in mainstream Tertiary Education Organisations

Molidrau, V. N. (1978). *Pacific Cultural Sustainability.* A critical examination of initiative and possible advocacy programmes for itaukei studies in schools

Myles M. (1993). *Becoming a Leader. How to develop and release your unique gifts*. Publisher Whitaker House, Publication date: February 6, 2018; 256 pages

McLeod, S. (2020). Vygotsky's Sociocultural Theory of Cognitive Development. Simply Psychology
Nalomaca, I. (2017). *FHEC-Situational Analysis Report*

Maua-Hodges, T. (2000). *Stitching tivaevae: a Cook Islands research method*; Volume 15, Issue 2; https://doi.org/10.1177/1177180119836788

Nabobo- Baba, U., Koya, C.F., Teaero, T. (2010). *Education For Sustainable Development*. Volume 1 Continuity and Survival in the Pacific. School of Education, University of the South Pacific & Asia/Pacific Cultural Centre for UNESCO

Nabobo-Baba, U, (2005). *Vugalei: Voices and silences of what and how we know: Indigenous Fijian epistemology and implications for education*

Nabobo-Baba, U. (2006). *Knowing and Learning: an indigenous Fijian approach.* Institute of Pacifc Studies, University of the South Pacific, Suva

Nabobo-Baba, U. (2008). *Decolonising Framings in Pacific Research:* Indigenous Fijian Vanua Research Framework as an Organic Response, Alternative: An International Journal of Indigenous Peoples, Vol 4, No 2(pp.141 – 154)

Nabobo-Baba.U., Teaero, T., Koya, C.F. (2010). *Continuity and Survival in the Pacific*. School of Education, University of the South Pacific; Tokyo, Japan; Asia-Pacific Cultural Centr for UNESCO

Nainoca, W, U. (2011). *The influence of the Fijian way of life (bula vakavanua) on community-based marine conservation (CBMC) in Fiji, with a focus on social capital and traditional ecological knowledge (TEK)*: a thesis presented in fulfilment of the requirements for the degree of Doctor of Philosophy in Resource and Environmental Planning at Massey University, Palmerston North, New Zealand; Publisher; Massey University, URI http://hdl.handle.net/10179/2670

Naisele, E (2019). pers. comms interview. Qoma Island

Naisele, E (2019). *New Qoma Strategic Plan*

Naisilisili, S. (2011). I*luvatu: an exploratory study of Cu'u indigenous knowledge and its implications for Fijian education*. Unpublished PhD thesis, USP.

Nayacakalou, R. R. (1975). *Leadership in Fiji.* Publisher, Oxford University Press, 1975; Original from, the University of California.

Nakashima, D., Prott, L., Bridgewater, P. (2000) *Tapping into the World's Wisdom.* Monthly Information Magazine of the Unesco, No. 125, 11.

Nelleke B. (2016). '*Academic writing has specific conventions*. This guide provides clear and pragmatic steps in how to write a good academic text'. University of Cate Town

Norton, R. (1977). *Race and Politics in Fiji*. Place of Publication: St Lucia, Queensland, University of Queensland Press, Published - 1990

Nokise, F. (2009). *Theological Education in the Pacific, in the Pacific Islands at the beginning of the 21st Century*: Society, Culture, Religion, Ed, 91-106, Suva, PTC

Neal, J, M. (2017*). Exodus or exile: Hermeneutic shifts in a shifting Fijian Methodist Church*. Presented at "Lines in Sand: Borders Conflicts and Transitions," International Society of Religion, Literature and Culture, University of Glasgow, September 10, 2016.

Nelleke, B. (2016). *Guide to Academic Writing:* University of the Western Cape, Academia.edu-https://www.academia.edu

Nielsen, M., Robyn, L (2003). *Colonialism and Criminal Justice for Indigenous Peoples in Australia, Canada, New Zealand and the United States of America*.

Oppenneer, M. (2009). Cultural revitalization and the ontology of communicative spaces: Using ICTs for Indigenous cultural preservation:

Ofir, B. (2005). *Traditional methods of fishing in the Barotse floodplain. Methods include hand-sized baskets to catch small fish (A, D), spears (*B), and baskets to catch larger fish (C). https://doi.org/10.1371/journal.pone.0195808.g002 DOI:10.1371/journal.pone.0195808,Syracuse University

Pandey, G. (2013). The History of Prejudice: Race, caste and Difference in India and the United States. Cambridge University Press XV +243PP

Powell, R, B. (1968). *Canoes of the Pacific islands:* Third technical meeting on fisheries Koror, Palau trust territory of the pacific islands (June 3-11, government of the cook islands

Rokolekutu, P. (2020). *'Fijian identity*', Talanoa. and talkback show w/ Dr. Ponipate Rokolekutu ... June 21st (@9pm US time) about our Fijian Identity— Past, Present, & Future
.
Pacific Islands Climate Change Assistance Programme (PICCAP) & Fiji Country Team (2005) Climate Change - *The Fiji Islands Response, Fiji's First National Communication Under the Framework Convention on Climate Change*

Palmer, R. (2009). *The Great Councils of Chiefs*. iTaukei Affairs Board., Ministry of iTaukei Affairs, CHAPTER 120 AN ACT TO PROVIDE FOR THE REGULATION OF FIJIAN AFFAIRS 1 Ordinance No. 3 of 1944

Pörtner, H., Roberts, D., Tignor, D., Poloczanska, E (2022). The Role of Indigenous Knowledge and Local Knowledge in Understanding and Adapting to Climate Change; Cambridge University Press, Cambridge, UK and New York, NY, USA

Quain, B. (1948). *Fijian Village*, Chicago, IL: University of Chicago Press..

Raisele, K. (2021). *Building Resilience to COVID-19 through 'Solesolevaki'.* ACADEMIA Letters.

Ravuvu, A. (1993). *Climate Change, Ecosystems and People in the Pacific Island*s. In Ravuvu, A. (2003) The Fijian Way of Life. University of the South Pacific, Suva

Ravuvu, A. (1983). *Vaka I Taukei:* The Fijian Way of Life, Publisher: Institute of Pacific Studies of the University of the South Pacific.

Raygorodetsk, G. (2010). *Indigenous knowledge of a changing climate*. Article in Climatic Change · May 2010 DOI: 10.1007/s10584-010-9804-y, © Springer Science Business Media B.V. 2010

Richard J., Paul, B., Alex G. and Naisele, E. (2007). *Technical –Vocational Skills Development in Fiji, Skilling the Pacific –Fiji Report.*

Ronald, M.L. (1983). I*ndigenous and Neotraditional Knowledge System and their role in creating and Maintaining Ecological Sustainability*. College of Education, Florida State University, Florida

Regan, R (1984). *Presidential Campaign, Reagan-Bush '84, on October 17, 1983*. the Republican Party at its convention in Dallas, Texas

Rousmaniere, J., Smith, M. (2014). *The Annapolis Book of Seamanship*: Fourth Edition Hardcover – Illustrated

Routledge, D. (1985). *Matanitu: The Struggle for Power in Early Fiji.*: Institute of Pacific Studies, in association with the Fiji Centre Extension Services, University of the South Pacific, c1985
247 p.: ill.; 23 cm.

Williams, C., Galloway, K, M., Raygorodetsky, G, (2013). *Traditional knowledge & climate science toolkit* . Publication Date: 2013, Place of Publication: Darwin, Publisher: United Nations University

William F., Ryan, S. (1995). Culture, Spirituality and Economic Development, Published by the International Development Research Centre, PO Box 8500, Ottawa, ON, Canada K1G 3H9

Sandra, S. (1998). *Race and gender as psychological variables: Social and ethical issues.* Journal Article Database: APA PsycArticles

Smith, L.T. (2012). *Decolonizing Methodologies*: Research and Indigenous Peoples, Zed Books Ltd LONDON & NEW YORK University of Otago Press DUN EO IN

Smith, L, T. (1996,1998) *Kaupapa Māori Research- Some Kaupapa Māori principles,* Journal article, 52 pages.

Smidth, F,L. (2014). IPCC 2014 - Recent FLSmidth installations. Johannesburg: IPCC 2014.

Smith, G. (1992). 'Research Issues Related to Māori Education'. The Issue of Research and Māori RUME, monograph 9. University of Auckland.

Sahlins, M. D. (1962). *Moala: Culture and Nature on a Fijian Island*. University of Michigan Press, Publication date: January 1, 1962

Saivaise, T., Sooaemalelagi, F.L., Latu, F. and Schuster, T. (2011). *Climate Change Education in Samoa. Nadi*

Sherry, J**.** E. (2020). *Knot Tying Kit | Pro-Knot Best Rope Knot Cards, two practice cords and a carabiner Ring-bound*

Simon, D. (2007). *Coral Reef Benthic Monitoring Final Report / Workshop Report Kiribati: Adaptation Project;* University of British Columbia Vancouver, Canada November, 2007 Sleight, S. (2017). *The Complete Sailing Manual, 4th Edition Hardcover* – Illustrated.

Stephen, G. (2004), *A will to survive; indigenous essays on politics of culture, language and identity,*

*Stephen, A. (2006). The Consequences of Modernity for Indigenous Peoples: An International A*ppraisal - International Journal on Minority and Group Rights; Vol. 13, No. 4 (2006), pp. 315-340 (26 pages) Published By: Brill

Sage C. L., Morrissette, V. and Regallet, G. (1992). *Our Responsibility to the Seventh Generation*: Indigenous Peoples and Sustainable Development. International Institute for Sustainable Development, Winnipeg.

Smith, G., Honskins, T., Jones, A. (2012). *Kaupapa Māori theory: Indigenous transforming of education*; *Critical conversations in Kaupapa Maori* (2017): 70-81.

Tarabe, A and Naisilisili, S. (2007). *Decolonising Fiji: Reclaiming Indigenous Fijian Psychologies*; University of the South Pacific Suva, Fiji

Takirua, T.B., Teororo, T., Bureimoa, B. and Tebitaki, A. (2011). Kiribati Country Paper – *Climate Change Education Workshop*. Nadi

Tamasese, K., Peteru, C. and Waldegrave, C. (1997). *Ole ate ao afua – the new morning*: Samoan perspectives on mental health and culturally appropriate services. Research Report, New Zealand Health Council, Wellington

Tawake, A., Hoffmaister, J. (2009). *Adaptation in Locally Managed Marine Areas in Fiji*, State of the World 2009: Into a Warming World (Washington DC: World watch Institute, 2009), 90-91.

Thaman, K.H. (1992). *Towards culture-sensitive model of curriculum development for Pacific Island Countries.* Directions 13(1 – 11)

Teaiwa, T. (2011). Preparation for Deep Learning: A Reflection on 'Teaching' Pacific Studies in the Pacific; The Journal of Pacific History; Vol. 46, No. 2 (SEPTEMBER 2011), pp. 214-220 (7 pages

Thiong'o, N. (1986). *Decolonising the Mind; The Politics of Language in African literature* , Zimbabwe Publishing House, Harare

Fiji Great Council of Chiefs ready to convene", ABC Radio Australia, 5 August 2008

Thaman, K. H. (2008). *Nurturing Relationships: a Pacific perspective of teacher education for peace and sustainable development*. In International Review of Education. 54, (3&4) 459- 473.Retrieved on October 7, 2011 from www.springerlink.com/index/a8j3183608g055k5.pdf

Thaman, K. H. (2009). *Educational Ideas from Ocenia.* Institute of Education, University of the South Pacific, Suva, Fiji

Thaman, K.H. (1997). Kakala: *a Pacific concept of teaching and learning*. Keynote address, Australian College of Education Annual Conference, Cairns

Thaman, K.H. (2001). T*owards culturally inclusive teacher education with specific reference to Oceania*. International Education Journal. Vol 2, No 5, 2001 WCCE Commission 6 Special 2001 Congress Issue

Thaman, K.H. (2002). *Towards Cultural Democracy in Pacific Education*: An imperative for the 21st Century, In F. Pene (ed.), Tree of Opportunity: Re-Thinking Pacific Education, Suva: Institute of Education, University of the South Pacific, pp.21-29.

Thaman, K.H. (2006). *The Decade of Education for Sustainable Development*: Implications for Pacific Island Nations.

Thaman, K.H. (2012). *Reclaiming a place: teachers and the education of Indigenous peoples in Oceania*. (Personal Communication), MATSITI Conference, Adelaide

Thomas, N. (1986). *Planets around the Sun: Dynamics and Contradictions of the Fijian Matanitu*.

Thomas, N. (1990). *Sanitation and Seeing: The Creation of State Power in Early Colonial Fiji*, Comparative Studies in Society and History, Vol. 32, No. 1 (Jan., 1990), pp. 149-170 (22 pages),

Thompson, L. (1940). *Fijian Frontier*. Publisher: American Council, Institute of Pacific Relations, Publish Date: 1940

The Fiji Qualifications Framework: Source FHEC Annual report 2011

UN World Tourism Organisation (2020). The World Tourism Organisation (UNWTO is a specialised agency of the United Nations Sustainable Development Goals.

Varani-Norton, E. (2017). *iTaukei Indigenous Fijian masi as an education framework: Retaining and adapting tradition in epistemology and pedagogy for a globalised culture*: The International Education Journal: Comparative Perspectives Vol. 16, No. 2, 2017, pp. 131-145 http://openjournals.library.usyd.edu.au/index.php/IEJ/index

Veitayaki, J. (1990). 'Village-*level fishing in Fiji. A case of Qoma Island*'. A thesis submitted to the university of the South Pacific in partial fulfilment of the requirement for the degree of Master of Arts.

Vosalevu, A.P, Kuilamu, R.M., Rawalai, S., Tuisawau, A.S. and Rigamoto, M. (2011). *Climate Change in Secondary and TVET Education in Fiji. Nadi*

Vudiniabola, A.T. (2011). T*he Fijian Diploma of Nursing Curriculum:* An indigenous case study of a curriculum change. Unpublished PhD thesis, Massey University, New Zealand

Walker,S., Eketone, A., Gibbs, A. (2006). *An exploration of kaupapa Maori research, its principles, processes and applications*; Scholarly article; International Journal of Social Research Methodology 9(4):331-344; DOI:10.1080/13645570600916049

Wesley-Esquimaux, C. (2010). *Narrative as Lived Experience*. Articles, VOL. 5 NO. 2 (2010)

William, R. F. (1996). The Ann Arbor new, (March 7, 2010); establishing oral history projects in every American community."; Chairman of the National Endowment for the Humanities

Halapua, W. (2003). *Sailing for Sustaibility: Epistemological underpinning of the hypo-modern world. Waves express the rhythm of the moana;* https://openaccess.wgtn.ac.nz › thesis › files

Halapua, W. (ed)(2003) The Vanua in Tradition, Lotu and Militarism in Fiji, Institute of Applied Studies, Lautoka.

Halapua, W. (2008) Waves of God's Embrace: Sacred Perspectives from the Ocean. Canterbury Press, Norwich.

Woodley, E. (2002). *Local and Indigenous Knowledge as an Emergent Property of Complexity*: A Case Study in the Solomon. The Faculty of Graduate Studies of the University of Guelph

Wooldridge, A. (2021).*The Aristocracy of Talent: How Meritocracy Made the Modern World*, Skyhorse, 504 pp., *City Journal* publication of the Manhattan Institute for Policy Research (MI)

World Bank (1998). *Indigenous Knowledge for Developmen.*A Framework for Action. Knowledge and Learning Centre Africa Region, World Bank

Yanow, D., Schwartz-Shea, P. (2006). *Interpretation and Method: Empirical Research methods and the interpretive tur*n: Second Edition, Published Routledge, 2 park Square, New York, NY 10017, USA

References: Online links

Godchecker.com - Your Guide To The Gods
https://www.godchecker.com

(https://en.wikipedia.org/wiki/National_Qualifications_Framework)
https://www.trentu.ca/indigenousstudies/;
http://www.unifiji.ac.fj/diploma-in-itaukei-language-and-culture/
http://www.radioaustralia.net.au/international/radio/onairhighlights/fijian-references-replaced-with-i-taukei-by-interim-govt
[1] http://www.pucsp.br/icim/ingles/downloads/papers_2011/part_7/part_7_proc_34.pdf; 10.00 am,26.07.17
[1] www.sugarcanegrowerscouncilfiji.com/aboutus; 09.50 am, 26.07.17
[1] http://www.coordination-unit.com/uploads/5/2/6/2/52621955/aptc_sugar_brochure3.pdf 10.20 am, 26.07.17
http://www.pmc.aut.ac.nz/pacific-media-watch/2010-08-17/fiji-academic-casts-doubt-use-itaukei-indigenous-fijian
http://www.everyculture.com/Cr-Ga/Fiji.html
https://www.researchgate.net/publication/252507937_Keeping_our_fire_alive_Towards_decolonising_research_in_the_academic_setting [accessed Sep 6, 2017].
http://researchcommons.waikato.ac.nz/bitstream/10289/4148/3/thesis.pdf
http://www.fijitimes.com/story.aspx?id=414025
http://fijimarinas.com/traditional-sailing-canoes-lau-fiji/
https://tspace.library.utoronto.ca/bitstream/1807/24729/2/CoteMeek_Sheila_L_201006_PhD_thesis.pdf