



# Tomman Island Community Based Fisheries Management Plan 2025-2034

Climate Information Services for Resilient  
Development Planning in Vanuatu

Vanuatu Klaemet Infomesen blong redy, adapt  
mo protekt (VanKIRAP) Project

**SPREP Library – Cataloguing in Publication data**

Tomman Island Integrated Community Based Fisheries Management

Plan 2025-2034: Apia, Samoa : SPREP, 2025.

57 p. ; 29 cm.

ISBN: 978-982-04-1477-8 (print)

978-982-04-1478-5 (ecopy)

1. Fishery management – Planning – Vanuatu.

2. Fisheries – Economic aspects – Vanuatu.

3. Climatic changes – Information services – Vanuatu.

I. Pakoa, Kalo. II. Molitaviti, June Brian. III. Ham, Jayven.

IV. Matou, Moirah. V. Seuseu, Sunny Kamuta. VI. Climate

Information Services for Resilient Development Planning in

Vanuatu. VII. Vanuatu Klaemet Infomesen blong redy, adapt

mo protekt (VanKIRAP) Project. VIII. Pacific Regional Environment

Programme (SPREP). IX. Title.

333.95609595

Authors: Kalo Pakoa, June Brian Molitaviti, Jayven Ham, Moirah Matou and Sunny Kamuta Seuseu

Cover photo: Ni-Van Photography

Other photos: Unless otherwise acknowledged, all images were created by the authors and VanKIRAP Project

Designed by: [www.addiestudio.com](http://www.addiestudio.com)



PO Box 240  
Apia, Samoa  
T: +685 21929  
E: [sprep@sprep.org](mailto:sprep@sprep.org)  
W: [www.sprep.org](http://www.sprep.org)

Our vision:

**A resilient Pacific environment sustaining our livelihoods  
and natural heritage in harmony with our cultures.**

# Table of Contents

<b><u>ACKNOWLEDGEMENT.....</u></b>	<b>6</b>
LIST OF TABLES .....	7
<b><u>1.INTRODUCTION.....</u></b>	<b>8</b>
<b><u>2. VISION AND OBJECTIVES .....</u></b>	<b>10</b>
2.1 VISION .....	10
2.2 OBJECTIVES .....	10
2.3 DEVELOPMENT AND DESIGN OF THIS PLAN .....	11
2.4 AREA AFFECTED BY THIS PLAN.....	11
<b><u>3. FINANCING THE PLAN.....</u></b>	<b>12</b>
<b><u>4. TOMMAN ISLAND ENVIRONMENT, PEOPLE AND CULTURE.....</u></b>	<b>16</b>
4.1 FOREST AND AGRICULTURE RESOURCES.....	17
4.2 WATER RESOURCES AND SANITATION.....	18
4.3 MARINE RESOURCES.....	18
4.4 TRADITIONAL MANAGEMENT PRACTICES.....	21
4.5 OVERFISHED RESOURCES.....	21
4.6 CLIMATE CONDITIONS AND RAINFALL.....	22
<b><u>5. PROBLEMS AND THREATS.....</u></b>	<b>23</b>
<b><u>6. ECONOMIC ACTIVITY IN THE COASTAL ZONE.....</u></b>	<b>25</b>
6.1 FISHING AND FISH MARKETING.....	26
6.2 COPRA PRODUCTION.....	28
6.3 COCOA.....	28
6.4 CATTLE SALE (BEEF).....	29
6.5 KAVA.....	29

6.6 ROOT CROPS AND VEGETABLES.....	29
6.7 TOURISM OPPORTUNITY.....	30
6.8 COOPERATIVE AND TRADE.....	30
6.9 HANDICRAFT MAKING.....	30
6.10 TRANSPORT SERVICES.....	30
<b><u>7. COMMUNITY BASED FISHERIES MANAGEMENT PROPOSAL.....</u></b>	<b>31</b>
7.1 OVEREXPLOITATION OF REEF RESOURCES.....	32
7.2 IMPROVE FISHERIES DEVELOPMENT IN TOMMAN ISLAND.....	33
7.3 FISH MARKETING IMPROVEMENT AND VALUE ADDING OF FISH PRODUCTS.....	34
7.4 FISHERIES RESOURCES ASSESSMENT AND BASELINE SURVEYS.....	35
7.5 COMMUNITY FISH CATCH DATA COLLECTION (TAILS).....	36
7.6 CIGUATERA FISH POISONING MONITORING.....	37
7.7 OCEAN OBSERVATION MONITORING.....	38
7.8 TOMMAN ISLAND COMMUNITY CONSERVATION AREA DEVELOPMENT.....	39
7.9 COASTAL WILDLIFE CONSERVATION.....	41
7.10 ECOTOURISM DEVELOPMENT AND HANDICRAFT MAKING.....	42
7.11 DEVELOPMENT OF AN INFORMATION CENTRE.....	42
7.12 WATER AND SANITATION.....	43
<b><u>8. MANAGEMENT INSTITUTIONS.....</u></b>	<b>44</b>
8.1 COMMUNITY GOVERNANCE.....	44
8.2 AREA COUNCIL (SW AREA COUNCIL).....	45
8.3 TOMMAN ISLAND FISHERS ASSOCIATION.....	45
8.4 REVIEW AND AMENDMENT OF THE PLAN.....	46
<b><u>9. IMPLEMENTATION STRATEGY.....</u></b>	<b>46</b>
9.1 STEPS IN THE IMPLEMENTATION OF THE PLAN.....	46
9.2 COMMUNITY PRIORITY ACTIVITIES.....	48
9.3 PLAN DURATION.....	51
ANNEX 1: VANUATU FISHERIES REGULATION FOR MARINE RESOURCES.....	52
<b>ANNEX 2: MINIMUM SIZE LIMIT FOR SEA CUCUMBER IN VANUATU.....</b>	<b>54</b>
ANNEX 3: REEF FISH SIZE LIMIT REGULATION FOR TOMMAN ISLAND, MALEKULA (PROPOSED).....	55

ANNEX 4: RESTRICTED FISHING GEAR AND CLOSED AREA ..... 56

# Acknowledgement

This Community-Based Fisheries Integrated Management Plan is the product of extensive consultations with the community of Tomman Island, Southwest Malekula.

Formal acknowledgment is extended to the Chiefs and community of Tomman Island for their invaluable support and contributions throughout the development of this plan.

Gratitude is also expressed to the following entities for their essential roles:

- The Vanuatu Fisheries Department, as the lead government agency, for coordinating the development and finalization of this plan.
- The Vanuatu Meteorology and Geohazards Department (VMGD) and the Secretariat of the Pacific Regional Environment Programme (SPREP) for their management and coordination of the VanKIRAP project.
- The Green Climate Fund (GCF) for its financial support under the project "Climate Information Services for Resilient Development Planning in Vanuatu" (Vanuatu Klaemet Infomesen blong redy, adapt mo protect or Van-KIRAP). This funding, channeled through the Ministry of Climate Change, was instrumental in facilitating and securing the budget to support Community-Based Fisheries Management in Vanuatu.

# List of Tables

## Abbreviations

CTI NAP	Coral Triangle Initiative National Action Plan
DEPC	Department of Environment Protection and Conservation
VFD	Department of Fisheries
DoF	Department of Forestry
CBFM	Community based fisheries management
EACFM & CCA	Ecosystem approach to coastal fisheries management and climate change adaptation
EBM	Ecosystem based management
EMC Act	Environmental Management and Conservation Act (2003)
ICM	Integrated coastal management
IWRM	International Water Resources Management (SOPAC Project)
LMMA	Locally Marine Managed Area
MAQFF	Ministry of Agriculture, Quarantine, Forestry and Fisheries
MPA	Marine Protected Area
NACCC	National Advisory Committee on Climate Change
NAPA	National Adaptation Programme of Action
NGO	Non-Government Organization
NICMF	National Integrated Coastal Management Framework
SPC	Secretariat of the Pacific Communities
SPREP	Secretariat of the Pacific Regional Environment Programme
Tomman Island	Tomman Island means the area covering the island and the mainland and surrounding marine environment.
VanKIRAP	Vanuatu Klaemet Infomesen blong redy, adapt mo protekt project
VBRMA	Village Based Resource Management Area
VMGD	Vanuatu Meteorology and Geohazards Department

# 1. Introduction

Vanuatu is the world's most at-risk country for natural disasters according to UN University of World Risk Index (UNU-EHS 2015). It's location in the 'warm pool' of the South Pacific Convergence Zone (SPCZ) means its population is highly exposed to tropical cyclone activity. The country is highly exposed to natural disasters that affect the country including tropical cyclone, earthquakes, tsunamis, droughts, floods, volcanic eruptions, landslides, and coastal inundation. A total of 5, category 5 tropical cyclones have passed through the Vanuatu group since the 1970s which is the highest in the region putting the country at the high disaster risk. The weak economy, inadequate infrastructure, water and sanitation issues and lack of effective adaptation mechanism to disasters and coupled with climate changes present high vulnerability and susceptibility to even more damages during disasters.

Coastal communities of the Pacific islands region rely heavily on fisheries resources for their protein security and livelihood. In Vanuatu 80% of the population live in rural areas and agriculture and fisheries are the source of sustenance. Many coastal people who depend on fish for protein face climate shocks and stresses. Climate change will exacerbate non-climate pressures on fisheries resources such as overfishing, pollution and loss of habitat. Increasing temperatures, sea level rise and ocean acidification will affect the structure and productivity of marine and coastal ecosystems when all land-based resources are lost by natural disasters, fisheries resources become an important layback resource in maintaining healthy nutrition post disasters.

During the 2015 tropical cyclone Pam and the El-Nino draught fisheries become the centre of disaster relief and recovery. For example, the harvesting of beche-de-mer injected over 300 million into the local economy in affected communities. Examining the vulnerability of fishing communities can assist identify actions to ameliorate adverse the impact. The islands of Vanuatu are mountainous distributed in the six Provinces of Torba, Sanma, Penama, Malampa, Shefa and Tafea from North to South with narrow coastal plains which makes them vulnerable to flooding and landslide. Some Islands are geologically young such as the shepherds Island and surrounded by cliffs which experience continuous erosion and landslide.

The country's population is 319,137 as of 2021 national census and concentrated along the coastal environment that plays a vital role in the subsistence and commercial life of the Ni-Vanuatu people. Increased human activity in this coastal environment is placing greater pressure on sensitive areas such as beaches, coral reefs, seagrass and mangroves. The low-lying coastal areas of Vanuatu are particularly vulnerable to climate change consequences. Some of these climate related risks include the following:

- *By 2040, daily temperatures will increase from 1995 levels by 1.2°C;*

- *Sea level rise will continue and accelerate, so risks of coastal inundation will be high when combined with storm surges and high seas;*
- *Ocean acidification may degrade 80% of coral reefs within 20 years;*
- *Extreme temperatures will reach higher levels and become more frequent;*
- *Extreme weather events, including cyclones and storms, will increase in intensity but not necessarily in frequency; and*
- *Dry periods will last longer and extreme rainfall will be more frequent and intense, so Vanuatu will be susceptible to intensified erosion and flooding.*

The country's economy is based primarily on small-scale agriculture, which provides a living for about two thirds of the population (and is a particular source of income and livelihood for women). Fishing, offshore financial services, and tourism (with nearly 197,000 visitors in 2008), are other mainstays of the economy. Most of the population does not have access to a reliable supply of potable water, though 94.5% has access to 'improved' water sources, and deforestation exists as a major environmental challenge.

The main climate hazards for Vanuatu include tropical cyclones with high winds and wave energy, heavy rainfall resulting in flooding, extended periods without rain causing drought, rising sea levels threatening coastal environments and property, as well as sea temperature increase and ocean acidification impacting highly valuable coastal ecosystems and resources (including coral reefs, seagrass and fisheries).

The Tomman Island Community Based Integrated Fisheries Management Plan (CBIFMP) provides roadmap for improved management of coastal resources, to ensuring food security and livelihood growth is balanced with sound environmental management. The plan is part of the fisheries sector component of the nationwide initiative to improve resilience and adaptation of island communities to the changes brought about by climate change, global warming and ocean acidification. The activities required to achieve this goal are contributing to the national commitment to biodiversity and resource management within the area of Tomman Island and Weste Malekula in the Malampa Province.

The Climate Information Services for Resilient Development Planning in Vanuatu or Vanuatu Klaemet Infomesen blong redy, adapt mo protect (VanKIRAP) is a major project funded by the Green Climate Fund (GCF) to improve food security and livelihood of communities in Vanuatu by using climate information to prepare for and respond to marine heatwaves on coastal fisheries. The main activities to focus on in the coastal zone are:

- Community profile report for the two selected sites
- Community Based Integrated Fisheries Management plan development
- Setting up of coastal marine protected areas supporting
- FAD development and associated fisheries activities

- Coastal upland management to reduce run-offs
- Set-up an upland Conservation Area at Tomman Island and reforestation of useful forest trees.
- Setting up of the ocean observation monitoring system

The detail of the full VanKIRAP Project activities can be accessed: <https://www.pacificmet.net/portfolio/climate-information-services-resilient-development-planning-vanuatu-fp035-vankirap>

## 2. Vision and Objectives

### 2.1 Vision

The long-term vision of the Tomman Island CBIFM Plan is to:

- Encourage sustainable use of coastal resources to benefit the people now and in future.
- Assist community adapt to climate change through Island habitat restoration and protection of resources.
- Encourage management resource and better utilization from improved post-harvest and derive optimum economic return from the resources.
- Setting up Tomman Island Conservation Area, reforestation of valuable trees
- Develop capacity of community on improved skills and use of climate information to increase catch.

### 2.2 Objectives

The Tomman Island Community Based Fisheries Management plan promote and encourage ecologically sustainable utilization of marine resources and protection of coastal ecosystem, recovery of depleted resources and the whole island environment. The Plan provide roadmap for cooperation by community, fishers association, churches, the Fisheries Department and other stakeholders who are involved in management and conservation of Tomman Island coastal resources. The Plan is developed in-line with the National Sustainable Development Plan (NSDP) “the Peoples Plan” 2016-20130, Vanuatu National Integrated Coastal Management Framework, National Fisheries Sector Policy 2016-2030, National roadmap on coastal Fisheries and the Environmental Management Act, the main objectives are to:

- Encourage and promote community-based management in-line with existing government policies
- Sustainable harvest of marine resources and minimize damage on the environment.

- Increase economic return from fisheries resources through improved decision-making process.
- Promote secure food supply and income generation now and in future.
- Promotion of scientific knowledge as the basis for sound decision making.
- Promote cooperation between all parties in the management of coastal zone of Tomman Island area.
- Encourage the setting up of terrestrial and marine conservation area to conserve island's ecosystem.
- Identify priority actions for Van-KIRAP project implementation
- Highlight action areas where other projects can come in to assist the community.

## 2.3 Development and design of this plan.

The Tomman Island Community Based Fisheries Management Plan is developed in consultation with the community. Assessment surveys were conducted in 2020 and again 2024 to gather information on resources, traditional governance and religion, development and economic activities, environmental conditions and disasters affecting the community.

The community was given the opportunity to identify important issues and priority actions to address these issues in their respective communities. The identified issues were presented in tables which clearly states the issue, objective, proposed specific activities, responsible individuals, and outcome of the activities. The activities were left open with no achievement timeframe and budget estimate since it is a community plan and resource availability is always an issue. As a community plan, other projects and partners are welcome to support the implementation of the plan.

## 2.4 Area affected by this plan.

Tomman Island covers the island and the adjacent mainland which falls under the customary jurisdiction of the people of Tomman Island. The CBFM plan covers the whole area of the island and mainland and including the upland areas on the mainland to the island and surrounding marine area up to 3 miles provincial maritime limit and including coral reef, beaches, reef flat, reef slope, channels and drop offs and deep reefs with the maritime zone.

The mainland area is the boundary of the traditional tenure of the people of Tomman from Caroline Bay to the north to Melip Bay to the South and inland (Fig 2). Tomman is the only community in the area and the people affected by this plan. However, where fishing ground is shared with nearby communities, the plan provides an option for cooperation in the management of these shared areas.



Figure 1: Map of Tomman Area (Island and Mainland - Google map, January 2024).

### 3. Financing the Plan.

The cost of implementing the plan will be based on the budgeted activities of the respective Government agencies and projects. The Van-KIRAP Project is responsible for funding the initial start-up work including (a) Baseline assessment of resource use, (b) Management and development planning (c) Ocean observation information and (d) building alliances and integration of activities.

The Department of Fisheries will be in-charge of costs related to fisheries activities such as catch monitoring, fishing training, provision of fishing gears such as FAD and maybe. The Department of Environment Protection and Conservation will be responsible for the funding for the setting up of the conservation area while Forestry Department on the reforestation activities. Other government Departments such Water Department, Tourism and Women etc. likewise will oversee costs for Development activities within their jurisdictions for Tomman Island.

Already the disturbances of COVID and natural disasters experienced during the Van-KIRAP project period has affected implementation process resulting in non-implementation of some of the priority interventions. This plan can also be used to secure further funding from other donors and projects to support implementation of different components of the plan.

Table 1. Summary of Key Action Activities for the CBFM Plan for Tomman Island

Topic	Actions	Lead agencies	Time Frame	Budget
Integrated Coastal plan adoption, review	Adoption and implementation	Van-KIRAP, VFD, DEPC	2025	
	Annual report	VFD, DEPC		
	Review implementation	Van-KIRAP/VFD	2025 +	
<b>Strategic objectives: Sustainable coastal resource use</b>				
Protected area management and development	Identify MPA and CCA	VFD, DEPC	Open	
	Mapping of MPA and CCA	VFD, DEPC	Open	
	MPA and CCA Agreement signed	Community, VFD, DEPC	Open	
Marine and terrestrial resource assessment	Conduct marine BIORAP surveys	VFD/DEPC	Open	
	Conduct Terrestrial BIORAP surveys	DEPC/DoF	Open	
	Retrain Community Fish monitor	VFD	Open	
	Catch data collection through TAILS	Community	Open	
	Provide maintenance of Ocean Buoys	Tomman F/Asso	Open	
Coastal resources management and recovery of stocks	Train Fisheries Authorized Officer	VFD	Open	
	Fisheries AO enforce fisheries regulations	VFD	Open	
	Develop new measures to ban fished of bonefish and mud-crab and other threatened spp.	VFD	Open	
	Enforce penalty fines and community fines	VFD/Village Chief	Open	

	Awareness on good agriculture practices	DARD, DoF	Open	
Coastal wildlife conservation and enforcement of CCA	Ban on certain marine resources example green snail and trochus and turtles and napoleon wrasse and monitoring of recovery	VFD/NC	Open	
	Flying fox and birdlife monitoring	DEPC	Open	
Sustainable fisheries development and management	Develop Tomman Island community Fish Market Centre	DEPC	Open	
	Fishing technology training and FAD development	VFD/Projects	Open	
	Solar deep freezers for storage and preservation	VFD/Projects	Open	
	Training on fish handling	VFD	Open	
	Trial fishing on new fisheries – flying fish	VFD	Open	
Maritime Navigation aid and safety training	Install mooring for safe anchorage	VFD/ OMR/ Projects	Open	
	Training on boat handling and sea safety			
<b>Strategic Objective: Strengthen community organisation</b>				
	Strengthen traditional knowledge, practice and respect	Community		
	Formalize Chiefly governance of Tomman and register to ensure peace and harmony in the village	Community/ Malvatumauri		
Church teaching	Church to assist to promote conservation and management of resources and respect for the environment	SDA church,		

Water, Sanitation. Marine Pollution control	Develop good water supply system for Tomman Island using piping system	DEPC		
	Improve sanitation with flush toilets and water seal toilets	Water Department, Projects, Community		
	Implement national emergency plan for oil spills, waste management, recycling of wastewater, penalty for infringements	DEPC		
	Develop environmental damage mitigating	DEPC		
Good coordination of development committees	Chiefs to monitor work of development committees in carrying out their respective functions in the community	Chief and principal Chiefs		
Enforcement of Nakamal fines	Nakamal to penalise any village member for breaching community rules following custom protocols.	Community		
<b>Strategic Objectives: Building alliances and integration of activities</b>				
Education and awareness	Public education and awareness, erect sign boards, publicize Tomman Island community	VFD/DEPC		
Monitoring compliance and surveillance (MCS)	Appoint Fisheries Authorized officers Conduct fisheries monitoring, compliance and surveillance and enforcement in the community	VFD, Community Authorised officer		
Setup Tomman Island Fishers Association	Establish Tomman Island Fishers Association	VFD/ Cooperative		
Involve other government agencies	Work with Government, NGO and project partners on environment, agriculture,	DEPC, DARD, DoF, SW Area		

	livestock, forestry and Industry to develop respective sector activities.	Council, Livestock Dept.		
Collaborate with Tourism Dept	Work with Malampa tourism office to further develop tourism activities at Tomman Island	Tourism, VFD, Malampa Province		

## 4. Tomman Island Environment, People and Culture.

Tomman Island community is an offshore island located at Southwest Malekula, Malampa province. The Island is surrounded by narrow fringing reefs on the East, South and Western part of the island and extensive reef system is found to the north of the island and to the mainland. The narrow reefs around much of the island drop off to the deep ocean providing a good fishing ground for pelagic fishing activities for tuna and tuna like species. The island community also own a larger part of the adjacent mainland area between Melip Village and Caroline Bay and is used for planation farming of cash crops such as cocoa, kava, coconut, cattle and also gardening.

The nearest airstrip is at Wintua at Southwest Bay on the mainland with twice weekly flights and a few charter flights per week. Traveling to Southwest Bay is by banana boat at a cost of Vt6, 000 per trip. The island receive shipping services once weekly from Santo only and Port Vila but the Port Vila shipping services had stopped several years ago for some reasons and the communities in the area is facing a lot of challenges for shipping their produce to the Port Vila Market. Banana boat transport provides essential transport options to the mainland to access services such as schools, medical services, banking and other services from the Local Government station at Wintua and transport of produce to the market.

The main produce from Tomman Island are dried cocoa beans, dried copra, green kava and dried kava, dried bamboo, natagura, root crops and fruits such are orange and mandarin and fish. These products are shipped by boat to Labubu Jetty and transported to Lakatoto markets or to Litzslitz wharf for shipment to Port Vila market which can cost up to VT60, 000. Fish export to Port Vila market is transported by Boat to Malvakal, where it is transhipped to another boat to Sakao at Maskelyne Islands and transhipped to the interisland ship service to Port Vila market.

The people of Tomman Island are Melanesians from the small Nambas tribe of Malekula and they have been living on this island for ever since inhabitation of the Vanuatu islands.

There are two tribes of People on Malekula, the big nambas tribes on the Northwest Malekula and the small nambas tribe present in the rest of the island. The name “Nambas” is a tradition costume or “penis sheath” worn by men, one being larger for the big nambas tribe who are relatively bigger and taller people and the small nambas for the smaller size people. The old village of Tomman Island is located on the West of the island but flooding in the 1970s force the village to be relocated to the Northwest side of the island. Some settlement still remains on the West but most of resident have move the main village to take advantage of the community advantages for business, schools, medical services and access to safe passages. The old village is now being used as a custom village for tourist attraction. Some Tomman islanders moved to live on the mainland to be close to their plantations but wild pig damage on their garden forced them to return to live on the island.

The people of Tomman Island are natural sea people who are well known for possessing skills in fishing like all coastal people in Vanuatu. Tomman Island is a fishing village with a sheltered landing in front of the village where canoes and banana boats are based. The seas around the island is a fishing grounds for reef fish and the poult and tuna fishing grounds are at the north, west, South and southeast of the island.

The Coastal Zone of Tomman Island is a dynamic area and the CBIFM plan provides a consultative decision-making process for all players to come together to support resources and environment management and conservation, maximizing economic return and sustainable food security for future generation.

## 4.1 Forest and Agriculture resources.

Land resources include the land itself, forest trees that grow on the land, sand and rocks, rivers and agricultural crops. The increasing population and the growing demand for economic development are a reality of today. Coconut plantation, cocoa, cattle ranching and fish are the main cash crops for Tomman Island community. Copra is one of the main traditional cask crops but sale price for dried copra has fallen too low in recent years due to falling international market price resulting in low productions. The price of cocoa remain attractive and farmers in Tomman Island are harvesting their cocoa on the island and mainland and selling it at Lakatoro to a buyer who export dried cocoa beans. Labubu Metenesel Cocoa Estate is also exporting cocoa beans to Europe. Tomman Island also produce Kava roots for local consumption, and for local markets and for exports for fresh and dried products. Fresh kava is sold as green kava and fresh juice at the village market and at Lakatoro market and exported to Santo and port village for the fresh kava markets and for export as dried kava.

Cash crops on the island are cocoa and coconut and these are. Gardening on the island is for food security for crops such as banana, yam, taro, manioc, banana, vegetables and fruit trees. The surrounding forest on the island provides a source of building materials for community needs including bamboo and sago palm (Natagura) for thatched roof. Trees for canoe building are blue water and natavoa and forest logs for building are blue water for domestic use only. Because of limited forest resources on the island, commercial logging activity is not encouraged on Tomman Island.

## 4.2 Water resources and sanitation.

Tomman Island community depend on ground wells for their water source from open bit wells. Wells are dug close to the coast where water lens is shallower but water close to the beach is often contaminated by saltwater intrusion. Wells further inland are deeper and not exposed to salt intrusion and are used by the villagers at times when coastal wells become contaminated during cyclones or sometimes at high tides. There are no hand pump system or diesel-powered pump or solar pumps and water supply piping system. In addition, there are some rainwater tanks on the island for the community and private water tanks for drinking water. Pit toilet is the main toilet facility used on the Island with a few VIPs, water seal and a composting toilet for the school.

## 4.3 Marine resources.

The marine and fisheries resources of Tomman Island is comprised of typical resources reef fishes, lagoon fishes, shellfish, small pelagic fishes, crustaceans, coastal tuna and associated pelagic fishes, and deep bottom fishes. Crustaceans include mainly lobster (*Paulinus penicillate*) which is harvested for sale at the market in Vila and some land crab which is harvested for subsistence. Commercial gastropod include trochus and green snails but green snail shell has been overharvested in the past and the present of the species is unknown. Small pelagic fish include mullet (Mugilidae), picot (*Acanthurus sp*), flying fish (Exocoetidae sp), rainbow runner (*Elagatis bipinnuloa*) and trevally (Carangidae) which are important source of food security and as baitfish for tuna and poulet fishery. Large reef fishers such Napoleon wrasse and bumphead parrot fish are also present and are being caught in the past but have become rare today. Important fish and marine species of importance to the Tomman Island is presented in Table 2.

Large pelagic fish resources include tuna and tuna-like species including skipjack, yellowfin, wahoo, barracuda, mahi-mahi, and the deep bottom fishes including various poulet fishes, jobfish, amberjack, and grouper. Monitoring of fish catch and underwater resources assessments have not be undertaken in Tomman Island to date and recent resource information is unknown. The stock of deep bottom fish and offshore tuna resources are considered stable however catch data collection is essential to monitor their stock characteristic Recently a sea cucumber resource assessment was undertaken by Fisheries team and the updated information on stock and species composition is available with Fisheries Dept. The offshore resources of tuna and deep bottom fish fishing grounds are shared with the mainland communities of Melip, Caroline Bay and Batpang and even South West Bay.

Tomman islanders are natural fishers by tradition since history and such they fishers possess rich traditional knowledge of fishing activities. Fish and fishing are an integral part of life for the people as the primary source of protein security, livelihood and cultural

connectivity to the sea. Skills and knowledge of fishers include sea condition, wind direction, weather, Luna phases, seasonality and the behaviour of different fishes. They also possess knowledge of Fisheries have rich understanding of their fishing ground and they know where to go to catch certain fishes. Despite lack of government support and training to the fishers of Tomman Island since independence, local fishers use their local knowledge and a few new techniques to continue fishing.

Table 1: List of marine species of importance to Tomman Island.

Group	Bishlama Name	Trade Name	Scientific Name
Crustaceans	Krab Kokonas	Coconut crab	<i>Birgus latro</i>
Crustaceans	Lan crab (swamp)	Land crab	<i>Cardisoma spp</i>
Crustaceans	Lan crab (mangrove)	Land crab	<i>Cardisoma spp</i>
Crustaceans	Land crab (dry lan)	Dry Land crab	<i>Cardisoma spp</i>
Crustaceans	Lobsta	Lobster	<i>Panulurus spp</i>
Crustaceans	Nakato	Hermit crab	<i>Coebita spp</i>
Crustaceans	Green crab	Swift footed rock crab	<i>Grapsus spp</i>
Crustaceans	Solwota krab	Reef crab	<i>Carpilus spp</i>
Crustaceans	Sofmad krab	Mud crab	<i>Sucella serata</i>
Finfish	Black piko	Rabbitfish	<i>Acanthurus spp</i>
Finfish	Black tuna	unicorn	<i>Naso sp</i>
Finfish	Pocket knife	Surgeonfish	<i>Acanthurus sp</i>
Finfish	Blue fis	Parrotfish	<i>Clorunus spp</i>
Finfish	Brim	bream	<i>Abramis brama</i>
Finfish	Coral trout	Grouper	<i>Epinephelus spp</i>
Finfish	Deep sea loch	Grouper	<i>Epinephelus spp</i>
Finfish	Flaenfis	Flying fish	<i>Cypselurus naresii</i>
Finfish	Karong	Trevally	<i>Carangoides spp</i>
Finfish	Redmaot	Bream	<i>Luthrinus spp</i>
Finfish	Mahimahi/kingfish	Mahimahi	<i>Coryphaena hippurus</i>
Finfish	Mangru	Scad makerel	<i>Decapterus macarellus</i>

Finfish	Malet	Mullet	<i>Mugillidae</i>
Finfish	Mustasfis	goatfish	<i>Parupeneus spp</i>
Finfish	Renbo piko	rabbitfish	<i>Acanthurus lineatus</i>
Finfish	Redpulet	Snapper	<i>Sargocentron spp</i>
Finfish	RifFish	Asorted reef fish	<i>Reeffish species</i>
Finfish	Deep sea snapper	Snapper	<i>Lujanidae</i>
Finfish	Tuna like species	Tuna	<i>Thunnus albacares</i>
Finfish	Wahu	Wahoo	<i>Acanthocybium solanders</i>
Finfish	Wahu	Spanish mackerel	<i>Scomberomorini</i>
Finfish	Waet pule	Snapper	<i>Sargocentron spp</i>
Finfish	Red pule	Snapper	<i>Lutjanidae</i>
Finfish	Barakuda	Barracuda	<i>Sphyraena spp</i>
Mammal	Cowfish	Dugong	<i>Dugongidae</i>
Reptile	Total	Turtle	<i>Chelonia mydas</i>
Reptile	Total	Turtle	<i>Eretmochelis imbricata</i>
Shellfish	Nasisa	Nerita	<i>Nerita polita</i>
Shellfish	Natalae	Giant clam	<i>Tridacna spp</i>
Shellfish	Konshell	Cone shell	<i>Conus spp</i>
Cephalopods	Nawita	Octopus	<i>Octopus spp</i>
Cephalopods	Squid	Reef squid	<i>Sepioteuthis spp</i>
Shellfish	Pupusel	Triton shell	<i>Charonia tritonis</i>
Shellfish	Serowok	Telescopium	<i>Terebra</i>
Shellfish	Shellfish	Limpet	<i>Lottia sp</i>
Shellfish	Shellfish	Limpet	<i>Lottia sp</i>
Shellfish	shellfish	Tectus	<i>Tectus pyramis</i>
Shellfish	Bikeye	Turban snail	<i>Turbo spp</i>
Urchin	Urchin	Sea Urchin	<i>Heterocentrotus spp</i>

Shark	Shark	Shark	<i>Carcharhinidae/ sphyrnidae</i>
-------	-------	-------	-----------------------------------

## 4.4 Traditional management practices.

The community of Tomman Island still maintain their traditional knowledge and practices. The community still practice traditional system setting aside a marine area as a “tabu” as part of a funeral respect of the passing member of the community especially important community leader. The aim is mainly to accumulate resources for the last get together feast for the death after a year. After this last feast, the tabu area comes to an end and the area returns to an open access area. The practices while contribute to protect resource to some extent, it is not effective in supporting long term sustainability of resources on the island. Besides no other traditional marine resources management systems was reported to be practiced.

The traditional tabu system is enforced by the Traditional governance of the island from the Village Chief and the Nasara Chiefs and every member of the community. Any infringement of the tabu area is brought to the nakamal and penalized using traditional fine. Experience from the local population indicated that there is a huge gap between the fragmented traditional management practices and resource exploitation resulting in the deterioration of the marine resources.

Traditional navigation skills are used in fishing offshore in canoes and boats. Knowledge of wind, current and influences of tidal changes, seasons and moon phases are basic knowledge fishers know to be able to go fishing. However, nature always takes its own course and sometimes unbearable for fishers and travellers of Tomman Island but the closeness of islands helps with navigation and fishers hardly drift.

## 4.5 Overfished resources.

Out of all the impacts affecting the marine ecosystem, overfishing is the single most important activity contributing to the degradation of marine ecosystem. Tomman Island community rely on fish from surrounding reefs for their daily food needs for generations and the marketing of fish locally and to Port Vila market have contributed to overfishing of reef fishes. Harvesting of small juveniles’ fishes for sale and for local food security is a common occurrence. The challenge for controlling the harvest of juvenile fishes is the fact that there is no size limit regulation on all commercial edible reef fishes in Vanuatu and therefore difficult to regulate fishing of juvenile fishes.

Trochus and green snail are fished for its shell which are processed into buttons. Over the years these shellfishes have been overexploited leading to current ban on green snail and loss trochus of trochus shell processing industry. Giant clam is fished for subsistence, and the resource has been overfished. Coconut crab (*Birgus latro*) use to be plentiful at Tomman Island in the past taking advantage of the rock limestone habitat where a night hunting in

the past would fill a sag of copra as compared to 1 or 2 individual crabs nowadays. The larger reef fish species such as Humphead Parrotfish (*Bulbometopon muricatum*) and Maori Wrasse are under threat nationally from overfishing and their protection is encouraged.

## 4.6 Climate conditions and rainfall.

Vanuatu's climate has two distinct seasons: a warmer, wetter season from November to April and a slightly cooler, drier season from May to October. For Port Vila, mean monthly air temperatures ranged from around 23 to 27 °C during the period 1971–2000. Seasonal rainfall is strongly affected by the South Pacific Convergence Zone (SPCZ), while air temperatures are strongly connected with surrounding ocean temperatures [CSIRO, SPREP and VMGD 2023]. The proportion of severe tropical cyclones (winds greater than 17.5 m/s) has increased over recent decades in Vanuatu, consistent with expectations due to climate change. The severity (i.e. wind speed intensities) of TCs passing near Vanuatu has increased by ~15 % over the period 1996–2021 compared with 1971–1995 [8], due to an increase in greenhouse gases. In Vanuatu annual average sea surface temperatures (SST) range from about 25.5 °C to 28.5 °C from south to north.

For Vanuatu Central, SST ranges from 26.5 °C to 27.5 °C. Through the period 1982–2021 the SST has been warming in Vanuatu Central. While the number of marine heatwaves (MHWs) is around 25 per year on average, the total number and severity of MHW events has been increasing and this is evident across the region more generally, more detail of this is found in the Community Baseline report for Nalema and Tomman Island – (Pakoa et al 2024).

The summary of local change for Tomman, indicates a potential temperature increase of about +4.0 degC. Average rainfall will also increase by 45mm under a high change, high emission scenario. The average wind speed will increase up to 14% towards the end of the century (Figure 2).

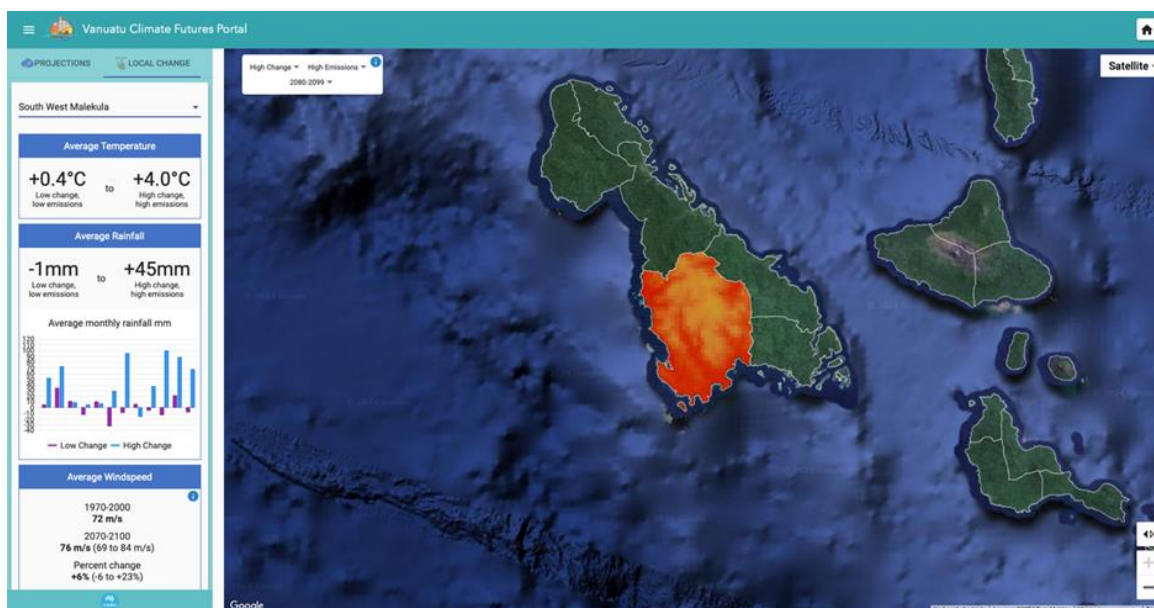


Figure 2: Local change for South Epi under high change, high emission. Source: VanKIRAP Vanuatu Climate Futures Portal <https://www.vanclimatefutures.gov.vu/>

## 5. Problems and Threats

This section outline priority coastal zone issues of Tomman Island and their underlying causes as summarized in the table 2:

Table 2: Problems and threats to fishing activities and causes.

Problems and threats	Underlying causes
Coral bleaching, damage to reefs, mass fish kill, ciguatera fish poisoning, coastal inundation damage to freshwater lens	<ul style="list-style-type: none"> <li>• Climate Change and ocean acidification</li> <li>• Sea level rise due to melting ice overtime and inundation of the coast and impact on freshwater lens</li> <li>• Global warming and sea surface warming causing warm sea surface and mass fish kill in shallow reef areas</li> <li>• Tropical cyclone damage on corals and coral reef system impacting fish habitat and increase in algal growth.</li> <li>• Increase in algal growth gave rise to increase ciguatera toxin and increase in fish poisoning</li> </ul>
	<ul style="list-style-type: none"> <li>• The reef system is limited reef habitat size resulting in natural limitation.</li> </ul>

<p>Overfishing of reef fish and invertebrate resources is the main coral ecosystem impact</p>	<ul style="list-style-type: none"> <li>• Increase fishing activities to feed growing population coupled with uncontrolled destructive fishing gear.</li> <li>• Use of destructive fishing gears such as gillnets, fishing hooks, night fishing, fish poisoning,</li> <li>• Commercial fishing of fish and lobster for sale locally and export to Port Vila</li> <li>• Commercial fishing and export of trochus, green snail and sea cucumber</li> <li>• High fishing pressure on reef fishers for daily subsistence needs and livelihood.</li> <li>• Lack of development of alternative fishing activities such FAD fishing offshore for tuna and poulet</li> <li>• Lack of management measures on seasonal closure, size limit, quota limit on catches and night spear fishing and education about resources</li> <li>• Inadequate legislation on minimum sizes of reef fish result in unsustainable fishing of smaller and young fish</li> </ul>
<p>Wastage of fish caught from lack of preservation and storage facility and loss of market value</p>	<ul style="list-style-type: none"> <li>• Lack of preservation facility</li> <li>• Lack of cold storage facility for storage of fish with solar freezers</li> <li>• Fisheries association is not fully functioning</li> <li>• Lack of a fish handling skills and market</li> </ul>
<p>Ineffective community Tabu system and no marine protected area</p>	<ul style="list-style-type: none"> <li>• Temporary Taby area closure is ineffective to ensure sustainability</li> <li>• Lack of awareness about effective Marine protected area system and</li> <li>• Co -management arrangement</li> <li>• Temporary fishing closure is not working to ensure sustainability of resources</li> </ul>
<p>Lack of FAD to improve fishing and new fishing techniques</p>	<ul style="list-style-type: none"> <li>• Fishers Association is not fully established</li> <li>• Lack training fishers on fishing skills and fish processing and value adding</li> <li>• Lack of FAD deployment at Tomman Island</li> </ul>
<p>Limited access to the marketing</p>	<ul style="list-style-type: none"> <li>• Fish export to Port Vila Market is costly</li> <li>• Inadequate fish storage infrastructure in place</li> </ul>

	<ul style="list-style-type: none"> <li>• No regular market access to Port Vila market</li> <li>• High fuel price</li> </ul>
Lack of catch data collection and monitoring of fish production	<ul style="list-style-type: none"> <li>• No training to collect fish catch data</li> <li>• Fish monitor established but yet to fully function</li> <li>• Boats are not registered and licensed</li> <li>• Canoes are unregistered</li> <li>• No education and awareness of importance of data</li> </ul>
Cash crop production affected by tropical cyclone and low market price	<ul style="list-style-type: none"> <li>• Low copra price has affected production and loss of income option</li> <li>• Cocoa price improved by cyclone damage on cocoa crops</li> <li>• Kava production and marketing affected by lack of reliable transport to the market.</li> <li>• Cattle quality has dropped due to poor pasture and fencing damage affected production and sale</li> <li>• Handicraft production is happening but need to be improved as a source of income</li> <li>• Tourism development of the custom village but need to be improved</li> </ul>
Awareness and education	<ul style="list-style-type: none"> <li>• Not enough awareness to fisheries management and conservation as a whole.</li> <li>• No enough education for schools in marine resource management</li> </ul>
Direct water source from wells is at risk of contamination and salt intrusion	<ul style="list-style-type: none"> <li>• Water source from underground wells.</li> <li>• Quality often affected by wave surges and during cyclones rendering it unsafe for drinking.</li> </ul>
Lack of training on sustainable farming on the island	<ul style="list-style-type: none"> <li>• Training and awareness on sustainable farming on the island</li> <li>• Not awareness about farming in upland areas.</li> <li>• Control of pig damage on the mainland to allow development of market farming on the mainland</li> </ul>
Native forest on the island is at risk of being lost by farming and need to be protected	<ul style="list-style-type: none"> <li>• Need for awareness on setting up of community conservation area on the island and mainland</li> <li>• Lack of biological baseline assessment of forest resources</li> <li>• Need tree planting for the source of building materials</li> <li>• Protection of bamboo on the island for housing material</li> </ul>

Few educated members of the community	<ul style="list-style-type: none"> <li>• Very few members of the community enters tertiary education and limited influence of educated elite on the development activities on the island community.</li> </ul>
---------------------------------------	--

## 6. Economic Activity in the Coastal Zone.

Tomman Island community is blessed with all the economic activity many rural communities in Vanuatu do not have. Copra, cocoa, fish, cattle, kava and root crops are all the main livelihood opportunities available to the people of Tomman Island.

### 6.1 Fishing and fish marketing.

Fisheries development started in Southwest Malekula since after independence during the Village Fisheries Development Program of the Fisheries Department. The main centre of fisheries was at Lawa in Southwest Bay where fishers sold their fish and obtain ice and fuel supply. A small fishing vessel goes around to collect fish and ship it to the government Fish markets in Port Vila (Natai Fish Market) and Santo fish market in Santo. Fishing for poulet and Tuna is done by small outboard motorboats made of timber and aluminium and powered by 15hp and 25hp and 30hp engines. The wooden boats Hartley design from Fisheries Boat Yard) and aluminium boats (from private companies). The use of fibreglass boats came in later in the 1990s and local fishers like it for its lightness, durability and easy to maintain. A few fishers from the island have attended fisheries training in those days and techniques of drop line fishing for poulet learned continue to be used today. Reef fish was not targeted at that time so there are abundant reef fishes.

In the 1990s when the VFDP program ended and the fisheries Satellite centres closed due to high cost of maintenance, production of poulet dropped significantly and reef fish become important in the market. Tomman Island experience this same development. Today there are 8 active boats in Tomman Is, 4 are fibreglass fishing boats which are registered and licensed by Fisheries Department. Fishing techniques used including deep bottom long Line, midwater long line using fishing reels for poulet fishes and trolling on the surface for pelagic fishes. Gill netting and spearfishing and hand lining is used for shallow water reef fishes such as mullet, trevally and other reef species.



Figure 3: Middlemen fish buyer packing fish in for export to Port Vila Market (Photo. K M Pakoa)

Offshore fishing beyond the reef is encouraged to divert fishing efforts from inshore areas but is expensive. Fisheries have requested support from Fisheries for Fish aggregating devices to bring fish together to improve catchability. The diversity of marine species that are of importance to food security and livelihood needs in Tomman Island is presented in Table 3.

There are no community run fish market in Tomman Is but there are several middlemen fish buyers who purchased fish from fishers for export to Vila. These middlemen own eight (8) private owned deep freezers on the Island. These freezer owners' buys fish for shipping to Port Vila. The buying price of fish in the village in Tomman Island is between VT350 to VT400 kilo for reef fish to Poulet and Tuna and the selling price in Vila is from VT1, 200 for reef fish to VT1,500 per kilo for poulet which is a good price. With this selling price in Vila, the middlemen still make his profit after the freight and cost of fish in the island. Transporting the fish to Port Vila is cheaper than at the Lakatoro fish market because of the high cost of over VT24,000 charter by boat and to Sakao, Maskelynes will coast VT10 000. There is a middlemen buyer in the village who buys fish from fishers aggregate and export it to Port Vila market at the esky sale market at Manpless area. Shipment is made every week and because interisland vessels services to Vila at Southwest Malekula, fish is transported by Boat to Malvakal and transhipped to Sakao in Maskelynes when it is transhipped to MV Big Sister to Port Vila. The Eskys are return to the village after the sale.

Table 3: Selling prices of fish from Tomman Island (from Fishers)

English Name	common	Scientific Name	Market price (Vatu)			
			Village price	buying	Port selling price	Vila

Tuna like species	<i>Thunnus albacares</i>	400	1500
Red poulet	<i>Sargocentron spp</i>	400	1500
White poulet	<i>Sargocentron spp</i>	400	1500
Bream like species	<i>Abramis brama</i>	400	1500
Deep bottom grouper	<i>Epinephelus spp</i>	400	1000
Mix deep bottom fish		400	1500
Wahoo	<i>Acanthocybium solandri</i>	400	1200
Mahimahi	<i>Coryphaena hippurus</i>	400	1200
Reef Fish		350	1000
Rainbow runner	<i>Elagatis bipinnuloa</i>	400	1200
Coral Trout	<i>Epinephelus spp</i>	350	1000
Black tuna	<i>Acanthuridae sp</i>	350	1000

## 6.2 Copra production.

Copra is Vanuatu's oldest commodity since the late 1800s and up to the 1930s to the 1970s the export production then was in the range of 30 to 50 thousand tonnes of copra per annum. After this period production went on the decline as coconut plantation owners left the country leading up to independence. Departure of larger plantation owners with their resources left the new Governments with far greater challenge to stabilise the industry and drop in the world market price during the rise of oil plan production. Recent drop the buying price of copra to between VUV 79.98 and VUV 148.54 per kilogram or VUV 79,000 – VUV 148,000 per tonne or equivalent to 10 to 15 bags which is not worth it for farmers. Copra is important in Tomman Island but the low market price locally made it less attractive for farmers and need to be improved by Government to provide income option for communities. Economic diversity is important to relive pressure on fishing. Coconut trees on the Island are healthy and free of any diseases and pests but the community is aware of the Coconut rhinoceros battle pest and are concern of the pest although this is present only on Efate Island.



Figure 4: Coconut plantation at Tomman Island.

## 6.3 Cocoa

Cocoa is an important cash crop in Vanuatu; it is often integrated with coconut and Malekula Island is the country's main producer of cocoa bean. Tomman Island is also a producer of cocoa bean with farms on the island and mainland. There are two main companies that export cocoa bean to overseas market mainly in France, Germany and USA. Cocoa price had dropped in the last few years but in 2023 the price increase following low production in the African producing countries. The current price range for cocoa bean in Vanuatu in 2024 is between 611.08 and 1014.69 per kilogram in Port Vila and Luganville. However, Tomman Island is not producing beans this year due to damages caused by recent cyclone.

## 6.4 Cattle sale (beef).

Cattle grazing is often Integrated with Coconut plantation which is the feature of the two industry and is still in practice today. Tomman Island use to have few cattle on the island but occasional damages to garden, all domesticated animals including cattle, pigs and goat were removed from the island sometimes in the 1990s and are not to be brought back to the island. Today these domestic livestock are only farmed on the mainland. This action turn out to be the best decision made which have ensured food security for the whole community.

The community's cattle ranch is on the mainland with over 100 heads. In the past they use to sell life cattle but pasture quality from overgrowth had reduced cattle and cyclone disaster such as recent cyclone had damaged the fencing leaving our cattle to roan outside. This is typical of smallholder cattle farms in the country which are semi-commercial based on local breeds, less capital intensive, poor pasture, no veterinary checks and often overstocking. The sale of cattle is still happening for the local market although there is a need for pasture improvement. Sale of cattle on the island is by kilo of meat to a butchery market at Lawa in Southwest Bay. The retail price of beef in Vanuatu is range between US\$8.26 and US\$12.15

per kilogram and wholesale price at US\$5.78 and US\$8.50 per kilogram. The equivalent retail price in Vatu is VUV980.83 and 144.40 per kilogram of beef.

## 6.5 Kava.

Tomman island farmers also produce kava and is sold at the village market especially juice, at Lakatoro market (roots) and exported to Port Vila from Litzlitz wharf. There are over 20 varieties of Noble Kava grown in Vanuatu and the variety grown in Malekula is called Silese. West Malekula is well-known for production of Kava to Port Vila Market. Kava is sold as juice and sold in cups or bottle, green or fresh kava in kilo and dried chips and powder. The price of green kava use to rise slowly since the 1990s to around 200 to 300 vatu per kilogram of green kava. Shortage of kava experienced after cyclone pam resulted in elevated price in Port Vila up to 1000 vt perkilo price. Kava price in Port Vila is dropping again at VUV 500 and VUV 700.

## 6.6 Root crops and vegetables.

Root crops of Tomman include manioc, kumala, fujian taro and yam and fruit trees such as banana, breadfruit, madarine, mango, coconut, navele and nadao. Tomman Island is a limestone island, but the soil is very rich and dis used for farming. The soil on the island and mainland is rich for farming of agriculture root crops such as taro, yam and kumala, banana, cabbages and watermelon and fruit trees. Crop production on the island is mainly for food security but production on the mainland has potential for marketing, but wild pig disaster is a disadvantage at the moment. Root crops and fruits and nuts are sold individually or in bundles or heaps or in baskets in Lakatoro market and in Port Vila market or as cooked food.

## 6.7 Tourism opportunity.

Tourism is an untapped opportunity in rural area because necessary infrastructure is underdeveloped. Southwest Area Council is a remote area with no road connection and the only transport access are by sea and interisland plane. Malampa province has been trying to trial out cruise ship visit to Malekula including Southwest Bay. Tomman Island community was included for the display of their traditional items including a custom village tour visit on the island. Turning tourism into an income activity require many preparations of the marine and terrestrial environment, guest houses and associated trainings to make it happen.

## 6.8 Cooperative and Trade.

There is no cooperative activity in Tomman and the community rely on the services of small private owned retail stores. Likewise, the organisation of fish marketing business is private activity of individual interest mainly fishermen and there is potential of cooperative development support for consumer goods and or fisheries cooperative in future. Trading activities involved copra, cocoa, fish. Kava, root crops and bamboo. Although nowadays copra trading had stopped, the trees are still producing despite some damages by recent cyclone and there is still potential for re-production of copra if the price improve again.

## 6.9 Handicraft making.

The people of small islands have special skills in handicraft making as part of life. Women of Tomman produced mats, baskets, fan and necklace from pandanus and coconut leaves and nuts of local trees. The main handicrafts for the women of Tomman are mats which are exported to Vila and Santo for sale. Women would need training to improve their craft: mats and fans and baskets should tourism be developed, handicraft making of souvenirs need to become more organised and there are materials available to do this including pandanus, wood, nuts, stones and seashells, stone, and coconut husk are common local materials available. Often fish bones are used in some small handicrafts but is rare nowadays.

## 6.10 Transport services.

Tomman community's main mode of transport is by banana boat to Wintua for government services, medical services and to schools at Wintua, Caroline Bay and Melip and to Lambubu to market their produce at Lakatoro and to Malvakal to tranship their fish to Port Vila market. The enforcement of sea safety regulations, licensing of small boat transport services and fishing boat operators, and associated training of operators have all contributed to the improvement of small boat services. The four licensed fishing boats in Tomman also provide passenger services. The cost of boat transport is as follows:

Tomman – Labubu return:	48,000 VT
Tomman - South West Bay:	6,000 VT
Tomman – Malvakal:	4,000 VT
Tomman – Sakau:	8,000 VT
Tomman – Caroline Bay:	300 VT
Tomman – Melip:	300 VT

Boat is very important to the community in helped improved travel and movement of produce to the markets, boosting economic activity as a whole. Additional income from transport services for licensed fishing boats is helping to supplement income from fishing for these boat operators.

# 7. Community Based Fisheries Management proposal.

This section outlines the proposals for the management and development actions of coastal marine environment and fisheries and the upland livelihood activities in Tomman to achieve sustainable marine resource use and habitat protection and recovery.

Activities proposed are targeted at ensuring sustainable food security and livelihood needs through preservation of habitat, measures to control people's activities to preventing destructive activities for the people in Tomman and are used as gateway to get community into resources management and conservation. The issues and constraints for Tomman coastal zone are:

- a) *Overharvesting of resources,*
- b) *Lack of resource monitoring,*
- c) *Marine protected area management,*
- d) *Terrestrial forest and habitat protection,*
- d) *Loss of species from overfishing,*
- e) *Coastal wildlife conservation,*
- f) *Fisheries livelihood development,*
- g) *Secure other livelihood activities*
- h) *Improve fish marketing network,*
- i) *Development of tourism and handicraft making,*
- j) *Collection of fisheries catch data*
- k) *Organise to bring in trainings to improve skill levels.*
- l) *Improve copra price and production*
- m) *Improve cattle production*
- n) *Improve cocoa plantations and production*

## 7.1 Overexploitation of reef resources.

Resource overexploitation is the biggest cause of resource depletion and imbalance in the marine ecosystem. Growing population and increasing demand for food and income will continue to increase pressure on resources and it is important that actions are taken now to lower the rate of resources depletion. The main actions to address resource overexploitation are:

- Identify and setup the Tomman Island community MPA
- Introduce total ban on fishing at night with spear gun and torchlight.
- Introduce minimum size limit for all commercial reef fish species in Tomman Island.
- Identify fish spawning aggregation sites introduce seasonal closure bon fishing of the species in the area.
- Introduce ban on harvest of coconut crab on Tomman Island
- Introduce ban on Land crab harvest during breeding season.

- Ban use of small gillnet mesh size as per regulation

Table 4:" Priority actions for reef resource overexploitation.

Activity and Issue	What needs to be done/ action	Responsibility
Catching, buying and selling of small size reef fishes	<p>Stop catching, buying and selling of small size fishes.</p> <p>Collect information on the size of reef fish to understand size of fish being caught and species.</p> <p>Develop minimum size limit and enforce it at community level</p>	Community with support from VFD
Absent of minimum harvest size limits for reef fishes	<p>Introduce new size limits for all commercially important reef fish species for Tomman Island from available information.</p> <p>Educate community about the new fish sizes</p> <p>Enforcement of new size limit regulation</p> <p>Voluntary enforce community minimum size limit as in Annex 2.</p>	Community, With VFD and project partners
Continue harvest of threatened fishers and invertebrates species	<p>Stop harvesting, buying and selling of Green snail, trochus, Napoleon wrasse and Humphead parrotfish in Tomman Island and mainland to allow recovery, coconut crab and land crab.</p>	Community, Fisheries Association
Sea cucumber resource stock is depleted due to continue harvest	<p>Close harvest of sea cucumber for 10 years in Tomman Island reef area to allow recovery of all species.</p> <p>Request VFD to re-enfore moratoria on BDM fishery for minimum of 10 years to allow full recovery.</p>	Community with advice by VFD
Control of harmful fishing gears and unsustainable fishing practices	<p>Stop night spearfishing in Tomman Island area.</p> <p>Request VFD to enforce ban on night fishing in the country</p>	Community and VFD

	Control number of spear gun in Tomman Island Enforce existing fisheries regulation in Tomman Island area	
--	---	--

## 7.2 Improve Fisheries Development in Tomman Island.

Reef fisheries are already under pressure and diversification of fishing effort is important to relief pressure and focus on fisheries that are still in abundance. Improvement of fishing technology is key. This means improving existing traditional practices or use new techniques to fish further away from shore or in deeper waters. Offshore pelagic resources and deep bottom fish resources and small pelagic fish are abundant resources available to supplement reef resources. The main activities to address are:

- Development of new FAD design and deployment
- Introduce new fishing technology for large and small pelagic through training
- Introduce new fishing techniques for deep bottom fish
- Setup fishing gear shop in the island to support fishers
- Provide training on FAD development, maintenance and replacement
- Develop revenue activities to sustain FAD program at national level

Table 5: Fish marketing improvement and value adding of fish products.

Activity	What needs to be done	Responsibility
FAD development	Training on FAD construction and deploy, Training on maintenance, Complete FAD logsheet, Conduct M& E on FAD after deploying	VFD, Van-KIRAP, other projects
Fishing technology	Training of trainers, Training of beginners	VFD, Van-KIRAP, other partners
Fishing gear availability	Set up gear shop at cooperative	VFD, Van-KIRAP, other partners

Training on new fishing methods for small pelagic fishes	Training for canoe fishers targeting small pelagic fishes	VFD, Van-KIRAP, other partners
--	---	--------------------------------

## 7.3 Fish marketing improvement and value adding of fish products.

Tomman Island community have established Fisheries committee, but they are not organized and are not registered with VFD. Fisheries Committee members are working together but they need Government support to properly setup and organised to develop their activity. The first activity is to set up cold storage facility through VFD support and go through training to run the facility. The main activities to address resource overexploitation are:

- Strengthening Tomman Island fishers' association with fishing training and income generation and savings
- Installation of two more solar deep freezers
- Coordinated export of fish to Port Vila market
- Training on deep freezer maintenance
- Improve fish handline techniques
- Develop fish value adding techniques
- Cooperative business management
- Integrate with area council and provincial corporate plan

Table 6: Fish market improvement and product value adding in Tomman island.

Activity or issues	What needs to be done	Responsibility
Tomman fishers' association is not effective	Organise training in fishing skills on OBM maintenance and fish handling	VFD Van-KIRAP, other partners
No fish storage facility	VFD to provide first solar deep freezers to association Training on basic deep freezer use and maintenance, Monitor use of freezers	VFD Van-KIRAP, other partners

No training in fish handling and value adding	Training of men and women and youth on fish handling, identification, deboning, fillet and vacuum packed, raw fish preparation, trial on sun dried fish and Smoked fish and cooking and quality	VFD Van-KIRAP, other partners
No training on business management	Run bookkeeping and financial management training for Association members and women's group members.	Coop Dept.
Lack of shipping services and lack of market access	Negotiate with shipping services and better organise fish export to Port Vila markets through the Cooperative Department	VFD Van-KIRAP, other partners

## 7.4 Fisheries resources assessment and baseline surveys.

Assessment of reef fishery resources has never been conducted in Tomman Island and mainland and conducting such assessment assess is important to understand the present status and health of reef system, coral reef health and resources and habitat system. The main activities to address resources assessment are:

- Assessment of diversity of fish and invertebrate species and establish baseline information.
- Monitoring of coral diversity and heal condition of the reef
- Monitoring of crown of thorns and other indicator species
- Monitor sea surface quality, temperature, wave condition and ocean.

Table 7: Priority activities for reef resource assessment and monitoring.

Activity and issues	What needs to be done/actions	Responsibility
Lack of Baseline information of reef fish resources and invertebrate resources	Conduct underwater resource surveys for reef fish and invertebrate resources and report on diversity and abundance of species.  Conduct analysis of fishery catch data to understand fishing pressure and changes in fishing pattern.	Community and VFD

Monitoring of the seawater temperature and wave condition	Set up Océan Observation Monitoring system and record wave and temperature information  Provide safety and security of the ocean buoy instrument	VFD, Van-KIRAP and community
Reporting the results and outcome of the assessments to the community	Prepare baseline report and présent it to the community.	VFD and Community
Capacity building of community to monitor their reef resources	Identify and train a member of the community to oversee resources assessment and knowledge of indicators.	VFD and community

## 7.5 Community fish catch data collection (TAILS).

Fisheries catch data collection is critical for assessment of production trend, stock health indicators and climate change impact on resources and fish catchability. For many years fish production information for Tomman Island is not known and it is important this information is collected to understand the resources and make management decisions. The main activities to address fish catch data collection are:

- Registration of boats and canoes and skippers and owners
- Training of electronic catch reporting and setup fishery data collection using TAILS
- Training on Fish ID, size measure and pricing
- Reporting of TAILS software data collection results into posters
- Collect fish market log sheet recording
- Document local fish ID in the local dialect

Table 8: Priority activities for catch data collection and electronic recording.

Activity and issues	What needs to be done- actions	Responsibility
Registration of fishing boats	Register all boats and keep record of canoe and spear gun	VFD

Purchase of Tablets for data collection	Purchase two tablets for use in Tomman for recording data on TAIL	VFD And community
Training of monitors on catch data collection using TAIL	Training on fish identification, size measurement and pricing, recording on logsheet and use of TAIL application	VFD, Van-KIRAP, other partners
Reporting of data collection	Analysis of data and reporting with recommendations.  Produce poster and information about	VFD, Van-KIRAP, other partners
Publicity of results and education	Publicise results in poster and presented back to community and decision making	VFD, Van-KIRAP, other partners

## 7.6 Ciguatera fish poisoning monitoring.

Ciguatera fish poisoning is a common disease affecting communities in the country however there are no monitoring activities conducted to ascertain species affected and temporal changes in the species and the disease. Monitoring increase prevalence of ciguatera fish poisoning in Tomman Island is important so that community is well informed of the safety of fish consumption. The main activities to address resource assessment and ciguatera poisoning are:

- Monitoring of ciguatera affected fish species listed for Vanuatu listed by VFD and confirm if these same species are also affected in Tomman.
- Organise training and awareness on ciguatera fishing poisoning
- Record number of ciguatera fish poisoning patients in Tomman Island and type if fish consumed and symptom of sickness.
- Record ant local remedy used to cure ciguatera poisoning

Table 9: Priority activities for ciguatera fish poisoning monitoring.

Activity and issues	What needs to be done/actions	Responsibility
Peoples lack of knowledge of the disease	Conduct Interview on the island to collect people's view and knowledge of ciguatera fish poisoning in Tomman Island community  Awareness training about the sickness, symptom and fish species involved in Tomman Area	VFD and Community and Van-KIRAP

Lack of update information on ciguatera poisoning	Recording of fish species affected, where fish is caught, sizes of fish and how fish is prepared and consumed in Tomman Island, and which part of the fish is eaten.	Community and VFD
Collect medical record from Wintua medical centre and Caroline Bay Dispensary	Consult medical report from hospitals and clinics to collect number of patients per year from the Area Council. Produce Report annually on the status of the disease in the area council.	VFD, Area Council and community

## 7.7 Ocean observation monitoring.

Climate information on current movement, sea surface temperature, pressure, salinity and clarity is important climatic information to improve local weather forecast, better understand of seasons and tropical cyclones and fishing activities and but this information is not collected and made-known to the community. The ocean observation buoy currently deployed in Tomman Island will collect these information and channel it to the base in Vila where it will be repackaged and return to the community for their planning needs. The ocean observation system is to:

- Deployment of ocean buoy at Tomman Island
- Training and awareness on the important of the buoy and information collected
- Management, upkeep and maintenance of the buoys and instruments.
- Presentation of the climate information to the community

Table 10: Priority activities for ocean observation monitoring.

Activity and issues	What needs to be done/actions	Responsibility
Consultation with community about Ocean Observation and its benefits	Awareness about ocean buoy observation to Tomman Island community.	Community and VFD
Construction and Deployment	Construction and deployment of the buoy	VFD, Van-KIRAP and community
Safety and security	Community to assist provide security and safety of the buoy and report any accidents Maintenance of the instrument	VFD, Community

	Reporting on the information generated to the community	
Monitoring of information recorded and report it back to community	VFD and VMGD to monitor performance of the buoys and	VFD, VMGD, Community

## 7.8 Tomman Island Community Conservation Area development.

The people of Tomman until today are utilising most or all of their land resources. The island's forest resources provide all their timber needs from hard wood such as Koiu, Natapoa, Bluewota, and Tamanu. Namamau, Natagura and bamboo. Trees like Natagura and bamboo from Tomman Island for example are of a much superior quality - stronger and can last up to 30 years than those from the mainland. The community has taken action to discourage commercial logging on the island because of their resource limitation and to preserve it for their own use their resource.

Domesticated animals have also been removed on this island to avoid damages on the island forest and gardens. These are positive initiative towards managed area. Furthermore, the only hill on the island is protected by community initiative and this is where mature forest resources of the island is based.

Fauna includes birds such as Nawimba, parrot and flying foxes, coconut crab and land crab are present. The island old village remain intact and is kept as it is and now being open up for development of custom village targeting cruise tourist visit. There are no land dispute on the island because the four Nasara boundaries are clear and custom rules are made known to the new generation to continue the tradition and prevent disputes. The area should be upgraded to full CCA and baseline assessment of the biodiversity is required. The main activities for the development of the CCA to address resource overexploitation and habitat degradation are:

- Identify and mapping of the special areas and biodiversity hotspots on the island including old settlement through a baseline assessment.
- Declaration of the whole island as Community Conservation Area so that the activities of gardening and other activities are conducted in a sustainable manner.
- Launching of the CCA via customary ceremony
- Sourcing of mangrove seedling and forestry seedling
- Replanting of trees on the coast to protect beach erosion
- Set up nursery and replanting of forest trees such as sandalwood, namamau and natagura
- Assessment and identification of biodiversity significant areas

- Develop information centre in the village
- Introduce education activities for primary school

Table 11: Priority activities for Community Conservation Area (CCA).

Activity/issues	What needs to be done	Responsibility
Lack of baseline Assessment information of the island and important areas	BIORAP assessment of resources inside CCA terrestrial Prepare report of the BIORAP and identify important sites and biodiversity hotspots	DEPC and community and other partners
Area and boundary of native forest area is unknown	Meeting with community to identify boundary and final endorsement of the CCA boundary Work with community and DEPC to establish CCA Sign agreement for the CCA establishment	DEPC and community and other partners
Important areas and biodiversity hotspots unknown	Develop mapping of CCA boundary Install billboard with map of MPA areas	DEPC and community and other partners
Inadequate knowledge about the island environment	Launching of CCA with community awareness and education about CCA Set up information center in the village.	PC and community and other partners

## 7.9 Coastal wildlife conservation.

Coastal wildlife comprises all marine species including fish, invertebrates, and reptiles such as turtles and marine mammals such as trochus, green snail, giant clam, dolphins, dugongs and whales, seabirds, crabs and coconut crabs and land crabs whose biology is dependent on the marine environment for shelter, food, and breeding cycle.

Species such as dugongs, dolphins and whales are heavily protected under the Vanuatu Fisheries Act and must be respected by everyone in Vanuatu. The people of Tomman Island are no exception; they too must play their part in protecting these wildlife resources. The main activities to address resource overexploitation are:

- Voluntary enforcement of fisheries law on these species
- Collection information of any of these wildlife species

- Voluntary enforcement of ban on harvest of turtle shells and turtle egg and killing of turtles
- Preserve nesting site for seabirds and special habitat for species
- Report on accidental deaths of marine mammal
- No disturbance of egg laying female turtle

Table 12: Priority activities for coastal wildlife conservation area.

Activity and issues	What needs to be done/action	Responsibility
Lack of knowledge of dugong and sea turtle management	Collect local information about dugong and sea turtle in Tomman area and their feeding and nesting areas  Provide awareness on the management of special species	VFD, community, other partners
Lack of knowledge of existing laws on marine mammals and reptiles	Respect existing laws on the killing of sea turtle, report on turtle sightings, nesting, tagging and reporting.	VFD, Community and other partners
Whale fish and dolphin management	Record of sighting of whales and dolphins and report accidental landing or keeping in captive of dugong and turtles.	VFD, Community and other projects
Lack of awareness of seabird management	Identify seabirds in Tomman and bird species, develop guideline for its management.	DEPC Van-KIRAP, other projects

## 7.10 Ecotourism development and handicraft making.

The marine and terrestrial environment of Tomman is unique in its own ways and this uniqueness offer potential for ecotourism development. Setting up a marine protected area can become an attraction for tourism activity. Strengthening of fisheries development on the island through FAD deployment and management of the lagoon will present good practice of small recreational fishing operators. The main activities to address resource overexploitation are:

- Test fishing for flying fish and recreational fishing and training of fishers
- Organise canoe sailing activity for tourist.

- Organise shell and wood handicraft and weaving training
- Linking tourism activity with sheaf tourism office
- Improve custom village tourism organisation

Table 13: Priority activities for rural tourism development.

Activity & Issues	What needs to be done	Responsibility
Promote use canoe fishing	Assess potential for promoting local canoe use in the lagoon	VFD, community and other partners.
Conduct training on game fishing	Train small boat operators about tourist visitors and game fishing	VFD and community, other partners.
Handicraft training on weaving and wood curving	Train community members on shell and wood, handicraft making such as mats, fan and hats	Community and Tourism Dept.
Custom Village tom be improved	Write about the custom village and why it is important.	Community and Tourism Dept.

## 7.11 Development of an information centre.

Information dissemination on marine resources, coastal ecosystems and management and conservation of resources is critical for the uptake of new ideas towards mentality change and education responsible resource utilization and cooperation. Young generations are the ones to drive the change of tomorrow and an information centre for the island is a very useful facility to educate the community, schools and public. The centre is to hold all information material and a display area and notice board for information and can also be used for meetings. It will be an important facility for education and awareness about marine protected area, monitoring of resources, marketing and tourism activities. Information materials are expensive to produce but they are easily vandalized and destroyed by weather if not well kept out of rain and sun a closed building to keep information material can help the community keep important educational material safe from natural disasters. The main activities to address information dissemination are:

- Allocate funding for the information centre
- Meeting with the community and suggest the idea for building an information centre
- Identify a suitable site for the centre

- Purchase material and building of the building
- Designate management committee of the building
- Work with school on the information centre

Table 14: Priority activities for development and operation of Tomman Island information centre.

Activity	What needs to be done	Responsibility
Meeting with community	Organise meeting with all committee and get their consensus on building a community centre	VFD, other partners
Training and exposure of management officer on information	Exposure and training of local officers	VFD, other partners

## 7.12 Water and sanitation.

Water supply is an issue in Tomman Island, there are no water supply system, and the village depend on underground water well which are shared. Saltwater intrusion is the main issues reports and there are no contamination sources reported, and no water test has ever been conducted. The government had promised the community with desalination plant and water supply development based on the underground water source, but these activities have yet to be actioned, and the community is unsure of these project promises. Sanitation is based on pit latrine with very few water seal toilets system. The issue of water for Tomman Island community are:

- Ground water source is sustainable, and it never run out
- Wells near pit latrines may be polluted although is unknown
- Wells near the sea easily contaminated with salt intrusion
- Water sources able to support a water supply system where water is lifted to a reservoir tank using solar pumps and supply the whole village.

Table 15: Priority activities for water Supply development in Tomman Island.

Activity	What needs to be done	Responsibility
Water Committee	Merge two water committees to a single committee and follow-up support promised for development of the water supply system.	Community, Water Services Dept.

Open wells unsafe at times during cyclones	Open wells to be covered up to prevent pollution and contamination	Community and partners
Toilets are close to wells with risk of contamination	Build toilets away from wells	Community
Salt intrusion a problem	Avoid using well near the sea during waves	Community
Not enough water tanks	Need for more water tanks in the community to provide safe water during disaster	Community and partners

## 8. Management Institutions.

### 8.1 Community Governance.

The Tomman Island community is governed by Traditional chiefly system comprising a Village Chief (also called Principal Chief) who is the highest Authority in the Village. Beneath the Village Chief are 4 nasara or tribal chiefs including also the Village Chief who is the head of his nasara or tribe. The customary right of the Village Chief is heredity meaning the tribe is entitle to this authority by custom. Below the Nasara Chiefs are all the people of the Nasara including men, women, youth and disability. The Churches and Government activities function under the authority of the Chief. The Nasara Chiefs are the custom landowners of Tomman Island, land is then divided by the Nasara Chiefs to all the families in the tribe so that everyone have a piece of land to make their living. Each Nasara chief is responsible to resolve issues and organize ceremonies including marriage and deaths of his own Nasara. Where an issue is unable to be resolve, then the matter is reported to the village Chief to get the assistance of all the Nasara.

### 8.2 Area Council (SW Area Council).

Tomman Island in the Southwest Area Council, the Area Council is the lower-level government of the area in charge of facilitating government services to the community and taking community needs up to the national government to address. The local government facilitates services in agriculture, education, health, housing, local government, planning, road transport, social services and fisheries. Area Administrator is the administrator is the administrator of the Area Council and is the main person responsible for government activities in the Area Council. The Area Council Secretary is a signatory of all memoranda with recipient communities and the Fishers Association of Tomman for the implementation of respective activities in this plan. Specific roles of area council are to:

- Participate as a member of the Tomman Island Fishers Association
- Oversee implementation of the project activities on behalf of the Province
- Present priority annual work activities at Provincial meeting and incorporate into annual work plan of the Area Council.
- Seek endorsement of priority fisheries other activities at Area Council Meetings.
- Liaise with stakeholders, including governmental agencies, partners and donors
- Engage line agencies for implementation of the planned activities
- Coordinate, monitor and evaluate implementation of the management activities in the management plan
- Assist to coordinate enforcement of fisheries regulations and community rules

The Village Council is responsible for setting up the Village Development Committees to coordinate execution of each activity, these include health, education, Fisheries, Water, women, youth etc. Each committee chairman's role is to brief the Village Council of the progress or any issues arising and the council assist to resolve the matter. Any matters of disobedience to the village rules is reported to the Village Council for hearing and delivery of a decision, fine and or reconciliation. Fines use in the village is at the level of the village and is mostly involving mat and cash or return of an item etc. National police are called upon if any issue go out of hand and the Chief Council is unable to resolve it.

## 8.3 Tomman Island Fishers Association.

Tomman Island Fishers Association and resource owners will implement this management plan. The responsibilities of communities are to:

- Take ownership of project activities.
- Implement annual planned activities
- Organize trainings and workshops at the community level
- Organize campaigns within the community such as awareness campaigns, removal of invasive species such as crown of thorn starfish.
- Management of CCA and control of fishing activities in these areas.
- Collaborate with government line agencies to facilitate activity implementation.
- Monitor and evaluate activities implemented and report to the Area Council.

## 8.4 Review and amendment of the plan.

This management plan will be reviewed after five years to assess implementation status and propose new activities and changes. However, if a need does arise to amend the plan

before this time, then an early amendment can take place with the approval of the respective area council and communities.

This plan is also a living document and any change in activity will be proposed to the Van-KIRAP Steering Committee for approval. The review process must provide an opportunity for village representatives and other relevant stakeholders to comment on the content and implementation of the management plan. The proposed amendments must be endorsed by the respective area council and communities.

## 9. Implementation Strategy.

### 9.1 Steps in the implementation of the plan.

To achieve its objectives, other factors will be addressed to ensure the plan is successfully implemented. When implementing the plan, consideration should be given to the following:

**Step 1: Implementing Strategy:** The implementation strategy of this plan outline the broad objectives, indicators and implementing partners.

**Step 2: Engagement with other projects:** considering there are several projects working on community-based management in Vanuatu, and to achieve tangible results, integration of project implementation is important to facilitate sharing of information and resources, foster unity and understanding in implementation of activities to the community.

**Step 3: Tomman Island Fishers Association:** Strengthening of Tomman Island Fishers Association is important to better organise the community and channel community views to relevant line agencies for assistance.

**Step 4: Engagement with line Agencies:** To support implementation of activities identified in this plan, the community through Fishers Association will coordinate with other line agencies to attend. Line agencies in this case are Environment Dept., Climate Change Office.

**Step 5: Socio-economic surveys and consultations:** Joint SE surveys by projects is necessary to capture good baseline information towards development of management plan and to clearly identify activities.

**Step 6: Capacity building:** To effectively implement this plan, community workers including members of the fishers associations, cooperatives, women and youth groups and customary land owners, project partners must be trained and be made aware of various priority activity for Tomman Island.

## 9.2 Community Priority activities.

The implementation strategy for Tomman community is summarised in Table 16 provides and is covered in detail in tables.

Table 16: Proposed priority marine and fisheries activities for Tomman Island community.

	<b>PRIORITY MANAGEMENT ISSUES</b>	<b>MANAGEMENT ACTION</b>	<b>RESPONSIBLE</b>	<b>OUTCOME</b>
1	<b>Overfishing of reef resources</b>	<ul style="list-style-type: none"> <li>• Enforce net size limit</li> <li>• Enforce fish size limit on reef fish</li> <li>• Ban use of under sizes nets</li> <li>• Ban on night diving</li> <li>• Ban on catching fish during spawning aggregation</li> <li>• Ban on catching rare fishes such as Napoleon wrasse and Humped Parrotfish</li> </ul>	Community & VFD	Community fully complies with the laws
2	<b>No monitoring of fish production in the area</b>	<ul style="list-style-type: none"> <li>• Setup of community fish monitor (TAILS)</li> <li>• Training of Monitors</li> <li>• Report on fish production to community</li> </ul>		Established a community-led monitoring system for fish production, resulting in the regular collection and reporting of catch data to inform local management decisions.
3	<b>Climate change, global warming and ocean acidification</b>	<ul style="list-style-type: none"> <li>• Assessment of coral bleaching and report to VFD</li> <li>• Crown of thorn starfish outbreak Assessment of outbreak and organise COT clean-up</li> <li>• Mass fish kill during low tide</li> </ul>	Community & VFD	Enhanced community resilience and adaptive capacity to climate-induced marine

				threats, achieved through the systematic assessment and management of coral bleaching, Crown-of-Thorns Starfish (COTS) outbreaks, and anomalous mass mortality events.
	<b>Ocean Observation system monitoring</b>	<ul style="list-style-type: none"> <li>• Deployment of the Ocean buoy monitoring system</li> <li>• Monitoring of the monitoring buoy</li> <li>• Report on the information collected to the community</li> </ul>	Community & VFD, VMGD	
<b>4</b>	<b>High fishing pressure on reef resources</b>	<ul style="list-style-type: none"> <li>• Development of FAD fishing</li> <li>• Training on new fishing technology</li> <li>• Development of new fisheries – flying fish</li> <li>• Improve other income sources to relief pressure on the reef – cocoa, copra, livestock, kava</li> </ul>	Community & VFD	
<b>5</b>	<b>No Permanent MPA</b>	<ul style="list-style-type: none"> <li>• Set up permanent tabu area or MPA and register it under Environment Act</li> <li>• Set up Permanent CCA – Community Conservation area to preserve wildlife</li> </ul>	Community & VFD, DEPC. Projects	

		<p>include coconut crab and seabirds</p> <ul style="list-style-type: none"> <li>• Conduct marine BIORAP assessment</li> </ul>		
6	<b>Conservation of marine wildlife</b>	<ul style="list-style-type: none"> <li>• Enforce ban on killing of turtles, dugong, dolphins and whales, seabirds</li> <li>• Protect nest of seabirds and turtles</li> </ul>	Community & VFD , DEPC	
7	<b>Climate change and global warming</b>	<ul style="list-style-type: none"> <li>• Assessment of coral bleaching and report to VFD</li> <li>• Crown of thorn starfish outbreak Assessment of outbreak and organise COT clean-up</li> <li>• Mass fish kill during low tide</li> </ul>	Community & VFD	
8	<b>Fisher Association is weak and unorganised</b>	<ul style="list-style-type: none"> <li>• Set-up of Tomman Island fishers Association</li> <li>• Establish fish marketing development with Cooperative</li> <li>• MOA signed by community with VFD for all assets donated include freezers, FAD, fishing gears, fish processing tools</li> </ul>	Community & VFD	
9	<b>No fish preservation and storage facility</b>	<ul style="list-style-type: none"> <li>• Set-up Tomman Island fish market building</li> <li>• Managed by TIFA</li> <li>• Stocked with Solar deep freezers</li> </ul>	TI F/Association & VFD	
11	<b>Compliance to Fisheries laws is lacking</b>	<ul style="list-style-type: none"> <li>• Appointment of Fisheries Authorized officers</li> <li>• Training of officers</li> <li>• Registration of boats, nets, canoes and spear gun to comply with fisheries laws</li> </ul>	Association	

12	<b>Improve water supply services to ensure safety</b>	<ul style="list-style-type: none"> <li>• Reorganise Water committee to only one group</li> <li>• Focus on development of water supply system for whole village.</li> <li>•</li> </ul>	Community and Department of Water Resources	
13	<b>Other livelihood developments</b>	<ul style="list-style-type: none"> <li>• Training of women, men and youths in handicraft making from shells, rocks, wood, pandanas and coconut leaves and shells</li> <li>• Training in small game fishing activities using small boats and canoe targeting wahoo and tuna</li> <li>• Ecotourism development and bonefish trial</li> </ul>	Women's Group, VFD, Tourism, Community	
14	<b>Not enough Awareness and education</b>	<ul style="list-style-type: none"> <li>• Awareness meeting organised for community</li> <li>• Setting up of a community information centre</li> </ul>	Community and VFD, DEPC and partners	

### 9.3 Plan duration.

The CBFM Plan will be active for a period of 10 years maximum beginning from the date of approval in 2024 to the same date in 2033. Chiefs and communities can request a change of the plan to extend it or develop another new plan for better management of their resources after year 2034. The plan will be reviewed after 5 years by the community; line Government Departments and community and other stakeholder groups will be part of the review.

## Annex 1: Vanuatu Fisheries Regulation for Marine Resources

Species	Size limit	Other restrictions	Fine
Trochus	Min size – 9cm-Max size 13cm	Open fishery, License required for trade	200,000 VT Individual 1,000,000 VT for company
Green snail	Min size 15cm	No commercial trade permitted	200,000 VT Individual 1,000,000 VT for company
Triton shell	Min size 20cm	Ban of fishing	200,000 VT Individual 1,000,000 VT for company
White troika	Min size 9xm		200,000 VT Individual 1,000,000 VT for company
Sea cucumber	Size limit for commercial species in Annex 2	Licensed traders only, based on TAC	200,000 VT Individual 1,000,000 VT for company
Rock Lobster	Min size – 22cm	Restriction on female with egg. Hand collected	200,000 VT Individual 1,000,000 VT for company
Slipper lobster	Min size – 15cm	Restriction on female with egg	200,000 VT Individual 1,000,000 VT for company
Coconut crab	Min size – 9cm Torres: 30 Oct – Nov 2, Quota -5000 crab Santo: 31 May – Maewo: 1 <sup>st</sup> Nov – 30 April Erromango – 1sept – 31 March		200,000 VT Individual 1,000,000 VT for company
Turtle	Ban on killing of turtle, Traditional use exempted by permit only No taking of egg or disturbance of nest No killing or injury of Turtles with any weapon including spear No keeping of turtles in captivity		200,000 VT Individual 1,000,000 VT for company
Dugong or Cowfish		Ban on the killing of Cowfish	50,000,000 vt
Aquarium fish		Flame Angel quota on Efate, open in other location	200,000 vt Individual 1,000,000 vt for company

Giant clam		License to trade, Ban on trade of wild giant clam	200,000 vt Individual 1,000,000 vt for company
Fishing using UBA		No catching of reef fish and invertebrate with use of Underwater Berating Apparatus	200,000 VT Individual 1,000,000 VT for company
Coral and live rock		No commercial trade without License	200,000 VT Individual 1,000,000 VT for company



# Annex 2: Minimum size limit for sea cucumber in Vanuatu

## SCHEDULE 27

(Regulation)

### MINIMUM SIZES OF BECHE-DE-MER FOR EXPORT

Column 1	Column 2	Column 3	Column 4
Common name	Scientific name	Minimum Length in centimeters (cm) (Wet)	Minimum Length in centimeters (cm) (Dry)
Black teatfish	<i>Holothuria nobilis</i>	22.00cm	10.00cm
Curry fish	<i>Stigopus variegates</i>	25.00cm	10.00cm
Greenfish	<i>Stichopus chloronotus</i>	20.00cm	10.00cm
Prickley redfish	<i>Thelenota ananas</i>	32.00cm	15.00cm
Sandfish	<i>Holothuris scabra</i>	22.00cm	10.00cm
Surf redfish	<i>Actinopyga mauritiana</i>	20.00cm	9.00cm
White teatfish	<i>Holothuria fuscogilva</i>	35.00cm	15.00cm
Brown sandfish	<i>Bohadschia vitiensis</i>	20.00cm	10.00cm
Deep-water redfish	<i>Actinopyga echinites</i>	25.00cm	15.00cm
Elephant trunkfish	<i>Holothuria fuscopunctata</i>	32.00cm	15.00cm
Lolly fish	<i>Holothuria atra</i>	30.00cm	15.00cm
Pinkfish	<i>Holothuria edulis</i>	25.00cm	10.00cm
Tigerfish	<i>Bohadschia argus</i>	20.00cm	10.00cm

## Annex 3: Reef Fish Size Limit Regulation for Tomman Island, Malekula (proposed).

Reef fish Species	Minimum Size Limit	Other Restriction	Fine for non-compliance
Napoleon Wrasse	65 cm	Ban on the species	Not for sale
Hump head parrotfish	63 cm	Ban on species	Not for sale
Trevally fishes	30 cm		Not for sale
Unicorn fishes	20 cm		Not for sale
Surgeon fishes	20 cm		Not for sale
Scad mackerel	15 cm		Not for sale
Milkfish	30 cm		Not for sale
Drummer fishes	20 cm		Not for sale
Other wrasses	20 cm		Not for sale
Red snapper fishes	30cm		Not for sale
Red Emperor fishes	30 cm		Not for sale
Mullet fishes	25 cm		Not for sale
Goat fishes	15 cm		Not for sale
Parrot fishes	20 cm		Not for sale
Salala Mackerel	20 cm		Not for sale
Grouper	25 cm		Not for sale
Rabbit fishes	20 cm		Not for sale
Barracuda	30 cm		Not for sale

## Annex 4: Restricted Fishing gear and closed area

Fishing gear	Restriction	Fine for non-compliance
Fish fencing	Allowed with Director Fisheries approval	VT 500,000 for Individual VT 1,000,000 for company
Cast net	20mm mesh size and 2m wide	VT200,000 Individual, VT1,000,000 for company
UBA	Not to be used to conduct any fishing activity	VT200,000 Individual, VT1,000,000 for company
FAD	No removal or damage of FAD	VT200,000 Individual, VT1,000,000 for company
Fishing net	Not less than 5cm mesh size	VT200,000 Individual, VT1,000,000 for company
Fish poisoning	Use of fish poisoning is illegal	VT200,000 Individual, VT1,000,000 for company
Spear for turtle	No killing of turtles with weapons	VT200,000 Individual, VT1,000,000 for company
Closed Marine area, Tabu area or MPA	A tabu area can be regulated under Fisheries Act and Fisheries and police enforces existing law over the area	

ISBN 978-982-04-1477-8



9 789820 414778



# REDI - ADAPT - PROTEKT

ISBN 978-982-04-1477-8



9 789820 414778