



CLIMATE RESILIENT ISLANDS PROGRAMME

VANUATU

SUMMARY

Community Resilience Profile

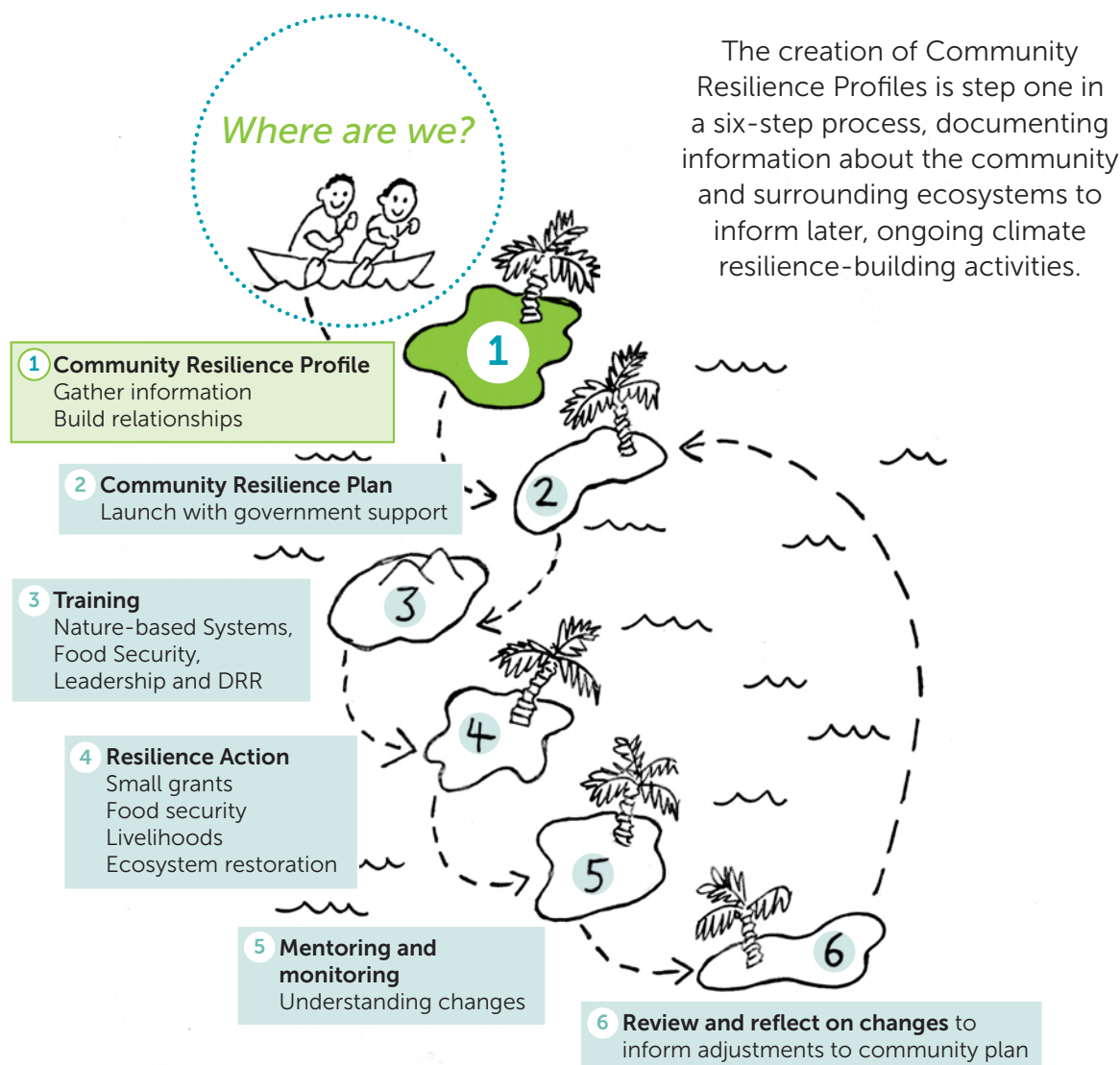


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NEW ZEALAND
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Manatū Aorere

This profile summarises information generated in 2022 by the Vanuatu communities in collaboration with Live & Learn Environmental Education as part of the Climate Resilient Islands programme, through the New Zealand Government Resilience Ecosystems for Climate Change Adaptation programme.



The creation of Community Resilience Profiles is step one in a six-step process, documenting information about the community and surrounding ecosystems to inform later, ongoing climate resilience-building activities.

Each community involved in the CRI programme has their own profile. For demonstration purposes this summary profile gives an overview of common knowledge about ecosystems, geographical setting, community skills, livelihoods and challenges found across the communities, displayed in similar format as the individual community profiles. The individual profiles contain Indigenous Knowledge and other information that is sensitive and the property of the communities themselves, therefore this summary minimises the potential to identify individual community data.

For more information go to: www.livelearn.org/climate-resilient-islands





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VANUATU



Introduction

Community Resilience Profiles are the result of partner communities thinking about and mapping their ecosystems and resilience¹.

The profiles contain general information on Vanuatu's ecosystems and livelihoods, and forecasts on food security and disaster response, especially regarding the effects of climate change and the specific impacts of climate change on each community.

They also contain details of local ecosystems, livelihoods, values, strengths, vulnerabilities, assets, organisation structures and Indigenous knowledge.

¹ The community activities done for this profile are based on the work of O'Connell, D, Maru, Y, Grigg, N, Walker, B, Abel, N, Wise, R, Cowie, A, Butler, J, Stone-Jovicich, S, Stafford-Smith, M, Ruhweza, A, Belay, M, Duron, G, Pearson, L, and Mehard, S 2019, Resilience Adaptation Pathways and Transformation Approach. A guide for designing, implementing and assessing interventions for sustainable futures (version 2), CSIRO



Each Community Resilience Profile consists of two main parts:



PART 1

Provides information on national and community-level ecosystems and nature-based systems for each community.



PART 2

Provides information on livelihoods, assets, what each community values, and their assessment of what resilience looks like for them.

The profiles also contain resilience pictures and vision statements that have been developed by each community to guide them as they work on climate resilience strategies.

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Vanuatu community summary



Community Resilience Vision and Picture

The following are examples of community resilience visions and supporting resilience pictures (with explanatory text).

Community resilience visions express where the communities want to be at the end of the CRI process and generally emphasise disaster preparedness, a revitalisation or restoration of traditional knowledge, secure and healthy water supplies and varied livelihood sources. (Community names have been removed to protect the privacy of knowledge-holders.)



Resilience Picture

The women view resilience as laplap (traditional pudding). 'We need different items and ingredients to cook a delicious laplap - yam, firewood, leaves, stones, meat, slippery cabbage, and dry coconut. When you add the different ingredients it tastes sweeter, and when you eat it your body becomes stronger and healthier each day. We have different talents and when put together they produce a better result.'

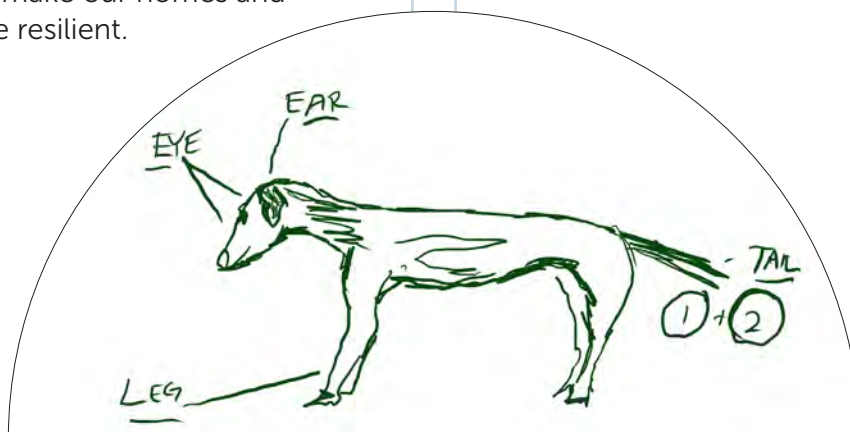
Resilience Vision

The community's vision is for all households to have improved infrastructures, health and energy services and restoration of degraded areas.



Resilience Picture

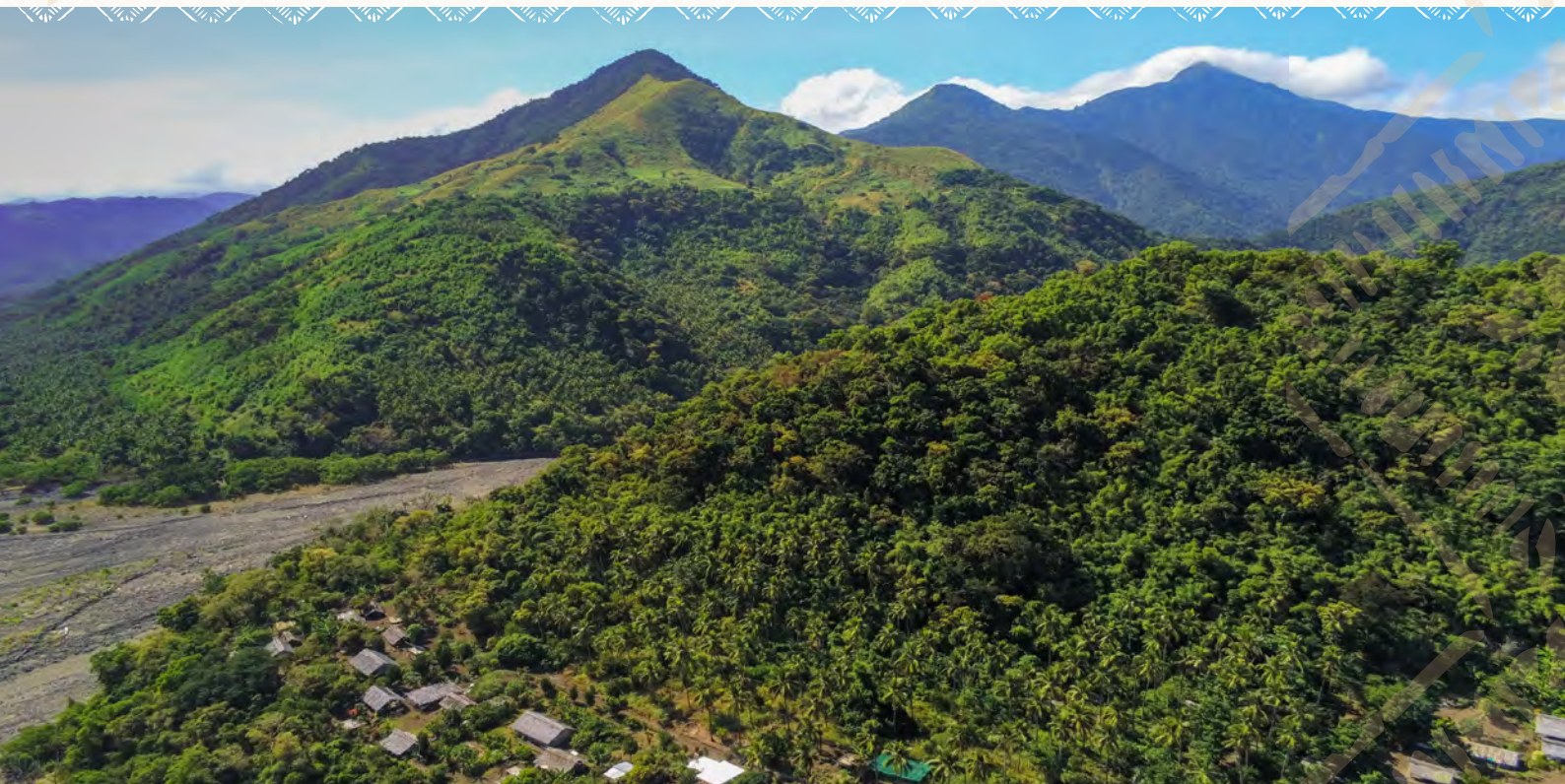
Dog – ear, tail, legs, eye: all the parts need to function and work together to fully be a dog that can hunt for its food. In our communities, we were born with skills and traditional knowledge (wisdom) that suits our ecosystem. This helps us to be resilient in terms of how to find food, water, building traditional shelters, knowing where to go fishing, how to hunt, make gardens, etc. Our cooperation in the community is very important for enhancing and growing our skills to help make our homes and community more resilient.



Resilience Vision

We want to see our generations continue to manage and preserve the forest. In future, all community members have built houses that can withstand strong cyclones, access good and clean water systems, good sanitation, and have better education while holding on to our key traditional knowledge. The traditional knowledge should be transferred to the future generations to distinguish their identity from other communities.

Local Indigenous Resilience Knowledge and Stories



Communities documented their traditional knowledge. Below are examples that reflect common traditional knowledge in many Vanuatu communities.

In the past, the people observed nature for signs. Clouds moving close to hills means it will be windy. When there are black clouds next to the hill, it indicates wind and rain. If there are clouds above land and not near hills, it will be humid. If turtles lay their eggs near the sea, this indicates good weather, if they lay their eggs inland, it indicates a year of rough weather. Ants foraging for food is also another indication of bad weather.

Wild yam and taro (Fijian Taro) are common cyclone food because they last longer. Traditionally, they are pulped and cooked in bamboo. Food is usually cooked in bamboos during dry season when there are no vegetables. Our ancestors used to eat young breadfruit leaves: "Lav" and "Namlan".

Tahitian chestnuts are baked and preserved during cyclone season, and can last up to a month. Cassava tubers are preserved in the sand.



Ripe breadfruits were collected and put in the sea for a month and then buried for two weeks to preserve them. Breadfruits are wrapped in leaves, hung over a fireplace and heated over the fire that can last for a year.

Wild cane and white grass were used for buildings that were cyclone proof and didn't need nails.

Traditional housing is still used, consisting of three standposts – at the front, middle and back. Nastora (teak) is used for building, with ropes locally referred to as *Nilak* and *arumbak*, *loyaken*. Roofs are low to cope with cyclones. Women and men had separate toilets and houses in the past.

The ancestors protected the forest using a traditional governing system where the tribal chief brought all chiefs from other tribal groups together in a custom ceremony and presented to everyone the significance of the forest and why it is important to protect the area under customary laws.

When Lastic wood flowers, this indicates orange trees will flower and bear more fruit.

Mothers do handicrafts in the village that are for sale and household use, like local mats, brooms and baskets from coconut leaves, and fan from pandanus leaf.

Ancestors used one type of banana (*Nemrak*) to wash the babies when there was no water.

Pigs are important for ceremonies. During the days of the ancestors, pigs ploughed the land with their snouts, allowing farmers to plant vegetables. After a cyclone, pigs are the first animals to resume digging in gardens.



PART

1

Ecosystems and Climate

– Vanuatu Overview

Vanuatu consists of more than 80 islands. The predominant ecosystem is tropical forests, which cover 76% of the land area, with lowland forests up to around 600m in elevation and montane cloud forests above that. Important coastal ecosystems include mangroves, seagrass and coral reefs. Approximately 80% of Vanuatu's population live in rural areas, and many work in subsistence agriculture. Agriculture is significant to Vanuatu's economy – food is more than 80% of the country's exports.



TEMPERATURES AND RAINFALL:

Dry season:
May – October

Wet season:
November – April

Average temperatures are between 21-27C. Recently temperatures have been 0.5-0.6C above average.

Rainfall can vary up to 1800mm between wet seasons. Average annual rainfall is also much higher in the north (4000mm per year) compared to the south (1500mm per year).

Vanuatu is highly susceptible to tropical cyclones, with 20-30 passing over per decade.



OCEANS:

Coastal ecosystems are the second largest ecosystems, around 14% of the country. Coastal mangroves, seagrass and coral provide valuable food services, now threatened by human impacts. Vanuatu has recorded 6mm of sea level rise per year, above the global average.



HABITAT DIVERSITY:

Forests are the major ecosystem, 75% of land area. Other important ecosystems include mangrove forests, swamp forests and kauri pine stands.

Vanuatu has habitat for diverse animals, birds and plants. Coastal finfish and tuna are the most important seafood resources. Ecosystems have been heavily modified by human activities, particularly tropical forests, grasslands and coral.



FRESHWATER:

Vanuatu has very little freshwater, with the majority of people relying on rainwater and rivers.

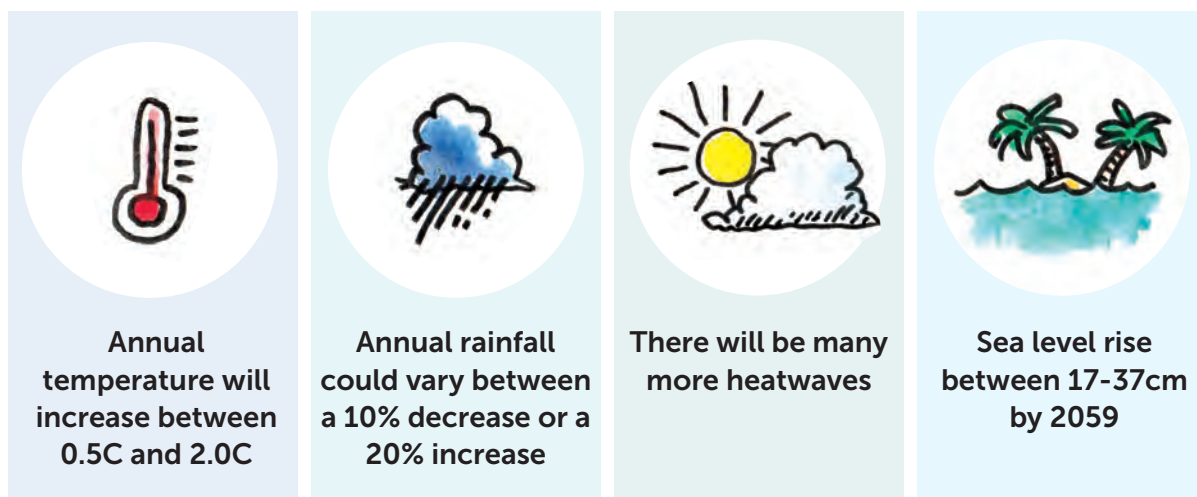
Regional and national climate change impact and forecasts

Vanuatu is considered extremely vulnerable to climate change. Natural hazards already cost Vanuatu an estimated 6% of annual GDP. Climate change impacts are already being felt. Rising sea levels and erosion are threatening communities and community structures like schools, churches, airports and roads. Increasing

temperature and decreasing rainfall are straining freshwater resources, with land use change, population increase, urbanisation and cyclones adding to the problem.

Climate change forecasts vary significantly based on both the low- and high-emissions scenarios.

Depending on the specific scenario:



ND-GAIN² Resilience Ranking:



The high vulnerability score and low readiness score of Vanuatu places it in the upper-left quadrant of the **ND-GAIN Matrix**. It has both a great need for investment and innovations to improve readiness and a great urgency for action. Vanuatu is the 27th most vulnerable country and the 76th least ready country.

2 A country's ND-GAIN index score is composed of a Vulnerability score and a Readiness score. Vulnerability measures a country's exposure, sensitivity and ability to adapt to the negative impact of climate change. ND-GAIN measures the overall vulnerability by considering vulnerability in six life-supporting sectors – food, water, health, ecosystem service, human habitat and infrastructure. <https://gain.nd.edu/our-work/country-index/rankings/>

Vanuatu National Climate Change Adaptation and Disaster Governance

Due to Vanuatu's high exposure to hazards and risk of disaster, disaster management governance of disasters and climate change is fully integrated. Key governing bodies function under the **Ministry of Climate Change Adaptation, Meteorology, Geo-Hazards, Environment, Energy and Disaster Management (MoCC)** and include the following³:

- The **National Advisory Board on Climate Change and Disaster Risk Reduction (NAB)** develops all DRR and climate change policies and guidelines, and is a focal point for information – including coordination and national climate finance processes.
- The **Department of Climate Change (DoCC)** coordinates and implements all climate change adaptation, mitigation and DRR activities. The DoCC and NAB have complementary roles and work together to ensure Vanuatu's policy on climate change and DRR is mainstreamed.
- The **National Disaster Committee (NDC)** advises government agencies on disaster risk management. The body also oversees implementation of disaster risk management policies implemented by the NDMO, government agencies, partner agencies, civil society and the private sector.
- The **National Disaster Management Office (NDMO)** works closely with the NDC. The NDMO is responsible for the coordination of responses to emergencies and disasters across Vanuatu. The NDMO also plays an important role in preparedness.
- **Provincial Disaster and Climate Change Committees (PDCCCs)** have been established to coordinate DRR and CCA activities, develop plans, and disseminate information to communities. Additionally, the NDMO, in partnership with NGOs and the Red Cross has supported the establishment of Community Disaster and Climate Change Committees (CDCCCs) across the country to further support communities to be actively engaged in recognising, assessing and mitigating risks.

Community Disaster and Climate Change Committees (CDCCCs)

Since 2008 communities across Vanuatu have been supported to establish CDCCCs for community-based disaster risk reduction. CDCCCs coordinate local activities and support communities' participation and leadership in disaster preparedness and response. CDCCCs can also conduct vulnerability assessments, create community action plans, provide training and share information with community members, as well as assist the community during times of disaster with evacuations, data collection and early response. Members of CDCCCs are mainly volunteers from the community, which has raised challenges for sustainability and resourcing of the committees.

All communities have had some preparation for disasters. CDCCCs have been set up in most communities. No community operates without a committee, but two communities have other committees that oversee disaster response, namely, the water committee and the development committee.

While committees exist, disaster plans rarely exist. Disasters are responded to as needs arise.

Communities respond to warnings and evacuation orders from local government. Communities also rely on weather and other natural indicators of imminent disasters, especially cyclones.

In most communities evacuation centres are inadequate or non-existent. In one community, two churches are used as evacuation centres, but in other communities evacuation centres are in need of repair after previous cyclones. Increased risk of flooding means that evacuation centres must be reassessed for suitability. In times of disaster, water availability will be a priority.

3 Source: Beyond Barriers – Vanuatu Case Study, 2022, Australian Humanitarian Partnership

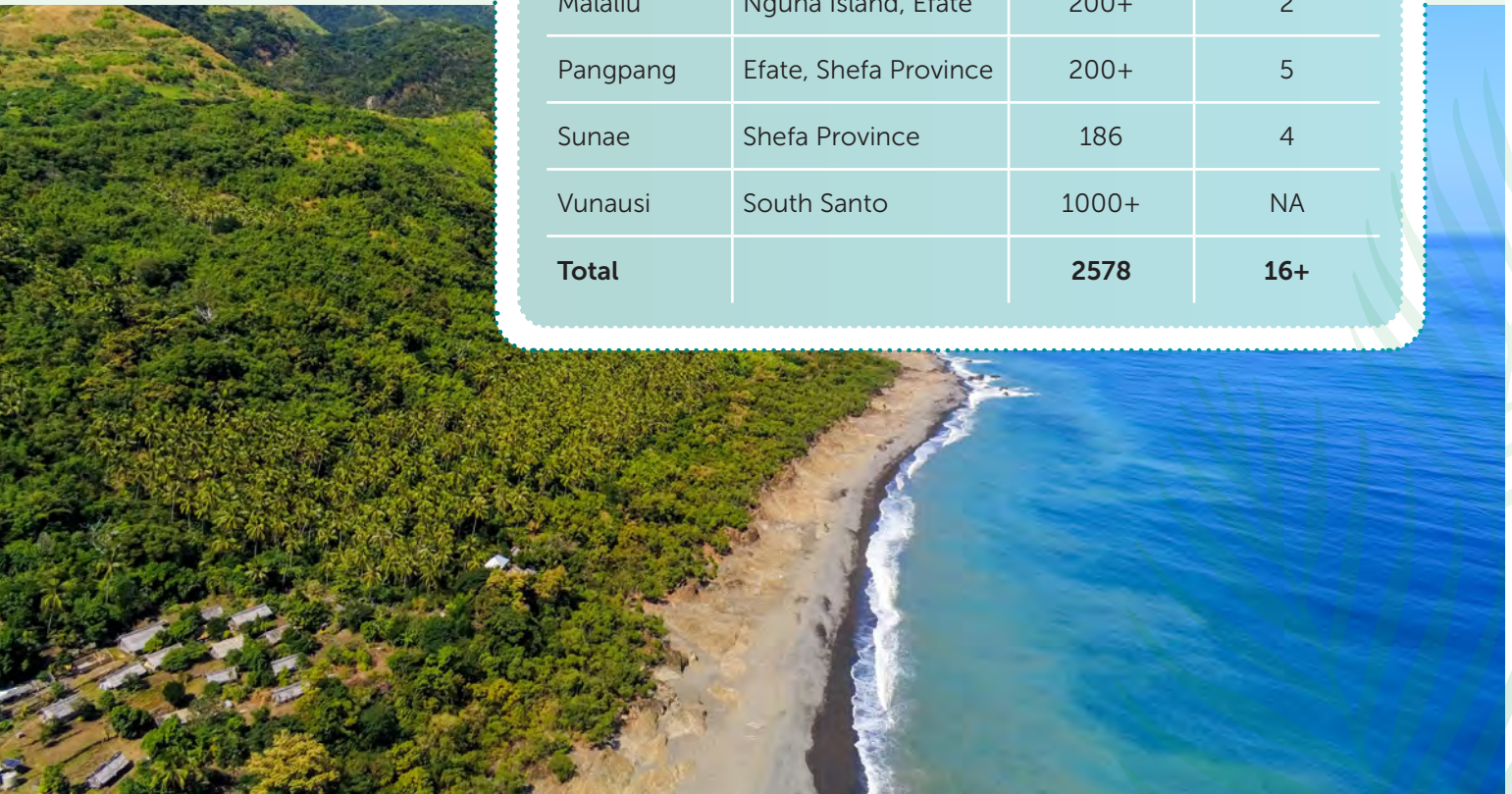
Vanuatu communities

Ecosystems and Climate

Each community profile contains information about population, their geographical position (latitude and longitude), proximity to roads and other communities, and the surrounding topography. The following table lists all participating communities with relevant details.

Note: Additional communities in Vanuatu were slated to participate in the CRI programme. These communities are on hold due to negotiations with local leaders.

Community	Location	Population	Living with disability
Akhamb	South Malekula	670	Some
Kerepua	Espiritu Santo	150	5
Loru (Kole)	East Santo	172	Some
Malaliu	Nguna Island, Efate	200+	2
Pangpang	Efate, Shefa Province	200+	5
Sunae	Shefa Province	186	4
Vunausi	South Santo	1000+	NA
Total		2578	16+



Community population sizes are at times approximate and variable, as some community members participate in regional seasonal work, or spend much of their time elsewhere for employment while still identifying as members of the target communities.

Some of the participating communities have moved closer to the coast, due to the direction of church or government. Population increases have also prompted land to be appropriated for housing or agriculture. In one case, an island community has taken over tribal land on the mainland to house extra population.

Communities being closer to the ocean means that inter-island transport is more available, but communities are more vulnerable to coastal erosion and inundation, sometimes due to climate change and sea level rise. Ocean pollution is also affecting coastlines and fisheries, especially plastic waste. Communities do not always have adequate waste disposal facilities, or community members do not adhere to local policies regarding waste disposal.

Most communities have nearby areas of forest that have been designated as conservation areas in recent years. This has positively affected the health of these forest areas. Communities had previously noticed a loss of biodiversity, something that is also affecting marine environments. Communities retain control of these conservation areas. In at least one case, a carbon trading scheme is linked to the conservation area. However, local ecological management is hampered by illegal logging – sometimes simply because of community need for firewood and building materials rather than commercial logging. Invasive plant species are also an issue.

Communities experience water shortages during the dry season. Communities previously used traditional methods for capturing and conserving rainwater. Communities have water tanks, but these typically run dry during the dry season. With increases in temperatures and longer dry periods, water security will remain a priority.

Although Vanuatu's economy is predominantly based on the service sector - particularly tourism - agriculture accounts for 22% of the country's GDP. Around 80% of the population live in rural areas, with their livelihoods dependent upon or at least supplemented by subsistence agriculture. About one third of arable land is being farmed, though much of this is near the coast, meaning the area available for agriculture will reduce as sea levels rise.

Local agriculture includes home gardens, for subsistence and sales, and plantations for commercial copra and kava. While food security is tied to local produce, imported and processed foods are consumed by community members, especially young people, causing some concern. Fishing is prominent for subsistence and commerce. Weaving items for sale is practised in some communities. For Efate communities, the market is predominantly in Port Vila. Tourism and aquaculture are additional sources of income.

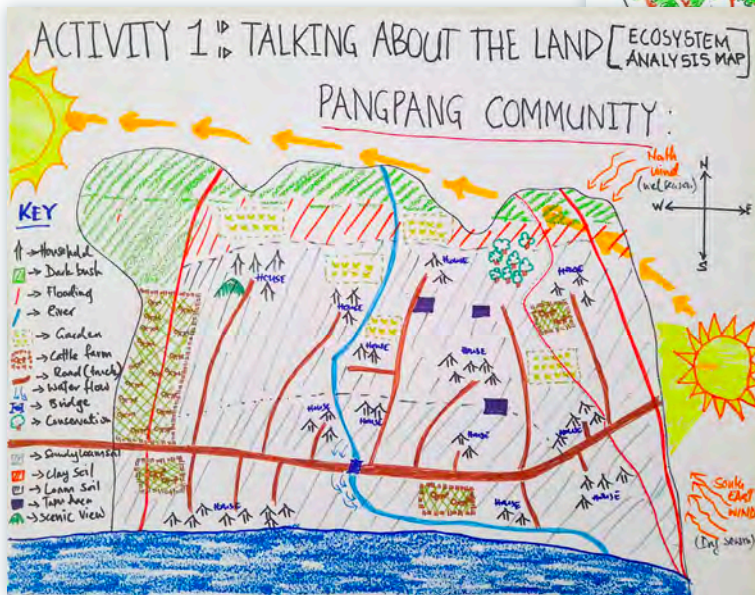
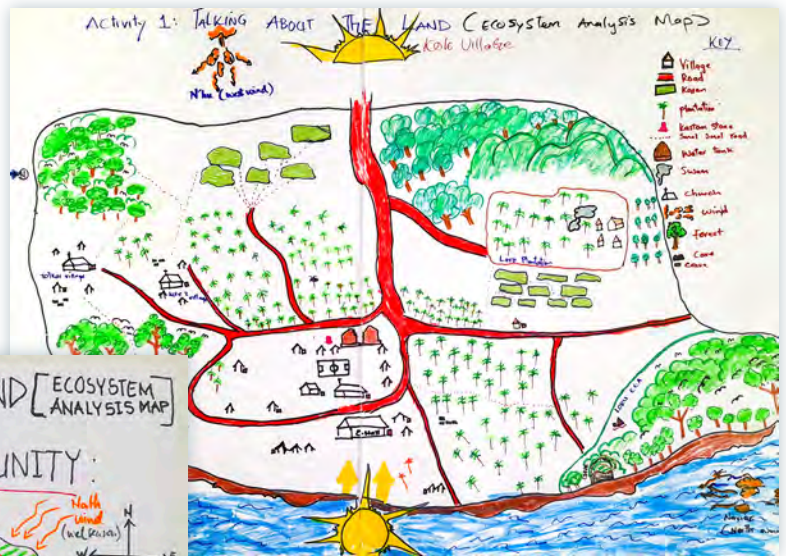
Community management is centred on the chief, a hereditary position. Tribal identities are prominent. Chiefs are aided by chiefs' councils. Local indigenous knowledge is valued, and there is some concern that traditional knowledge is being lost, due to outside influences. Where traditional knowledge comes into conflict with introduced Christian beliefs, the latter is generally given priority.

Christian belief is prominent in communities, with typically three or more denominations, including Seventh Day Adventist, Presbyterian and Covenant churches.



Local Ecosystem Information

Communities were asked to draw maps of the community and surrounds and identify various ecosystem elements. The communities noted features of the community on the maps, such as roads, buildings, rivers and gardens.



They then mapped the following elements, making comments about the extent of community knowledge and how well the elements were functioning:

WATER AVAILABILITY



Water tanks are used but are inadequate, especially in the dry season, when collection involves travel. Infrastructure is easily damaged. Well water is used but easily contaminated, partly due to population pressure.

FLOODING



In some communities, drainage of garden areas can be improved.

WIND



Winds are usually predictable, except for regular cyclones which cause damage.

HUMAN ACCESS



Roads and paths are unpaved and both susceptible to flooding and landslides.

FIRE



For almost all communities fire remains a low risk. One community experiences grassland fire.

SUN EXPOSURE



Most communities have areas that lack shade and dry out.

SOIL



Communities have identified areas of good soil appropriate for agriculture.

WATER FLOW AND LAND SLOPES



Floods contaminate marine areas. Erosion is an issue.

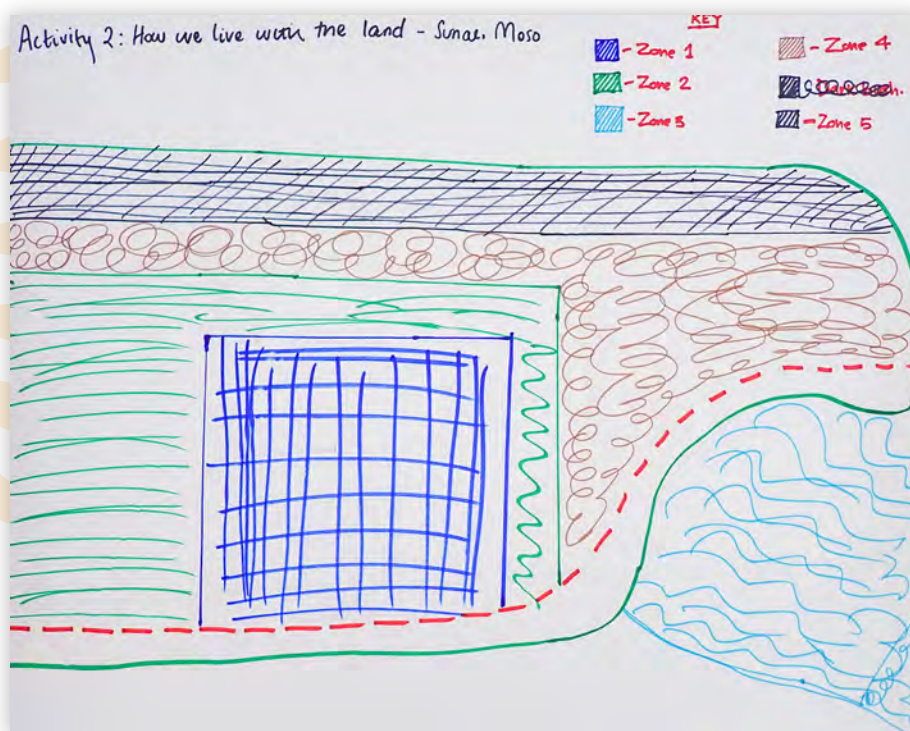
TABU PLACES



Except for one, all communities retain areas that are mostly off-limits, such as burial and ceremonial sites.

Local Ecosystem Zones and Elements

Communities mapped various ecosystem zones, to establish varying uses of land surrounding the community, the strengths and challenges for key elements within the zones, and the transfer of resources from one zone to another. Communities were encouraged to reflect on how activities in one zone can impinge on what happens in another zone. Some community activities cover multiple zones, such as managing livestock, which can move between zones.












Activity 2: How we live with the Land (Ecosystem Zones - Malaliu Community)



- Zone 1 consists of houses and other buildings, and kitchen gardens.
- Zone 2 consists of food gardens that are tended regularly.
- Zone 3 consists of plantations where resources and food is collected daily.
- Zone 4 consists of plantations that are visited less regularly and coastal marine environments where seafood collected.
- Zone 5 consists of unmodified forests (dark bush) and conservation areas. Also includes open ocean where resources not collected.

The following table contains a list of ecosystem elements that are found across the communities. Communities identified what the elements are important for, how they are maintained, and how they are threatened.

Ecosystem element	Important in which system web?	How this element is strong	How this element is vulnerable or threatened
<p>FOREST/TREES</p> 	<p>Natural Environment</p> <p>Livelihood</p> <p>Health</p>	<ul style="list-style-type: none"> • Logging restricted • Not turned into plantation area • Moderates climate • Provides firewood 	<ul style="list-style-type: none"> • Cyclone damage to trees • Logging activities • Longer dry season and higher temps • Flooding
<p>RIVER</p> 	<p>Growing food</p> <p>Natural Environment</p> <p>Health</p>	<ul style="list-style-type: none"> • Provide water to community • Catchment protected, free from logging etc. 	<ul style="list-style-type: none"> • Longer dry season means less water • Pollution of the underground wells by having pit toilets nearby
<p>FOOD GARDENS</p> 	<p>Growing food</p> <p>Natural Environment</p> <p>Livelihood</p> <p>Health</p> <p>Kinship</p>	<ul style="list-style-type: none"> • Plenty of food from gardens all year • Free from flooding • Maintained by community • Lead farmers providing materials 	<ul style="list-style-type: none"> • Cyclone destroys food gardens • Population increase • Wild pigs, insects, other pests
<p>PLANTATIONS</p> 	<p>Growing food</p> <p>Natural Environment</p> <p>Livelihood</p>	<ul style="list-style-type: none"> • Provide milk, coconut juice, coconut basket, and income, used to build shelters • Pandanus used for handicrafts • Tended by community members 	<ul style="list-style-type: none"> • Cyclones destroy plantations • Rats, flying foxes insects destroy • Storm damage • Human activities

Ecosystem element	Important in which system web?	How this element is strong	How this element is vulnerable or threatened
SOIL 	Growing food Natural Environment Livelihood Health Kinship	<ul style="list-style-type: none"> • Organic composting • Bush fallow practised • Naturally good, new from volcanoes, forest, etc 	<ul style="list-style-type: none"> • Flooding impacts gardens • Sea level rise
LIVESTOCK 	Livelihood Kinship	<ul style="list-style-type: none"> • Looked after by community • Grazing land/food good 	<ul style="list-style-type: none"> • Trespassers kill pigs and cattle
FISHING GROUNDS 	Natural Environment Livelihood Health	<ul style="list-style-type: none"> • Fish used for sales and subsistence • Overfishing not currently occurring • Tabu effective 	<ul style="list-style-type: none"> • Pollution from rubbish • Increase in temperature of the sea can kill some species of fish we rely on • Fishing sites are always shifting due to the weather conditions, such as flooding, storm surges and cyclones.
WATER SOURCE 	Growing food Natural Environment Livelihood Health Kinship	<ul style="list-style-type: none"> • Provide clean water to drink, cook, swim, wash and clean vegetables. • Water tanks in good condition • Water committees maintain 	<ul style="list-style-type: none"> • Flooding contaminates • Landslide can cover water source and damage • Pollution by plastics • Cyclone damage • No water testing
CHURCH 	Natural Environment Livelihood Health Kinship	<ul style="list-style-type: none"> • Well-organized with good leadership • Church helps with roll-out of disaster response. 	<ul style="list-style-type: none"> • Church affected by mismanagement in community and natural disasters.

System maps

The following table contains a list of ecosystem elements that are found across the communities. Communities identified what the elements are important for, how they are maintained, and how they are threatened.

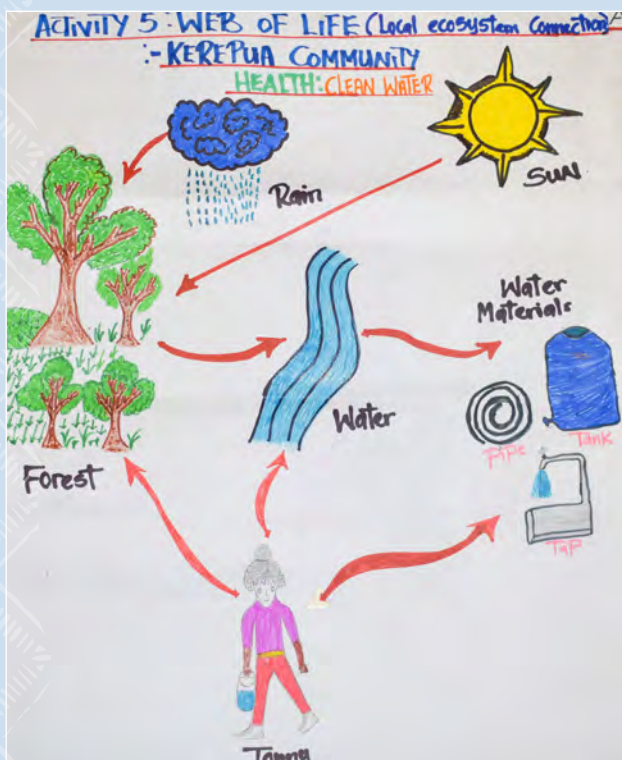
NATURAL ENVIRONMENT SYSTEM: FOREST



Some of the key elements needed for having a healthy forest are: sunlight energy, rain, carbon dioxide, wildlife, and soil.

- Forest needs sunlight / photosynthesis to grow healthy.
- Forest needs carbon dioxide for growth (and gives out oxygen for us to breathe).
- Birds feed on forest and we consume birds as meat.
- Humans also need some additional tools like a knife to plant more trees, as well as using forest for materials to build our houses.

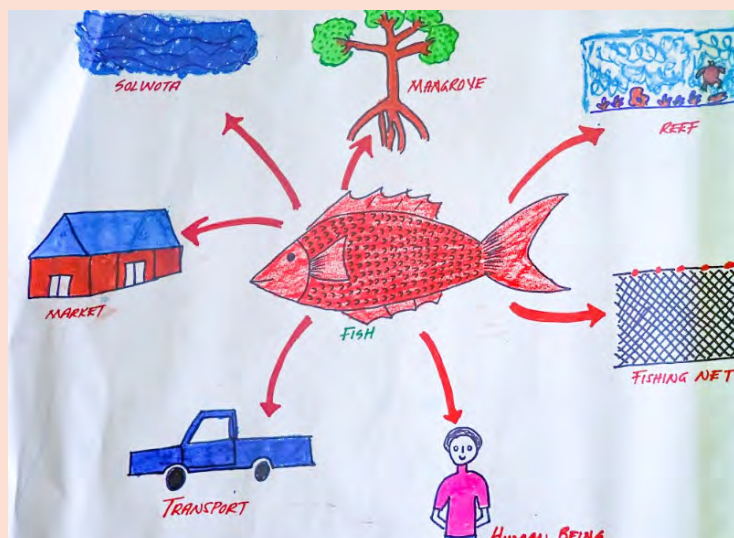
WATER SUPPLY SYSTEM



Water is essential for life. The connections in this system web are:

- Sun: the source of all energy and life, and helps the forest to grow
- Forest cover: trees release oxygen and moisture to create clouds. The forest allows slow release of clean water
- Materials are needed to collect fresh water (polypipe, tank tap stand)

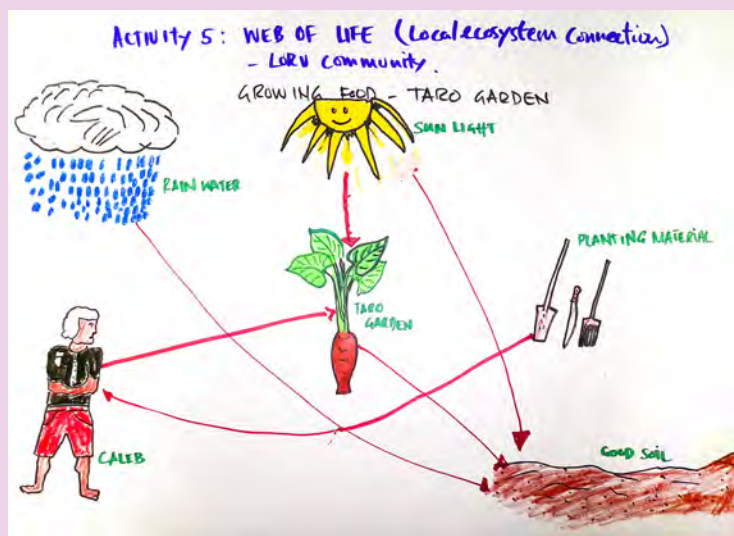
WEB OF LIFE: LIVELIHOOD SYSTEM



Fishing is a livelihood source and has the following elements:

- Human
- Mangroves
- Coral reef / sea
- Market
- Fishing nets
- Boat and Land transport

GROWING FOOD SYSTEM: TARO



The connections in this system web are:

- Taro needs sun and soil to grow healthy
- Taro also needs rain for watering
- A farmer needs additional materials like knife, spade and planting materials to plant taro,
- Planting materials



Timeline of important events

Communities wrote out timelines of events that were significant for the community.

In Vanuatu, significant events included the following:

2022 – La Nina event

2021 – Sea level rise

2020 – TC Harold caused damage

2019 – Covid restrictions

2017 – Ash fall from volcano

2015 – TC Pam caused damage

2003 – Ban on hunting turtles in some areas

1992 – Drought

1980 – Vanuatu gained independence

1960s – Arrival of Christian missionaries

Various – NGOs contributing to community projects

Various – Construction of roads

Various – tabus established for conservation of natural resources

Food Seasonal Calendar

Communities put together a detailed seasonal calendar that listed the traditional months and the activities and natural occurrences during that month.

Communities also noted changes and shifts that have happened to the seasonal events. Below is a list of changes observed. Many of these changes are due to shifting seasons attributed to climate change, with associated sea level rises, increased droughts and storms, hotter temperatures and drier periods.



Seasons	Time/Months
Planting and Harvesting of Fruits	
Planting Pineapple and Tomato	Dec to May
Fruit trees (Naus, Navele, Orange, Pamplemous, Breadfruit, Corn)	All year round
Fish and Crustacean	
Crab and Lobster season	Oct to Dec
Fish breeding season	July to Oct
Fishing Season	March to May
Low tide during the night	Dec to Feb
Low tide during the day	March to June

Seasons	Time/Months
Climate and Weather	
Dry season	June to Nov
Wet season	Dec to May
Cyclone season	November to May <i>*Cyclone season used to be from November to April, but due to climate change, the cyclone season has extended to May.</i>
Planting and Harvesting of Crops	
Planting yam and root crops	June to Aug
New Yam Harvest	March to May
Planting Kumala Season	Aug to Oct

Month	Local Dialect	Meaning
January	Atu Moroko Vusa	Food garden is not yet ready for harvesting
February	Atu -Moro ko matua	Food is ready for harvest
March	Pau Rongo Lolo	Planting season - growing new yam gardens
April	Pete Masuri	Planting done; farmer must remove old planting materials planted in order for new yam to grow
May	Tarasarasa	Leaves are dried up - time to burn the new planting area
June	Takavakava	There is lots of work to do, so it is important to manage your time
July	Viniumariki	Yam tubers are getting bigger
August	Viniumalapa	Tubers are getting bigger
September	Madulele	Tired of working
October	Leau Soro	Food gardens are ready for harvesting
November	Piliriki	Time to rest from your work. You say you will do something but you never get it done because you are tired
December	Pililapa	Sleep a lot. You cannot get out of bed. You are stuck to your pillow

- Dry season is referred to as Nandrel, in Akhamb's local dialect. It loosely translates to "food is scarce". Dry seasons tend to yield less food for the locals, as well as water shortages.
- The blooming of Narara (*Erythina variegata*) signals dry season.
- Wet season is referred to as Navimas in Akhamb's local dialect. It loosely translates to "fruit is plentiful". There are many changes in wind direction during this season.
- Best time to plant kava is from January to June, since the days are shorter, hence less sun exposure.
- Turtles are an integral part of Akhamb culture. They are usually hunted during the yam harvesting season and are usually baked and eaten with the yam harvest.



PART

2

Livelihood Information

Communities participating in CRI in Vanuatu are largely subsistence farmers, growing crops in community gardens and plantations and using resources from forest and sea. Goats, chickens and pigs are grown for domestic use and for sale at markets, such as at Port Vila. Root crops are also important for household foods and income.

Some households also run retail shops. Some men and boys now engage in regional seasonal work in Australia and New Zealand. This practice has improved living standards in communities, but takes men away from the community, meaning labour is more scarce.

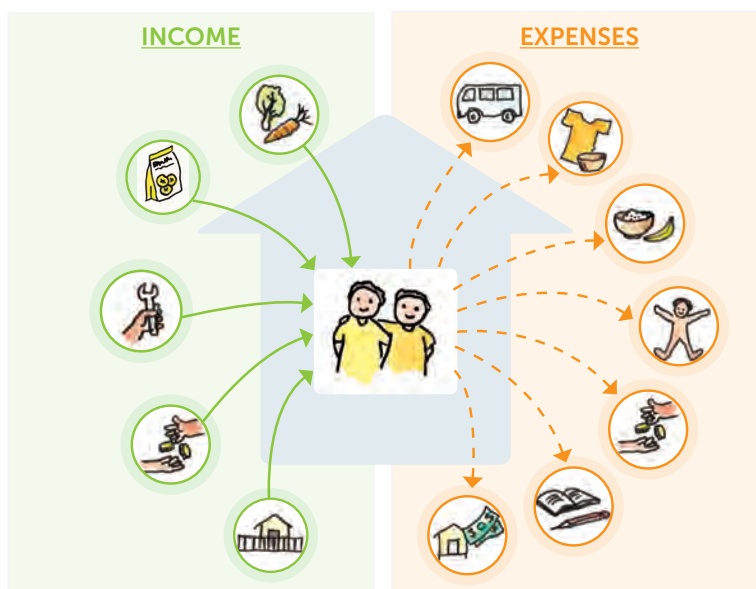
On Nguna island, communities are highly reliant on tourism, fishing and subsistence agriculture. Considerable work is being done to strengthen and maintain these systems. Numerous initiatives are studying the invasive species present across Efate which may threaten native biodiversity and agricultural output. Regular community awareness work and training is also aiming to establish more conservation areas and teach the importance of biodiversity and environmental protection.

They collect a number of forest products – including timber, firewood, fruits and nuts, plants for thatch, plants for crafts, pandanus leaves, edible ferns and dry coconuts. Plantation crops are mostly kava and copra, followed by timber (sandalwood, mahogany, white wood), cacao, and some fruits and nuts. Some communities had logging activities, but these have been curtailed due to recognition of resource loss.

In some communities Indigenous knowledge is still high, and this translates to using traditional hunting skills for obtaining food or the production of handicrafts.

Threats to livelihoods and wellbeing come from wild animals, floods and cyclones.

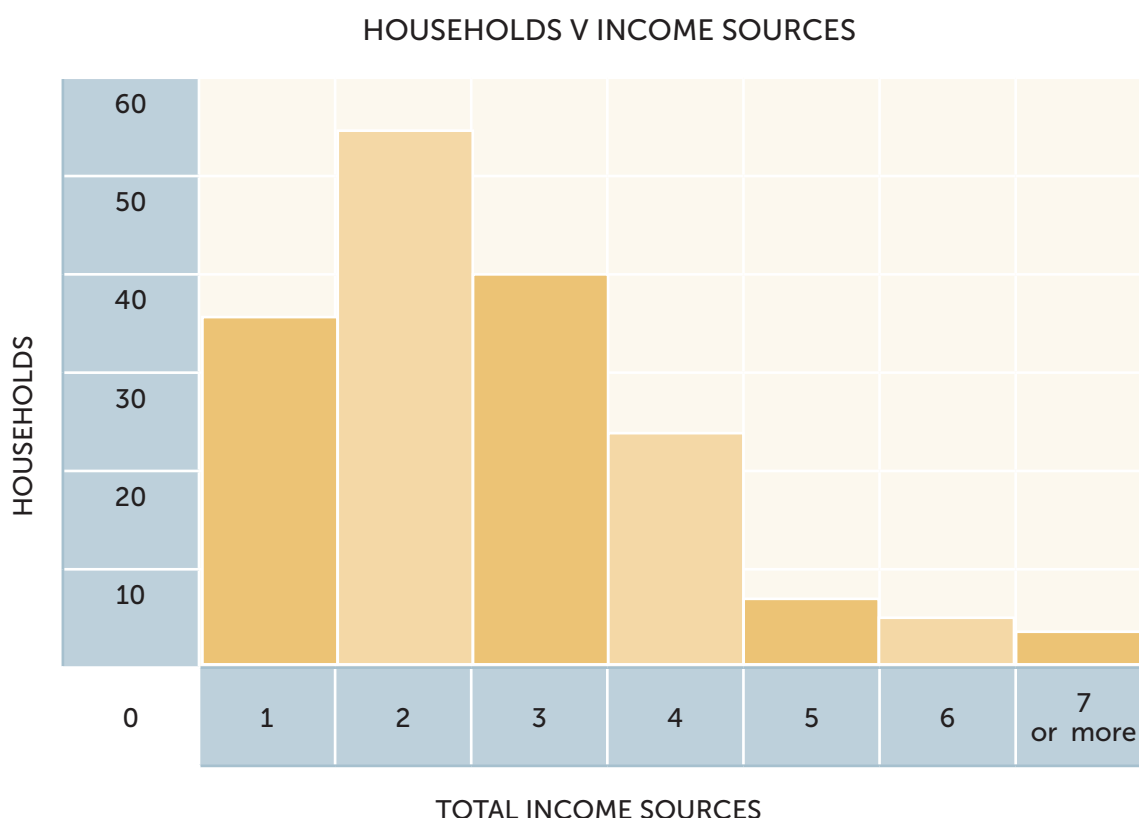
LIVELIHOOD	LIFE	WELLBEING
Retail shops, community cooperative farm, transport (truck, boat), food gardens, nursery, seafoods	Rainwater, forest, ocean, shelters, mangroves	Water tanks, church, hall, dispensary, primary school, solar panels for energy to each house, nakamal, beaches





Household income

There is a range of income sources across Climate Resilient Islands communities in Vanuatu. Most households have multiple sources, with only 38 of the 168 respondents reporting a single source. 56 households had the median number of two sources (the average number was 2.6). 40 households had three sources. There was a steep drop off above four sources, with only 11 households having more than that.



Selling vegetables is the most common source of income, providing 84 households with income (though only six rely on this exclusively). Likewise, 42 of the 77 households who responded an 'Other' source of income clarified that as selling either livestock, fish, fruit or other crops including kava and copra.

The second-highest income source is selling fish or seafood with 45 households using this means, while 44 households reported earning income from wage work and 36 from skilled services such as carpentry or mechanics.

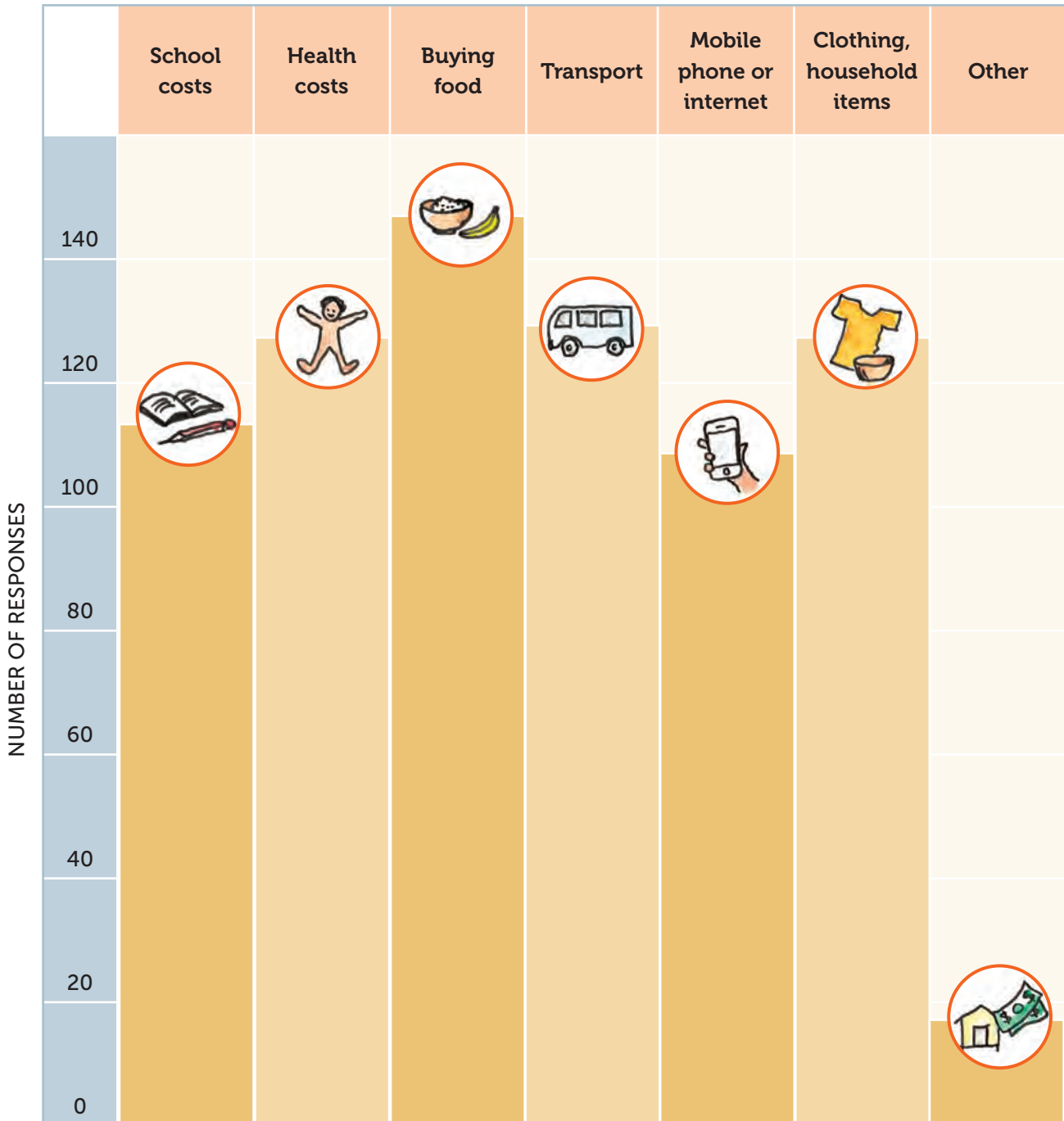
Though only a relatively low 24 households reported earning income from formal employment, it was the second most reported sole source of income, with five households earning money from this compared to six for selling vegetables, despite vegetable selling being the most common source overall. However, due to the number of responses of kava sales in the 'Other' section, it is likely this is also a prominent sole source of income.



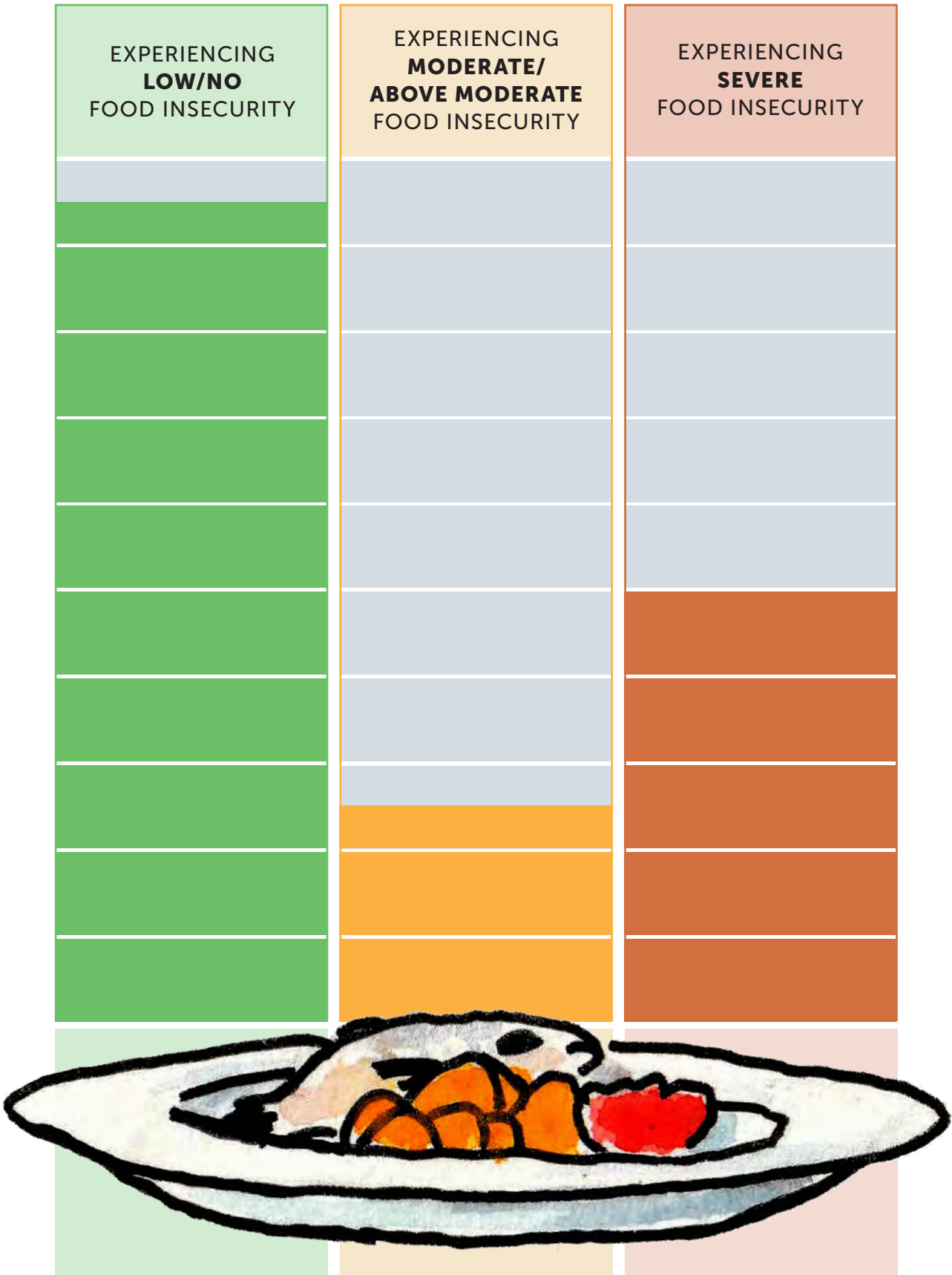
Household spending

As with income, food is the most popular category, with 164 households reporting spending money on food. This is well above clothing and household items and transport, each with 145 responses. 59% of households reported spending the most money on food while 39% spent the most on education.

WHAT DOES YOUR HOUSEHOLD SPEND MONEY ON?



Food Insecurity Experience



Vanuatu shows both encouraging and concerning signs for its food insecurity. Averaged out across the 168 respondent households, the surveyed communities have an overall moderate level of food insecurity, but with a highly unequal distribution

Of the 168 surveyed households, 95 were found to be experiencing low or no food insecurity, 23 moderate or above moderate food insecurity, and 50 were experiencing severe food insecurity.

Of the households experiencing low or no food insecurity, 72 responded No to every question, meaning the majority of those 95 households were experiencing no food insecurity. While this is a good sign, the 50 households experiencing severe food insecurity reveal an inequality which is seen in the individual community data.

For example, Sunae and Akhamb reported almost no food insecurity, while Loru was also very low. However, 80% of households in Kerepua were in the severe category. This was also the predominant category in Vanausi, which 32 of its 76 households reported experiencing. Kerepua and Vanausi are also the two communities in which the most households were surveyed; together, they supplied 96 household surveys, more than half of Vanuatu's data overall. By contrast, only 28 households were surveyed across Sunae, Loru and Akhamb.

The remaining communities of Pangpang (8 households), Malaliu (9 households) and those of Krab Bay (10 households) similarly reported relatively low food insecurity. This suggests a potential link between community size, or at least number of households surveyed, and the level of food insecurity found.



Community Resilience Indicators

The following are indicators of how communities consider themselves to be resilient. The indicators are taken from Vanuatu CRI communities and are common across communities.

Knowledge



- Good knowledge of farming practices
- Restoration of traditional knowledge
- Knowledge of natural bush material use in building houses
- Knowledge of traditional weather warning systems for cyclones
- Continuation of traditions in ceremonies
- How to access markets

Physical Security



- Protection from coastal erosion
- Secure, safe, water supply
- Strong, well-built houses
- Ability to meet food needs from gardens and sea

Connections



- Church commitments
- Good relationships with each other within the village and others outside the village
- Respect for chief
- Help from government agencies

Community Risk Summary ³

Overall resilience indicators:

1. More than 1 livelihood
2. Secure food gardens and access to seafood
3. Safe location of well-built houses
4. Access to safe, secure water supply
5. Safe and secure transport

Across CRI Vanuatu communities, the trend for resilience is mixed. While some communities have become more resilient due to larger incomes from crops such as kava, others are facing insecurities because of climate related issues. Some communities are also seeing increasing inequality, as those with less resilience are hit by pressures from climate change. Income from labour programs offshore helps but means that community members are away for long periods of time. There is lack in areas such as electricity supply. Stresses on environment from climate change come on top of marine pollution, coastal erosion and, in forests, threats from illegal logging and general loss of biodiversity.

Risk a combination of three things - Vulnerability, Exposure and Weather/Climate Change.

The summary below shows some of the vulnerabilities reported by communities, the physical exposure to hazards they are experiencing, and the climate change impact they are already experiencing.



Vulnerability

- Dependence on stable kava market for income
- All income sources rely on nature-based systems
- Reduced population due to rural exchange programs
- Only one income source
- In cyclone recovery mode
- Low access to markets
- In areas vulnerable to flooding

Exposure

- Increased water insecurity due to sea level rise
- Increased coastal erosion and sea level rise
- Increased drought and/or flooding impacting homes and gardens
- Crops rely on rainfall
- Crops in high temperature climate

Climate Change

- Increase in frequency and intensity of cyclones
- Increase in frequency and intensity of droughts
- General increased temperatures

⁴ Source: https://www.ipcc.ch/site/assets/uploads/2018/03/SREX_Full_Report-1.pdf

Community Priority Values & Assets

Communities in Vanuatu typically value the plantations and gardens that provide them with food and income. They value surrounding ecosystems including natural forests, oceans and reef systems, and mangroves. Some communities express concern at degradation of these assets, through logging and unauthorised resource taking, overfishing and pollution and climate change-related pressures.

Communities value working together to protect these assets, but there are additional pressures on the successful management of resources.

The table below contains assets that are taken from the communities, as well as the risks to these assets and strengths. Communities were asked to assess the risk to assets. The assets in this table are deemed to be most at risk (rated a 3), affected by vulnerability, physical exposure and impact of climate weather events.

ASSET / STRENGTH OF VALUE TO COMMUNITY	HOW IS THIS VULNERABLE?	HOW IS THIS EXPOSED?	IMPACT OF CLIMATE OR WEATHER EVENTS?	WHAT IS THE RISK? (1, 2, 3)
Coastal area	Sand mining and coastal deforestation	Sea level rise, storm surges	Cyclone	3
Water supply	Wells can be contaminated. Water tanks rely on good rainfall. Only limited water tanks	Wells exposed to sea level rise and saltwater intrusion	Flooding, drought	3
Conservation area	Needs enforcement, signage	Storm surges, sea level rise	Cyclone	3
Buildings – church, dispensary, community hall, primary school/kindy	Buildings need repair and renovations, especially the ones that are evacuation centres	Strong winds, heavy rain	Cyclone	3
Transport	Limited access to vehicles and boats	Strong winds, heavy rain	Cyclone	3
Food gardens	Wild animals can damage. Located on slope area Not protected from wild pigs Loss of soil fertility	Strong winds, flooding. Not safe from soil erosion during heavy rainfall. Gardens need to be fenced due to wild pigs	Heavy rain (erosion) Cyclone Drought	3

ASSET / STRENGTH OF VALUE TO COMMUNITY	HOW IS THIS VULNERABLE?	HOW IS THIS EXPOSED?	IMPACT OF CLIMATE OR WEATHER EVENTS?	WHAT IS THE RISK? (1, 2, 3)
Road Infrastructure	Road is a dirt road, not sealed	Flooding and erosion	Heavy rain	3
River	Cutting of trees along the river River polluted with rubbish	Flooding	Heavy rain Drought	2



Disaster Risk Reduction participation

There is some variation amongst communities regarding disaster preparation. There are CDCCCs, but not always disaster plans. Sometimes other community committees act as disaster committees. Communities work with Red Cross. Government assistance is sometimes hard to access. There are different organisations helping with disaster readiness.

Evacuation centres are sometimes lacking in communities, or in need of repair or strengthening. Churches are sometimes used as evacuation centres. Communities report that many houses are not cyclone-resistant.

Communities generally know what to do when disasters are imminent. People listen to cyclone warnings and carry out necessary jobs such as people coming back home and getting ready for cyclones. After the cyclone, there is a temporary scoping of the area such as clearing of roads to allow services to come through.

Community Management Groups

The following table contains examples of community ecosystem elements, who is responsible for management, and the strengths and challenges of management.

ELEMENT	HOW MANAGED?	STRENGTHS AND CHALLENGES
COASTAL AREA, INCLUDING MANGROVES	Area is managed and looked after by <i>kastom</i> landowners, and resource monitor.	Strengths - monitoring both within and outside community Challenges - marine pollution, sea level rise
WATER SUPPLY	Water Committee, helped by Red Cross, ADRA	Strengths – Education happening Challenges - No financial help for the committee to implement work, tanks inadequate during dry season
MARINE CONSERVATION AREA, FISHING GROUNDS	Area is managed and looked after by <i>kastom</i> landowners.	Strengths - Have seen increase in marine resources when chiefs declare area tabu Challenges - poaching, climate change, overfishing
BUILDINGS – CHURCH, DISPENSARY, COMMUNITY HALL, PRIMARY SCHOOL/KINDY	Council of Chiefs, congregations	Strengths – funding from outside community Challenges - old buildings are easily damaged by disasters, especially cyclone
FOOD GARDENS	Individual households, Farmers Association	Strengths – Association can identify markets, cooperation between farmers Challenges – Wild pigs, climate, access to markets
PLANTATIONS (COPRA)	Individual owners	Strength: provides income Challenges: needs a lot of labour, bad weather affects plants
FOREST	Community Conservation Area Committee and Rangers Tribes Landowners	Strength: Forest is in good condition, resource-rich Challenge: Cyclones damage large trees especially, and can cause landslides



Next Steps

Climate resilience can be defined as⁵:

The ability of social-ecological systems to absorb and recover from climatic shocks and stresses, while positively adapting and transforming their structures and means for living in the face of long-term change and uncertainty.⁵

We think about how three different things are combined when working with climate resilience⁶:

absorptive capacity, adaptive capacity, transformational capacity
(symbolised in the programme by the coconut palm, crab and butterfly).

These three capacities relate to the levels of challenges communities face and the changes required to meet these challenges.



ABSORB



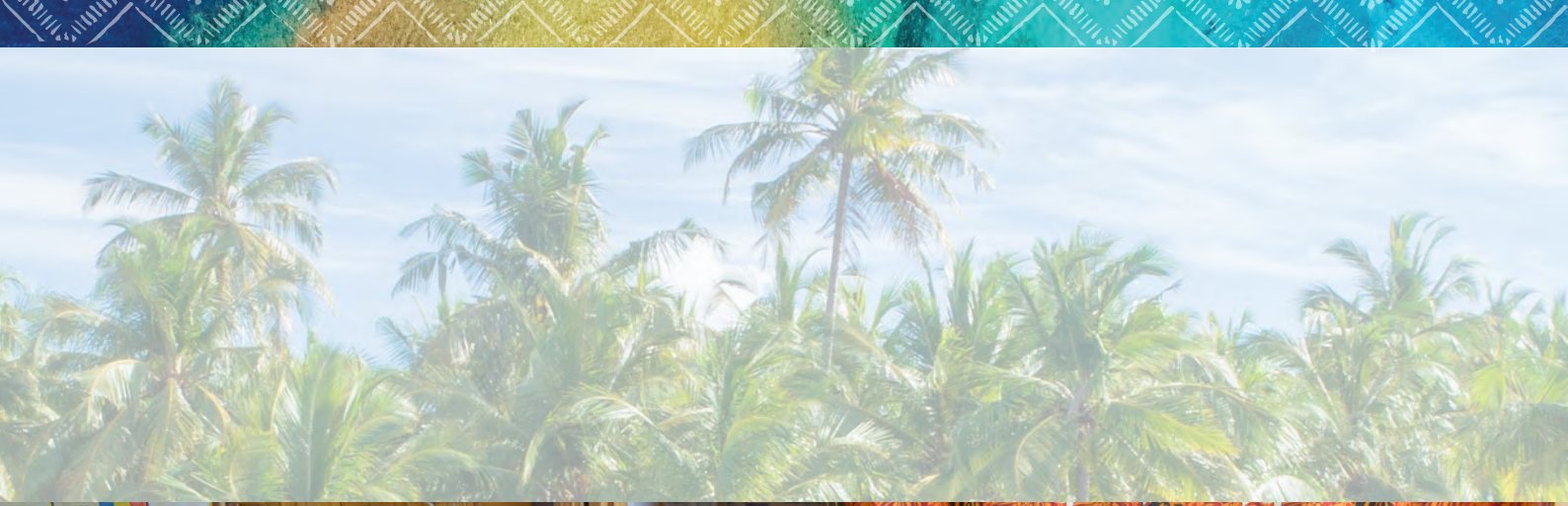
ADAPT





TRANSFORM

5 Mitchell, A., 2013 Risk and Resilience: From Good Idea to Good Practice, OECD Development Co-operation Working Paper No 13

6 Adapted from *Assessing and Monitoring Climate Resilience. From Theoretical Considerations to Practically Applicable Tools - A Discussion Paper*, GIZ 2014





Community Resilience Profiles are being used to develop **Community Resilience Plans**, which contain practical resilience strategies based on the ‘absorb, adapt, transform’ framework. This is part of the process being used in the Climate Resilience Islands Programme to build resilience to climate change impact.

Based on the information communities provide in the profiles, priorities for communities are established, and a process of applying targeted strategies for resilience building of local resources and skills is initiated. This process is unique to each community, responding to their unique challenges and strengths. Priorities for strategic actions are those with a Nature-based Solutions focus, and those that incorporate the use of Indigenous and traditional knowledges. The process is monitored, and adjustments are made to the plans as the process of building resilience continues.



*Climate Resilient Islands
aims to strengthen community resilience
and adaptive capacity to the impacts of
climate change through nature-based
solutions working with rural communities in
Vanuatu, Fiji, Papua New Guinea, Tonga, and Tuvalu.*

*The project is a New Zealand
Ministry of Foreign Affairs and Trade
initiative implemented by
Live & Learn Environmental Education.*