



CLIMATE RESILIENT ISLANDS PROGRAMME

FIJI SUMMARY

Community Resilience Profile

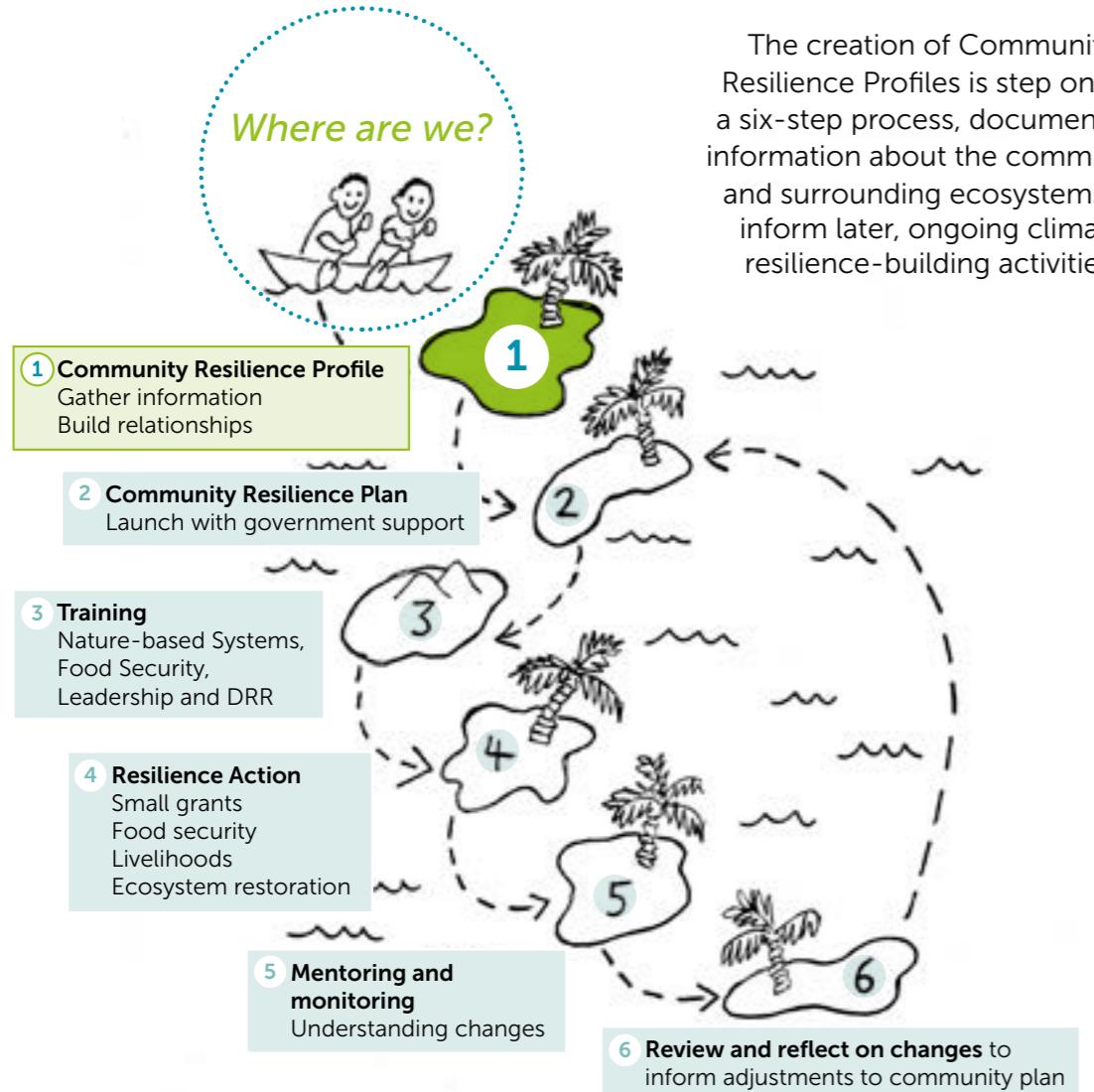


live & learn
ENVIRONMENTAL EDUCATION



NEW ZEALAND
FOREIGN AFFAIRS & TRADE
Manatū Aorere

This profile summarises information generated in 2022 by the Fiji 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.



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

Contents

| | |
|--|-----------|
| Introduction | 4 |
| Community Resilience Visions and Pictures | 7 |
| Local Indigenous Resilience Knowledge and Stories | 10 |
| PART 1 | 12 |
| Ecosystems and Climate – Fiji Overview | 13 |
| Local Ecosystem Information | 16 |
| Local Ecosystem Zones and Elements | 20 |
| Timeline of important events | 25 |
| Fiji Food Seasonal Calendar | 26 |
| PART 2 | 28 |
| Livelihood Information | 29 |
| Community Resilience Indicators | 36 |
| Community Risk Summary | 37 |
| Community Priority Values & Assets | 38 |
| Disaster Risk Reduction participation | 39 |
| Community Management Groups | 40 |
| Next Steps | 42 |

Introduction

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

The profiles contain general information on Fiji'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.

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.

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.

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

Fiji 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

Freshwater reed known as *kuta* in Fiji has long been a traditional treasure or *yau ni vanua* for the community. (It represents local skill and abundance.) It has existed in the province of Bua from the time of their forefathers and grew so abundantly in that villagers from other parts of Bua used to come and take their share of the *kuta* to weave their traditional attires. There were also rumours of the Kingdom of Tonga having a trade alliance with this province where Bua exchanged *kuta* for whales' teeth from Tonga.



Resilience Vision

In 100 years, the residents of our community will be enjoying the resources that we have today. We will focus on crop rotations and other ways of restoring land, and community unity. A priority is sustainable farming that keeps the environment healthy, as this will mean the community will continue to be healthy.

Resilience Picture

Resilience is like a bouncing ball or a yoyo. The resilience of the community is dependent on the community's relationship to the natural resources around the community, such as the river which runs through the village. The river contains the local fish *Rediogobius* (dome), which is endangered and requires pristine waters for its survival.



Resilience Vision

The community wants to maintain Indigenous knowledge, the clan system, religion and the tradition of working together to help everyone in the village. Resilience will come through managing time, increasing agriculture, restoring ecosystems, having good homes, roads and education, and being prepared for disasters.

Local Indigenous Resilience Knowledge and Stories



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

Women used resources collected from forest for weaving. Weaving skills for fans, baskets and other items were passed from generation to generation, but some of this knowledge is being lost.

Multiple breadfruits on one branch of the breadfruit tree, or more fruit than usual, indicates imminent cyclone.

Communities have connections to ocean, forest and land through totemic fish, trees and animals. Totems are important for cultural identity and understanding of ecosystems. Totems mean restrictions on collection of these resources, ensuring conservation. For example, in some coastal communities, crabs are only allowed to be taken at certain times, and are only for local consumption, not sale.



The community still values their relationship with the vanua very highly. 'Vanua' is often translated as 'land', but it also encompasses people, community, natural resources and customs, and is an important framework through which the community negotiates social and biological changes through time.

In the past, resources were shared, and community members would support each other in farming through solesolevaki. The women would get together and weave mats for their homes. Solesolevaki is still strong, as they still work together to plant root crops and other farm activities for each member of the village.

Traditional house building used locally available materials. Roofs were low to cope with cyclones, and floors raised to cope with floods.

Breadfruits were put in the sea for days, to soak up the salt, then buried to preserve. The community also used an alternative method of heating breadfruits in leaf wrappings. This method preserved the fruit for up to a year.

The churches have outlawed some traditional practices, but others continue. The concept of vanua is compatible with Christian faith, as both emphasise connections to community.

Ancestors were forbidden to uproot plants near rivers and streams to prevent erosion. Ancestors only collected enough resources for themselves and returned the leftovers. Ancestors' rate of consumption allowed for ecosystem regeneration.

Root crops used to be stored in a small, thatched building for months, to keep out rain and preserve the crop.

PART 1

Ecosystems and Climate – Fiji Overview

Fiji consists of hundreds of islands. There are two large islands, Viti Levu and Vanua Levu, both of which have mountains with largely intact cloud forests, and lowlands that have a mix of grasslands, forest, plantations and agricultural land. Forests cover approximately 52% of Fiji's landmass, half of which is protected and 87% of which is owned by iTaukei people (Indigenous Fijians).



TEMPERATURES AND RAINFALL:

Dry season:
23-25, 80-150mm

Wet season:
26-27, 250-400mm

Fiji experiences times of drought, often associated with El Nino periods.



OCEANS:

27% of population live within 1 km of the coast.



HABITAT DIVERSITY:

Estuaries, lagoons, sea grass areas, coral reefs, third largest mangrove forests in the Pacific, largest intact forests in the region.

Threatened by overfishing, urban development, aquaculture, temperature rise.

Half of Fiji's flora and fauna are endemic to Fiji.

It has the third-largest number of threatened endemic species worldwide.



FRESHWATER:

Rivers, lakes, swamps, dams – used by 70% of population.

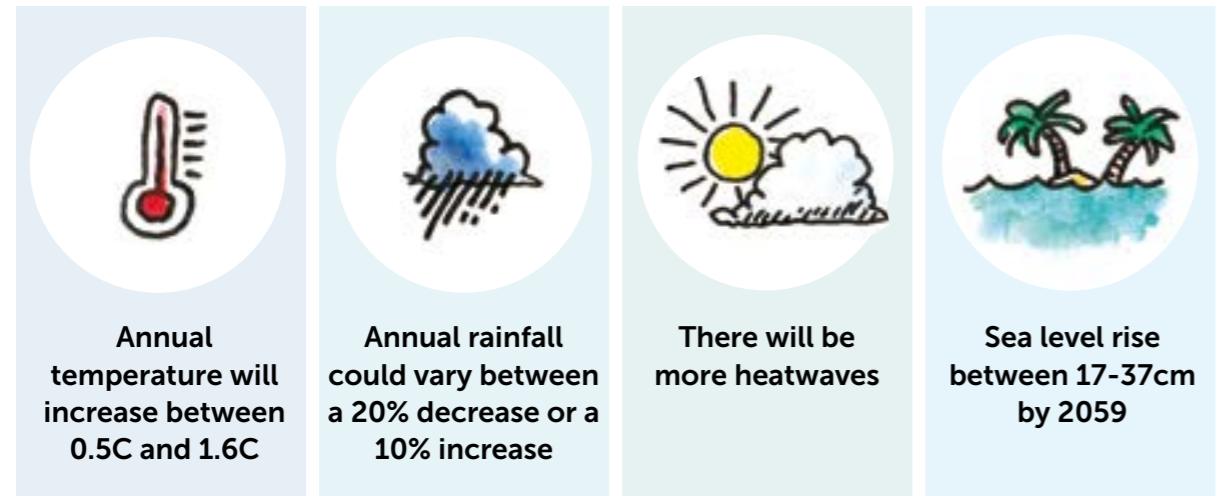
Habitat for plants and animals.

Regional and national climate change impact and forecasts

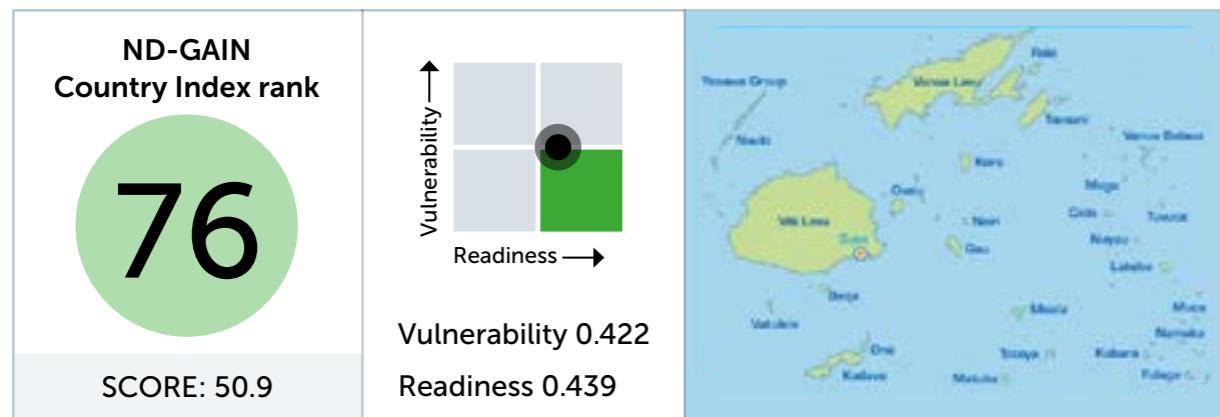
Fiji is highly vulnerable to the impacts of climate change, but there is uncertainty around what the specific effects will be.

There is likely to be more frequent and extreme rainfall events, increased flooding, worsening drought, and more intense but less frequent cyclones.

Depending on the specific scenario:



ND-GAIN² Resilience Ranking:



The low vulnerability score and high readiness score of Fiji places it in the lower-right quadrant of the **ND-GAIN Matrix**. Adaptation challenges still exist, but Fiji is well positioned to adapt. Fiji is the 88th most vulnerable country and the 79th most 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/>

Fiji National emergency management and disaster risk reduction systems

In Fiji Disaster Risk Reduction (DRR) governance is split between three Ministries: **Ministry of Rural and Maritime Development**, **Ministry of Disaster Management** and **Meteorological Services**, and **Ministry of Local Government, Housing and Community Development**.

Fiji is split into four divisions under the jurisdiction of the Ministry of Rural and Maritime Development and the Ministry of Disaster Management and Meteorological Services. A commissioner is appointed in charge of each division:

- Central Division
(administrative office in Nausori)
- Northern Division
(administrative office in Labasa)
- Eastern Division
(administrative office in Levuka)
- Western Division
(administrative office in Lautoka)

Under the four divisions are Fiji's 14 provinces, and under the provinces are districts and villages. At the regional government level there are 13 local governments – each with its own city or town council. This setup means that Fiji's divisions, provinces, districts and villages are currently under the jurisdiction of a different agency than its cities and towns. Disaster management is mostly carried out within the division-province-district-village structure.

The **National Disaster Management Council** (NDMC) is responsible for the formulation of policies and strategies for disaster management and DRR.

The **National Disaster Management Office** (NDMO) is the central agency implementing and coordinating the implementation of NDMC policies, including disaster mitigation and preparedness. The NDMO is responsible for disaster-related preparations, post-disaster damage surveys, coordinating recovery and

reconstruction efforts, and conducting disaster management activities at the community level, such as drills, education and public awareness.

In communities' schools, churches and community centres are used for evacuation. The Ministry of Education, Heritage and Arts is the administrator for schools. Each community is responsible for community centres and churches.

Disaster READY in Fiji is a program funded by the Australian government that delivers risk reduction, adaptation and emergency response programming across Fiji. Disaster READY focuses on inclusive community-based DRR to build community awareness, knowledge and preparedness for disasters, community disaster planning, the mapping of churches and other buildings as evacuation centres, volunteer training, strategic warehousing of supplies, and support for psychosocial and child protection activities.

All nine Fiji communities have had some preparation for disasters. At least three communities have had disaster training. However, evacuation centre identification, formation of committees and making of disaster plans have been limited in some cases.

Seven communities have at least one evacuation centre. Two communities have two evacuation centres, and one community has three. Two communities do not have evacuation centres. Apart from these communities, the evacuation centres of several others are inadequate in construction and/or threatened by the increased floodwater levels of recent years.

Two communities do not have disaster planning committees. While the majority of communities have a disaster committee, not all are meeting or putting in place disaster plans. One community discusses plans at the committee level but has not documented the plans.

Fiji 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.

| Community | Location | Population | Male | Female | Households | Children (under 14) | Living with disability |
|--------------|---------------------------------------|-------------|------------|------------|------------|---------------------|------------------------|
| Banikea | Lekutu District, Bua Province | 184 | 93 | 91 | 40 | 71 | 5 |
| Kavula | Lekutu District, Bua Province | 172 | 80 | 92 | 49 | 62 | 1 |
| Laucala | Wailevu District, Cakaudrove Province | 103 | 57 | 46 | 21 | 29 | 2 |
| Dreketi | Wailevu District, Cakaudrove Province | 187 | 95 | 92 | 40 | 55 | 1 |
| Naibulu | Dreketi District, Bua Province | 186 | 100 | 86 | 56 | 41 | 2 |
| Naiqaqi | Wailevu District, Cakaudrove Province | 159 | 76 | 83 | 34 | 32 | 2 |
| Nawailevu | Bua District, Bua Province | 467 | 253 | 214 | 92 | NA | 19 |
| Valeni | Wailevu District, Cakaudrove Province | 233 | 123 | 110 | 38 | 82 | 7 |
| Vitina | Dogotuki District, Macuata Province | 201 | 96 | 105 | 32 | 70 | 2 |
| Total | | 1892 | 973 | 919 | 402 | 442+ | 41 |

Many communities maintain ties to neighbouring villages. In some communities there have been shifts in land ownership and shifts in community placement, driven by population pressures or through the direction of Christian missionaries or government authorities.

Communities may have one or more clans, with numerous families. A village headman might be elected, who is employed by local government. If there are disagreements involving kinship, the Itaukei Affairs Board kinship department (Veitarogi Vanua) is contacted to negotiate with the villagers and align them to their respective kinship hierarchy.

Christianity is typically predominant in the communities, with a number of denominations, such as Methodist, Assemblies of God and Apostle Church. Varying affiliation sometimes hinders community cooperation. One of the CRI communities is largely Hindu in religious affiliation.

Communities tend to be both subsistence farmers, as well as selling produce for income. Fishing is practised in coastal communities for income and subsistence. Crops include taro and other root crops such as cassava, kumala and yam. Fruit trees grown include citrus, breadfruit and plantains. Coconuts provide subsistence and income through the production of copra. Rice is a staple income source for one community. Kava is an increasing income source. Other, introduced enterprises include beekeeping.

As well as being reliant on community plantations and gardens, community members often gather resources from surrounding ecosystems, primarily forests and ocean. Surrounding forests are often degraded, due to land clearing and logging. While communities use forest trees for building materials, there is also increased pressure from commercial logging. This can lead, in turn, to loss of biodiversity, resources for communities and erosion and siltation. The frequency and intensity of cyclones is also inhibiting re-growth of forests.

Rivers are an important source of water, but are increasingly polluted from agriculture and mining runoff, and siltation due to land clearing.

Community members expressed concern generally that in the past community cooperation was stronger and resources were more equally distributed, with recent emphasis on income generation creating inequalities and putting a strain on local ecosystems.

Most communities have dedicated health workers, but medical assistance often requires travel to a medical centre. Most households have toilets and solar power. Mobile phone coverage is typically patchy outside of larger urban centres. Community members express concern that this reduces ability to respond in times of disaster.

Climate change will have a considerable impact on food production through effects like extreme temperatures and precipitation, soil erosion, increased pests and diseases and decreased water availability. Climate effects are expected to have a moderate to high influence on staple crops such as sweet potato, taro, domesticated yam and rice by 2050. Low to moderate impacts are likely on giant taro, coconuts and cassava, which will have major implications for food security.

Increased cyclones, extreme heat and intense rainfall could all pose challenges for agriculture in the region, while sea level rise could reduce the amount of arable land available, leading to further land degradation in areas further inland. Mangrove planting is being done in some coastal communities, which could help mitigate the impacts of climate change.



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.



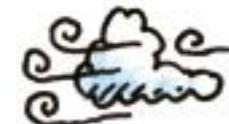
They then mapped the following elements, making comments about the extent of community knowledge and how well the elements were functioning:

WATER AVAILABILITY



Most communities access water from watercourses and rainwater tanks.

WIND



Winds usually come from one direction during cyclone season, opposite to the prevailing winds in non-cyclone season.

HUMAN ACCESS



Roads tend to be gravel or dirt. Most communities have pathways connecting to forest, ocean and gardens.

FIRE



While fire remains a low risk, communities identified more fire-prone sites, such as rubbish dumps, and their proximity to other infrastructure.

SUN EXPOSURE



Communities could readily identify which areas received the most sunlight/shade.

SOIL



Analysis of soil pertains to suitability of land for type of agriculture.

WATER FLOW AND LAND SLOPES



An important consideration for both drainage in wet season and water storage in dry season.

SACRED AND TABU PLACES



Most communities retain areas that are mostly off-limits, such as burial sites, and that have special significance.

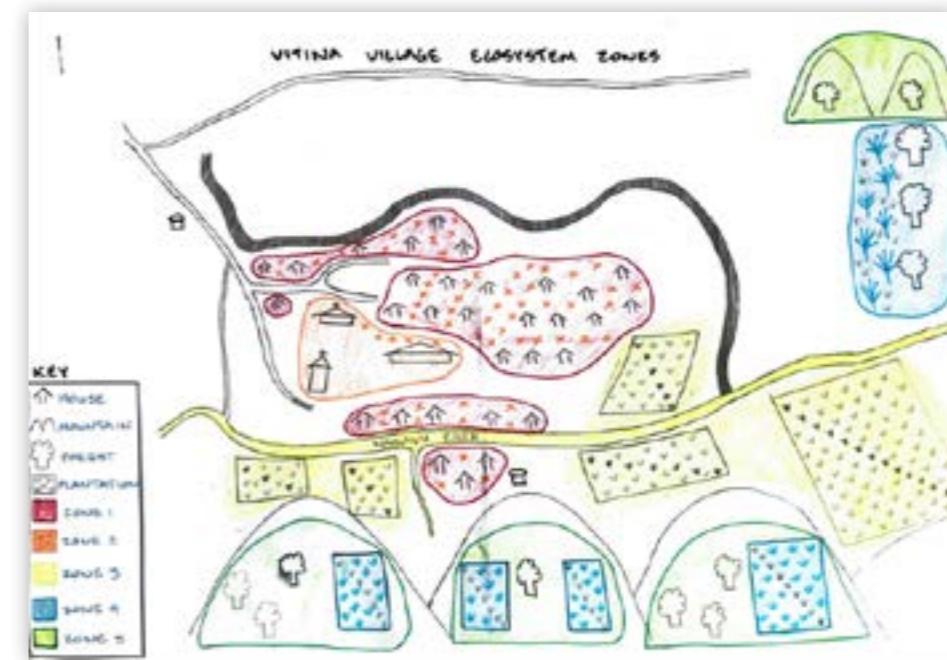
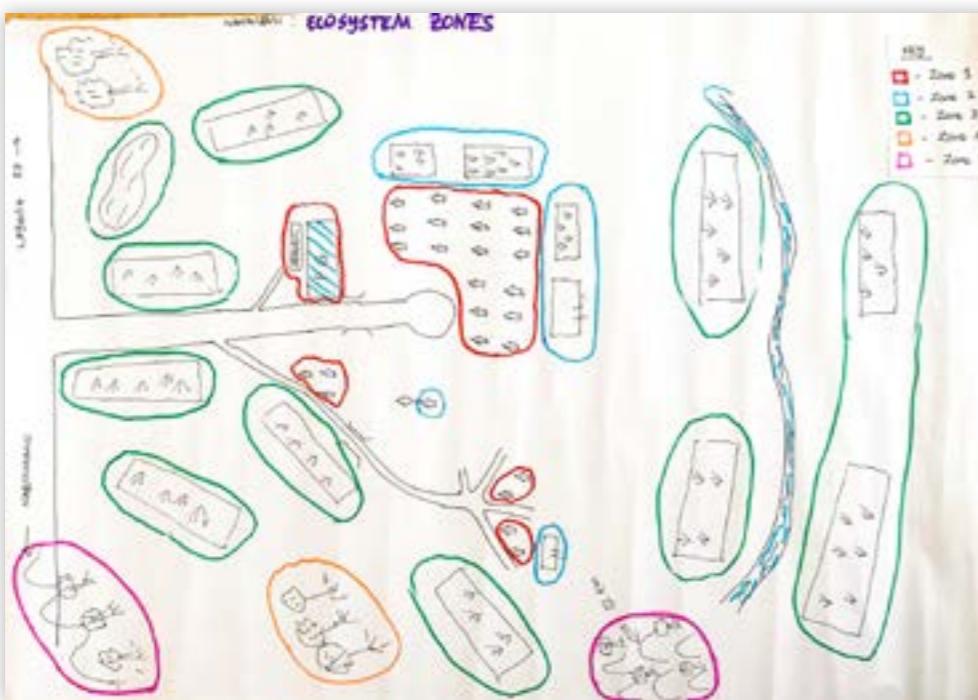
FLOODING



Areas prone to flooding have increased in most communities.

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.



- Zone 1 consists of houses and other buildings, and sometimes kitchen gardens. May include areas for small livestock.
- Zone 2 consists of plantations and gardens that are tended regularly during the week. Includes areas for livestock.
- Zone 3 consists of plantations that are further from the community and tended semi-regularly, such as coconut plantations.
- Zone 4 consists of farms that are visited only rarely during the year, burial sites and river systems.
- Zone 5 - not all communities identified this area, but it includes ecosystems that are untouched by humans or visited infrequently, for resource gathering, but not modified. These may be areas of ocean, mangroves and original, wild forest.

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 |
|---|---|---|---|
| PLANTATIONS FARMS  | Growing food Livelihood Health | <ul style="list-style-type: none"> Source of sustenance and income for families Maintained by families | <ul style="list-style-type: none"> Cyclone, flood, drought, increased temperatures Soil degradation Wild animals, unfenced Spread of community housing Pests and diseases Wild animals damage |
| FOREST  | Growing food Natural Environment Livelihood Health Kinship | <ul style="list-style-type: none"> Source of food and income Protected from clearing Totem trees and animals for conservation | <ul style="list-style-type: none"> Cyclones Logging Cutting down of trees for firewood Clan disputes |
| RIVER  | Natural Environment Livelihood Health | <ul style="list-style-type: none"> Source of food High rainfall maintains flow | <ul style="list-style-type: none"> Erosion Fertilizer washed into the river Dumping of rubbish Dry period/drought Animals contaminate |
| WATER SOURCE  | Growing food Natural Environment Livelihood Health Kinship | <ul style="list-style-type: none"> Source of drinking, cooking and cleaning More than 1 water source Located above sea level Location not too far from the village Maintained by community | <ul style="list-style-type: none"> Contamination by animal waste Increase in village population Landslides, erosion Siltation caused by land clearing upriver. Repair costs high |

| Ecosystem element | Important in which system web? | How this element is strong | How this element is vulnerable or threatened |
|---|---|--|---|
| SEA (FISHING GROUND)  | Natural Environment Livelihood Health Kinship | <ul style="list-style-type: none"> Source of healthy food Source of income Source of traditional medicine Governed by the tribes and clans Coastline extended through natural processes | <ul style="list-style-type: none"> Fish species are disappearing Overharvesting Taboo imposed by government not adhered to by everyone Coastline extension buried seaweed meadows |
| LIVESTOCK  | Livelihood Health | <ul style="list-style-type: none"> Farmers have access to the Livestock Officer at the agriculture station Community maintains | <ul style="list-style-type: none"> No more fences and less grazing area so animals are grazing |
| MANGROVES  | Govt ban on cutting | <ul style="list-style-type: none"> Holds riverbank Source of timber Habitat for animals Taboos on collecting crabs | <ul style="list-style-type: none"> No govt protection from pollution etc Replanting of mangroves was done but young trees were washed away by floodwaters |
| VANUA (KINSHIP)  | Growing food Natural Environment Livelihood Health Kinship | <ul style="list-style-type: none"> Related to all the elements through their traditional totems Elders were brought up to be good custodians of the land and sea Lands divided between clans | <ul style="list-style-type: none"> Clan disputes Lack of leadership structure Rifts between IK and religious interpretations Disputed versions of IK |
| COMMUNITY HEALTH WORKER  | Health | <ul style="list-style-type: none"> Responsible for the safety of the village Maintains community hygiene | <ul style="list-style-type: none"> Lack of resources Lack of proper health training |



Timeline of important events

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

In Fiji, significant events included the following:

Fiji gaining independence from Britain

Access roads being built

Transport services connecting to communities (buses)

Electricity, phone and water connections to houses

Cyclones that have increased in intensity and frequently recently

Periods of dry and flooding events

Putting in place of tabu and conservation areas

Church conferences, sporting events and other social events

Lockdowns and lifted restrictions for Covid

Fiji 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.

| Traditional Months | Activities and changes |
|---|---|
| 1. January (Vula I Nuqa Levu) | <ul style="list-style-type: none"> • Temperatures are hotter than average for this time of year. • Chestnuts harvested but now fewer |
| 2. February (Vula I Sevu) | <ul style="list-style-type: none"> • Many root crops mature but seeing less yields. • More pests destroying crops. |
| 3. March (Vula I Kelikeli) | <ul style="list-style-type: none"> • Mackerel appear. More mackerel than previously, but decrease in numbers of other fish species. • Doi flowers earlier. • Yam harvest times have shifted |
| 4. April (Vula I Gasau) | <ul style="list-style-type: none"> • Traditional i-sevu - presentation of first fruits to chief - has become earlier. The tradition is not as strictly followed as before |
| 5. May (Vula I Doi) | <ul style="list-style-type: none"> • Other types of yam mature, but yields are down. |
| 6. June (Vula I Werewere) | <ul style="list-style-type: none"> • Traditionally time of weeding and cleaning of farms. This is now done at various times during the year. • Tiger claw plant flowering at this time, earlier than usual. |

| Traditional Months | Activities/ Indicators of the season |
|--|---|
| 7. July (Vula I cukicuki) | <ul style="list-style-type: none"> • Traditionally time for breadfruit ripening. Now breadfruits are available all year round because of overall warmer temperatures. • Day temperatures are warmer. • Sometimes mango trees flower but do not produce fruit |
| 8. August (Vula I senidrala) | <ul style="list-style-type: none"> • Breadfruits are available for most of the year now. • Dry periods last longer |
| 9. September (Vula I Vavakada) | <ul style="list-style-type: none"> • Some tree species are flowering outside their traditional season due to drier conditions and hotter temperatures. • Rose apples flower twice a year instead of once, in April and September. • Chestnuts are no longer abundant as before |
| 10. October (Vula I Balolo Lailai) | <ul style="list-style-type: none"> • Hotter temperatures than in the past. • Wet season starts later |
| 11. November (Vula I Balolo Levu) | <ul style="list-style-type: none"> • Cyclones are more frequent and intense, causing more damage. Rainfall events are heavier. Higher floods. |
| 12. December (Vula I Nuqa Lailai) | <ul style="list-style-type: none"> • Temperatures are generally hotter than in the past, with more extreme temperature days. • Hotter days cause wilting and stunting of crops. |

PART 2

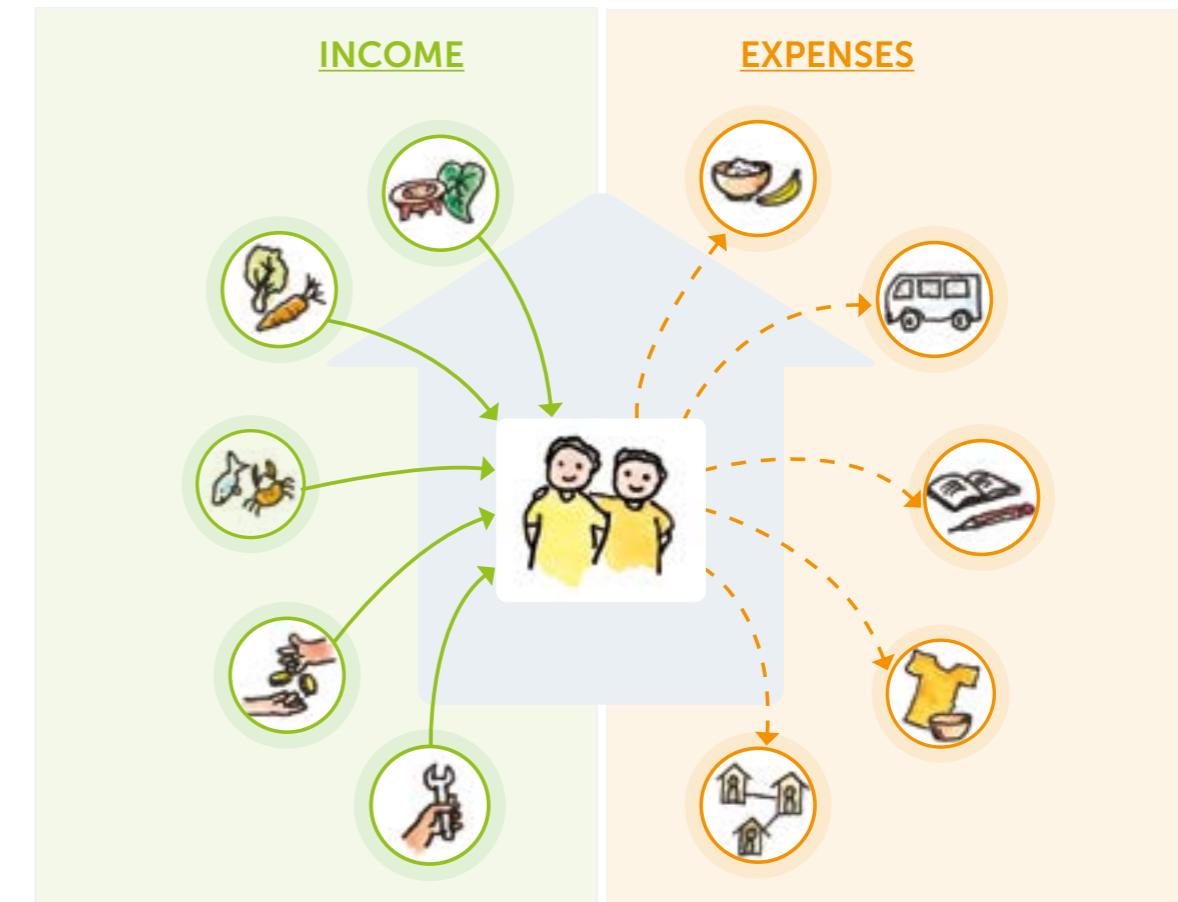
Livelihood Information

CRI Fiji communities grow crops in community gardens and plantations, both for subsistence and for income by selling at market. Crops include citrus fruits, coconut, dalo, cassava, kava and other root crops. Livestock include chickens, pigs and cattle. Income is also produced through handicrafts and beekeeping. This is supplemented by fishing and collection of seafood from oceans and rivers. In some places tabus and fishing bans restrict the collection of seafood.

Agriculture is sometimes hampered by the availability of machinery and the accessibility of spare parts and means of repair. Agricultural work is often gendered, with sales more often facilitated by women. Fishing is often practised by both genders.

The resources that contribute to the physical and financial wellbeing of communities are located in gardens and farms, and in surrounding forests, rivers and oceans. Land quality is decreasing. Degraded forests mean resources are becoming scarcer. Severe weather has affected forest quality and reef systems, affecting fisheries. Shifting rainfall patterns also affect yields.

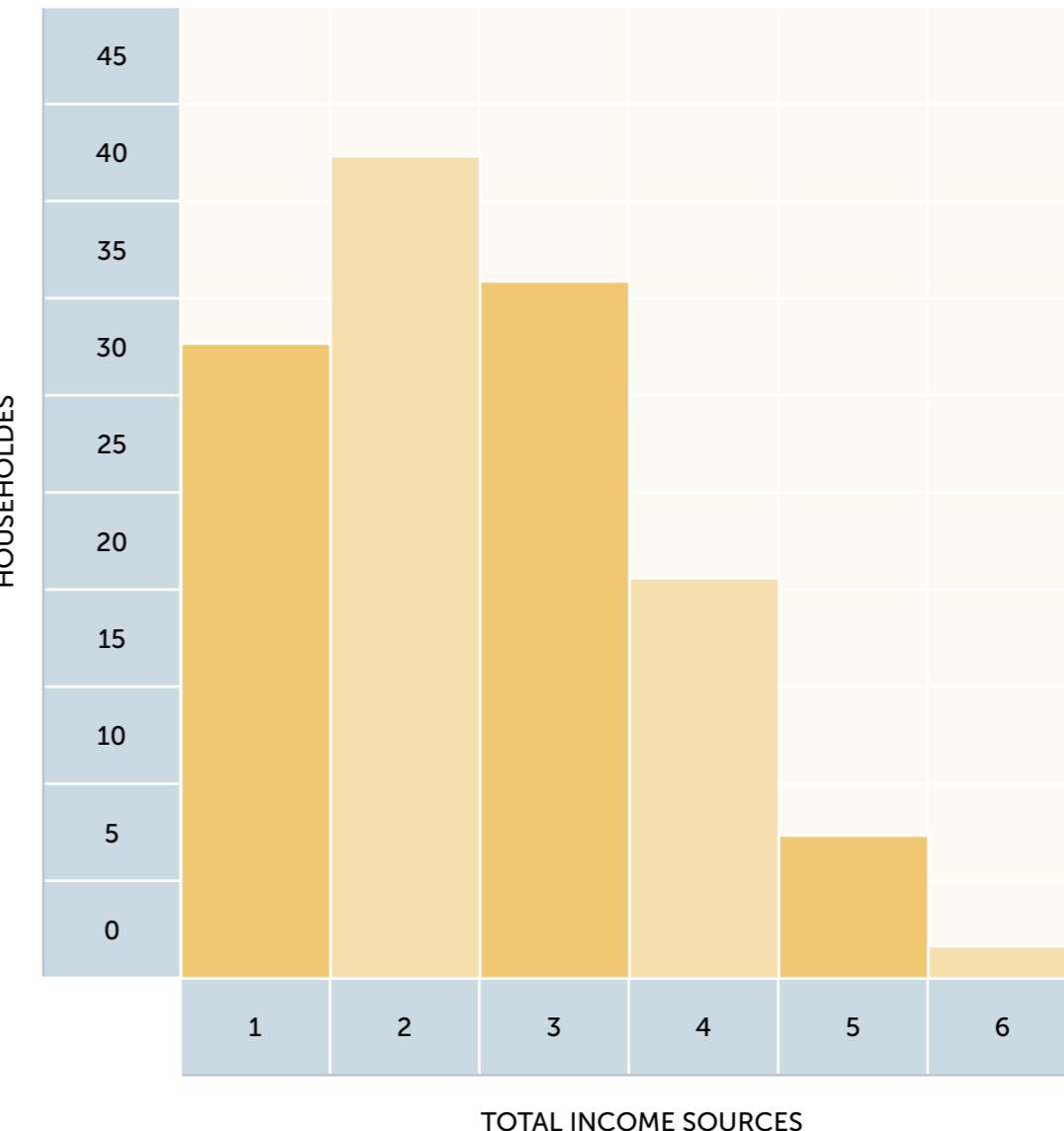
| LIVELIHOOD | LIFE | WELLBEING |
|---|--|---|
| Rice farming, growing vegetables and fruit, livestock, selling seafoods, copra, kava, skilled services, handicrafts | Water supply, rivers, houses, gardens, ocean, soil | Family connections, river, ocean, forest, religion, tradition |





Household income

There is a range of income sources across Climate Resilient Islands communities in Fiji. As indicated by the graph below, most households have multiple sources, with 30 of the 126 households reporting only one source. 40 have two sources, 33 have three, 18 have four and just five households report five or six income sources.



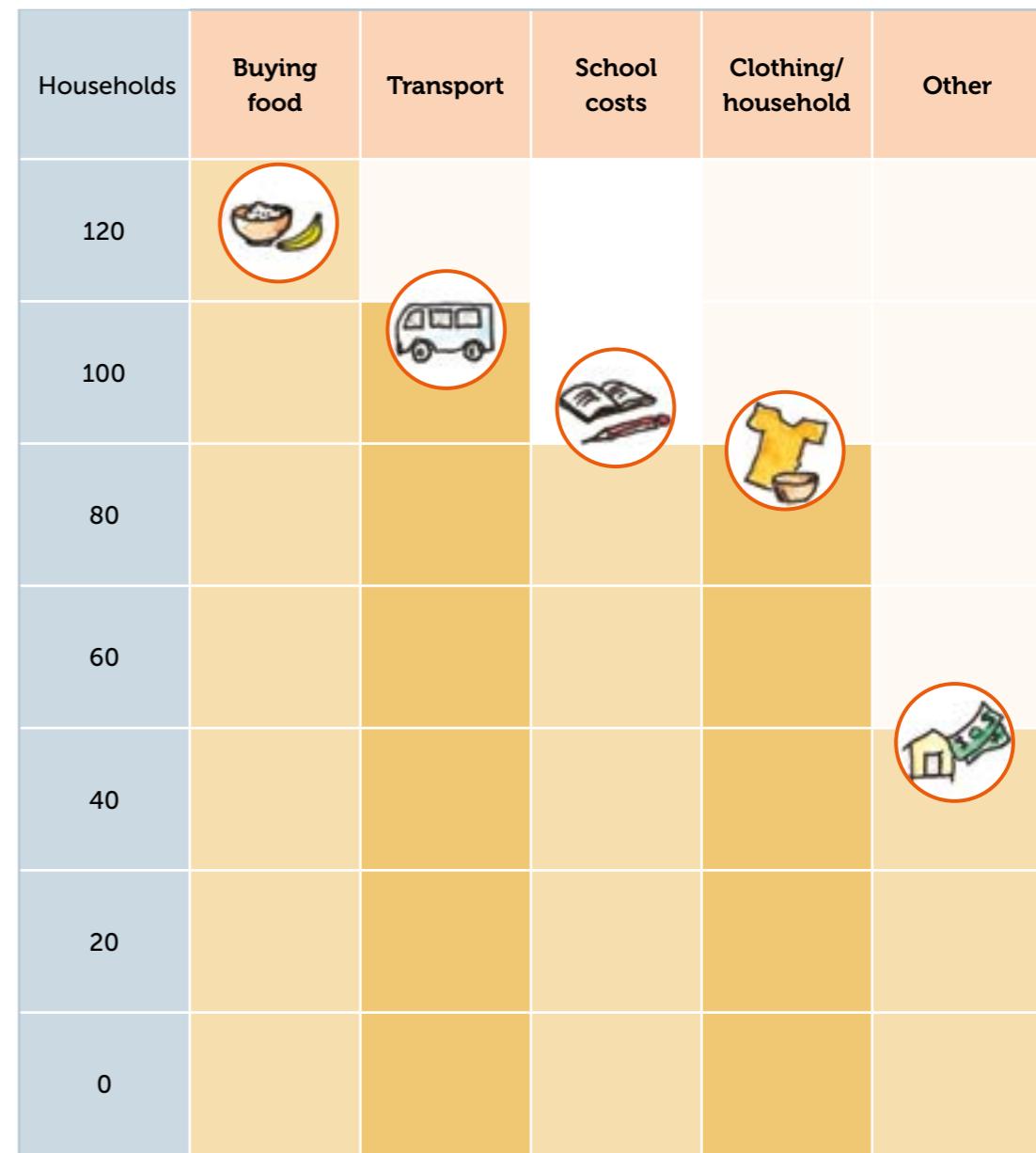
The most common source of income is selling food and food products. 63 households sell vegetables and 30 fish or seafood, while 30 who reported an 'Other' source of income clarified that as selling either livestock, fish, fruit, rice or other crops. Selling kava/yaqona is also common, being reported by 41 households.

Another leading source of income is receiving money from family, either in the community or living in urban areas. 79 households reported receiving money in this way, though only two relied on it exclusively. 46 households received income from working either in formal employment (teacher, health worker, government employee etc.), skilled services (tradesperson) or labouring. Only five households relied exclusively on such income.

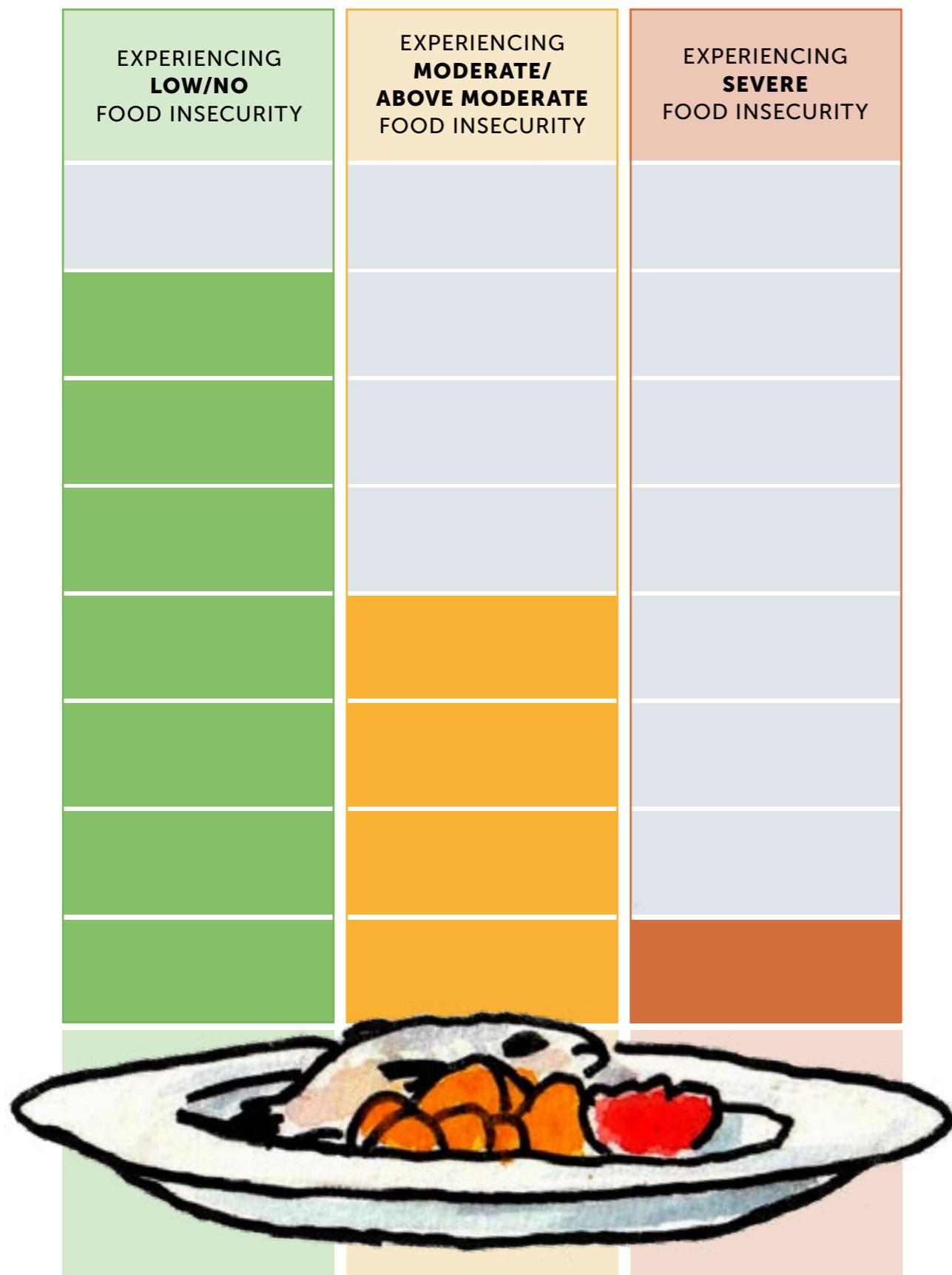


Household spending

Food is the dominant reason for spending. 122 households – almost 100% - reported food being a reason of spending. The second most common is transport at 112, followed by school costs (99) and clothing/household items (92). Though not listed as main expenditure categories in the survey, financial contributions to the church or village were reported in all but one of the 47 'Other' responses.



Food Insecurity Experience



The Fijian communities surveyed reported fairly low food insecurity overall. Of the 126 respondent households, 73 reported low or no food insecurity (24 of which responded Yes to none of the indicators), with only 12 experiencing severe food insecurity. 41 were in the moderate/above moderate category.

This distribution is broadly consistent across communities. Nawailevu, Naiqaqi, Valeni, Dreketi and Naibulu trend strongly towards lower food insecurity, with more than 70% of households in all these communities reporting low or no food insecurity and typically only one or two households reporting either moderate or severe levels.

Vitina, Laucala, Banikea and Kavula are exceptions. Less than half of the surveyed households in each village reported low or no food insecurity, with most experiencing moderate or above moderate levels. For Vitina, Banikea and Kavula, this may be due to their relative remoteness, as well as local factors such as land degradation, topography and more. However, Laucala's responses are unusual, given it is in between and very close to Naiqaqi and Valeni, both of which reported very low food insecurity.

The other standout trend is the apparently low variety of foods.



Community Resilience Indicators

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

Knowledge



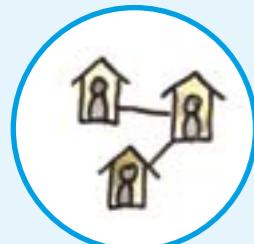
- How to build/repair houses
- How to predict bad weather
- Use resources sustainably
- Disaster preparation
- Weaving and traditional skills
- Understanding of tabus and vanua (land traditions)

Physical Security



- At least 2 income sources
- Resilient crop varieties
- Healthy surrounding ecosystems
- Mobile phone access
- Access to education
- Housing free from flood
- Accessible roads
- Clean, reliable water supply

Connections



- Community cooperation for agriculture, etc.
- Religious affiliation strong
- Close to NGOs and other organisations
- Help from government department for local culture

Community Risk Summary³

Overall resilience indicators:

1. More than 1 livelihood
2. Safe location of house, and cyclone-proof construction
3. Using traditional knowledge
4. Farming systems provide food security
5. Adequate technology and infrastructure (road, mobile phone coverage, electricity)

Across CRI Fiji communities, the trend for resilience is mixed. Technology has improved resilience for communities, in the areas of transport, communication, education, electricity and safe water. However, availability of mobile phone networks remains low, and climate variability is adversely affecting plantations and housing, especially regarding flooding susceptibility. Ecosystem resources are also under threat.

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

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



Vulnerability

- Often reliant on one income source
- Community committees not functioning
- Population pressures
- Decreased wild foods, crop yields and food security
- Decreased forest cover
- Lack of supplies for building and agriculture
- Dependence on selling garden produce
- Reliance on imported foods

Exposure

- Low-lying coastal communities susceptible to floods, destroys infrastructure, fodder
- Deforestation, logging, increased landslide risk and erosion
- River water contaminated by waste or siltation
- Coastal communities exposed to cyclones, storm debris
- Crop pests and wild animal destruction of crops, lack of fencing
- Poor roads
- Insecure water source
- Inadequate evacuation centre

Climate Change

- Increase in frequency and intensity of cyclones
- Coastal inundation and saltwater intrusion
- Damage to reef ecosystems
- Changed rainfall patterns
- Longer dry periods, hotter temperatures in dry season
- More flooding

³ Source: https://www.ipcc.ch/site/assets/uploads/2018/03/SREX_Full_Report-1.pdf

Community Priority Values & Assets

Communities in Fiji 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 Fiji 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) |
|--|--|--|---|-----------------------------|
| Conservation Area | Only area for conserved wildlife | Illegal logging, wildlife hunted, storms, drought | Cyclones cause damage. Heavy rainfall causes landslides | 3 |
| Plantations | Not quickly replaced | Near river, flood risk Drought risk Soil/mineral erosion | Excess rainfall/river overflowing can damage crops Landslides affect plantations on a slope Cyclones/strong wind damage | 3 |
| Garden | Relied on for subsistence Not quickly replaced | Located on slope area. Soil erosion from heavy rain Not protected, fenced from wild pigs | Cyclones damage all crops in the garden and heavy rainfall causes soil erosion and loss of fertility | 3 |
| Road | Only one access road to the village | Location on slope Road goes over small bridges that easily get flooded | Excessive rainfall flooding the small bridges. Landslides can block roads. Cyclones can cause fallen trees to block roads | 3 |
| Fishpond | Only one fishpond. Fish supply vulnerable to heavy rain and drought. | Close to the river, so exposed to flooding | Heavy rainfall, cyclone, droughts | 3 |
| Water Supply | Only one water source | Located under grass land and it can be easily damaged by soil erosion. Exposed pipes can be damaged | Fire can damage the pipes. Soil erosion can cover main water source, and flooding can fill it up with mud | 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) |
|--|--|--|--|-----------------------------|
| Water Supply | Only one water source | Located under grass land and it can be easily damaged by soil erosion. Exposed pipes can be damaged | Fire can damage the pipes. Soil erosion can cover main water source, and flooding can fill it up with mud | 3 |
| Home solar electricity | Single systems located on roofs of homes | Households don't have capacity to dismantle solar power components before bad storms (to prevent it flying around in storms) | Cyclones damage or destroy | 3 |
| Natural forest | Attractive to loggers | Prone to erosion if logged | Strong winds damage trees, flood, drought | 3 |
| Livestock | Not many livestock farmers | Grazing area on slope and near to the river | Landslides, flooding Flying debris as a result of cyclones or strong winds | 3 |
| Women's beekeeping | Hives easily upset | All in one location, animals damage, steep slope where dust from road covers | Drought affects flowering plants, heat affects bees, cyclone damage | 3 |
| Housing | One house per household, not strong enough or easily rebuilt | On a slope, near river | Cyclones, flood | 3 |
| Church | Only one building, not easily rebuilt/repaired | On a slope, near river | Cyclones, flood | 3 |
| Culture | Disputes, loss of knowledge | Younger people not in community | Traditions need to change with conditions | 3 |

Disaster Risk Reduction participation

There is some variation amongst communities regarding disaster preparation. There are usually multiple committees operating within the community. Most communities have a disaster committee, with a mix of genders, but some are not operating consistently. Only some have up-to-date disaster plans. Agencies such as ADRA have provided training for disasters in some villages. Evacuation centres have usually been nominated. Some communities have more than one evacuation centre, but some community members expressed concern that evacuation centres are inadequate or have been damaged in previous cyclones.

Responses after cyclone can be uneven. Some communities lack government assistance after disasters such as cyclones, such as for the rebuilding of houses. Road access to communities is often an issue in post-disaster recovery situations.

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 |
|----------------------------|---|--|
| FISHING GROUND | Managed by the community | <p>Strengths: Large area for fishing.</p> <p>Challenges: Overfishing, pollution, rising seas affecting reef systems.</p> |
| WATER SUPPLY SYSTEM | Water committee Individual household users | <p>Strengths: Good management by the water committee that knows their responsibilities well.</p> <p>Challenges: Too many water leaks and damage by pigs, lack of resources for covering water catchment.</p> |
| FOREST | Community Conservation Area Committee and Rangers Tribes Landowners | <p>Strength: Forest is in good condition and continues to provide oxygen, firewood, food, shelter, <i>kastom</i> medicine and materials for building. There is good biodiversity, and birds and other animals help with renewal of trees.</p> <p>Challenge: The intensity of the cyclones is causing damage to the forest trees, which contributes to deforestation and landslides. Illegal logging in some forests. Land clearing for farmland.</p> |
| MANGROVES | Government bans on mangrove cutting | <p>Strength: Robust ecosystem when not tampered with.</p> <p>Challenge: Villagers ignoring government bans, sediment from upriver affecting</p> |
| RAINWATER TANKS | Community and individuals | <p>Strength: The tanks help provide enough clean drinking water during dry times and when the piped water system is damaged.</p> <p>Challenge: Longer dry seasons mean the tanks can empty. Poor management and cyclones can damage the tanks and pipes.</p> |

| ELEMENT | HOW MANAGED? | STRENGTHS AND CHALLENGES |
|-------------------|---|--|
| LIVESTOCK | Individual farm owners and their families | <p>Strength: Livestock provide meat and income to families, so most families manage well.</p> <p>Challenge: Livestock need good management to be healthy, need food and water, and need good fencing to keep them safe (and out of gardens). Livestock often injured during cyclones and suffer stress during drought.</p> |
| RICE FARM | Individual families, but share equipment | <p>Strength: Newer rice varieties more resilient. Closely monitored by community.</p> <p>Challenge: Monocultural farming means declining soil fertility.</p> |
| PLANTATION | Individual owner and family | <p>Strength: Plantations provide shelter for raising cattle and provide food and income for households that have them.</p> <p>Challenge: Plantations need good management and lots of labour. Plants can be destroyed by cattle or wild animals, and the plantations are vulnerable to bushfire and drought. Plantations near the river have been washed away in storms.</p> |
| RIVER | Community placed tabu on river | <p>Strength: Community adhering to tabu/ban on taking from the river except for rare occasions.</p> <p>Challenge: Pollution affecting river - rubbish and fertilizers, landslides eroding riverbank, sometimes due to removal of trees.</p> |
| GARDEN | Individual family owner | <p>Strength: Gardens are well managed by families and provide income and food for families. Gardens are fenced using local materials.</p> <p>Challenge: The paths to the gardens are steep and can become eroded. Soil erosion leads to loss of soil fertility. Food crops are often damaged by cyclones or bushfire. Yield is reduced during droughts (especially during El Nino times). Wild pigs can damage the food gardens. No coordination for soil improvement.</p> |

Next Steps

Climate resilience can be defined as⁴:

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 resilience³:

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



⁴ Mitchell, A., 2013 Risk and Resilience: From Good Idea to Good Practice, OECD Development Co-operation Working Paper No 13

⁵ 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.*



live & learn
ENVIRONMENTAL EDUCATION



NEW ZEALAND
FOREIGN AFFAIRS & TRADE
Manatū Aorere