



Food, Family and Farming at the Heart of Food Security in Fiji:
Experiences of three peri-urban villages in Nadroga-Navosa Province

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Cover image: Sunday family lunch

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Environmental Change
Research Group



Environmental Sustainability
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Participants from Vunavutu

We dedicate this report to the research participants who openly shared their experience and knowledge of their villages.



Participants from Narewa

"In a Fijian village it is always the same if you have no money you will not die, if you have no relatives you will die."

(55 year old female Narewa village)



Participants from Naidiri



New cassava plantings

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Orisi Seniuci conducting an interview in Vunavutu

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Executive summary

- While local and store foods are always available, local foods made up the bulk (80%) of the diet and are used to substitute when there is no cash to purchase store foods.
- Most (70%) households are food secure. The most frequent type of food insecurity experienced was mild (24%), when people worried about meeting food needs, but these concerns never materialized. Severe food insecurity, when hunger is experienced, was rare (1%). Few (5%) households experienced moderate food insecurity, forcing a reduction their food intake.
- The sharing culture enhances food security. Nearly all (96%) households shared food with those in need including single parents, female only households and widows.
- There is a greater preference for local foods, however seasonality prevented meeting these food preferences.
- Most (80%) households worried about extreme weather events damaging local food sources and causing food insecurity. Protecting and restoring local ecosystems is recommended to ensure a continued production of local foods.
- Many (45%) households experienced poverty which increases their sensitivity to external risks affecting food production and procurement.



Woman harvesting and preparing octopus in Nadiri

- To improve the efficacy of interventions we recommend supporting village driven food security strategies. All intervention must be monitored and evaluated for their effectiveness.

1.0 Introduction

Fiji is blessed with an abundance of food from the sea, rivers, and local farms. *iTaukei* proudly share this abundance with family, neighbours, and friends as a cultural act of caring. However, food systems are under stress as the environment and society change creating uncertainty around future food security (Box 1). Biophysical impacts of climate change are already affecting Fijian food systems, and these impacts are expected to continue and, in some instances, accelerate in the future. At the same time, society is changing as fewer people farm and employment in the tourist sector and urban centres grows. Across Fiji, the consumption of imported foods is increasing, and many of these foods are associated with rising rates of obesity, diabetes and heart disease. To learn how *iTaukei* are experiencing and responding to social and environmental changes affecting their food systems, we worked with three villages in Nadroga-Navosa Province that represent a range of local environments: Naidiri (coastal), Narewa (inland), and Vunavutu (river estuary).

Our specific objectives were to:

- 1 **characterize the local food system;**
- 2 **examine food security; and**
- 3 **describe the social and ecological factors and processes affecting food security.**

Our goal is to bring a “human face” to the issue of resource development on Koroua Island and the wider Sigatoka area. The contents of this report are intended to contribute to the development of more productive, equitable environmental management decision-making in Fiji that better reflects and supports the needs, concerns, and livelihoods of local peoples.

Food security “exists when all people at all times have physical, social, and economic access to sufficient, safe and nutritious food which meets their dietary needs and food preferences for an active and healthy life. Food security is often conceptualized as four pillars Availability, access, utilization and stability”.

(Committee on World Food Security, 2017, p.1)

Committee on World Food Security. (2016). *Global Strategic Framework for Food Security and Nutrition (GSF)*. (2017 ed.). FAO.
<http://www.fao.org/cfs/home/products/onlinegsf/2/en/>

2.0 Overview of the villages



Map showing the three villages and distance to Sigatoka town. Produced by Marie Puddister, 2020

2.1 Naidiri

Naidiri has a population of 132 people in 25 houses. Situated on the Coral Coast, the reef provides a buffer from ocean waves and creates a sheltered area for fishing and harvesting sea foods. The fence around the villages keeps out horses and cattle while allowing people to visit from the neighbouring village Malomalo. The main occupations are farming and fishing, farms are located 3 km away. The Natadola Golf Resort (3km) and Intercontinental Hotel (5km) are close by providing some employment for villagers. Additionally, the resorts have brought a sealed road close (3km) to the village and a water pipeline through the village providing a year-round source of safe and reliable freshwater. The main occupations are fishing and farming. People use the public bus to get to and from Sigatoka or the medical clinic.



Naidiri village on the Coral Coast



Beach front of Naidiri Village

2.2 Narewa

Narewa is in the fertile foothills of the Sigatoka valley, known as the 'salad bowl of Fiji'. It is located 800 meters from the highway just before the sealed section of the highway ends. Situated at the bottom of a valley, the village is prone to flooding from water flowing down the hilly landscape and when the Sigatoka River floods. In response to the flooding risks the village is split into three areas: the main village beside the river, across the river from the main village, and across the highway. The total population across the three sites is 279 people living in 66 houses. Farming is the main source of income.



Narewa village in the foothills of the Sigatoka Valley

A third of the women work in one of the several export farms, preparing produce for international export. The village gets its water from a dam the village built upstream in 1969, however, the supply is disrupted during the annual drought and during floods. People use public transport, which run every 30 to 60 minutes, to get to and from Sigatoka.

2.3 Vunavutu

Vunavutu is situated along the Sigatoka River estuary. There are 330 people living in 51 houses. It is sheltered from the river by Koroua



Bridge connecting Vunavutu to Koroua Island

Island, a fertile area farmed by most farmers in the village. The concrete bridge to Koroua Island provides easy access for farmers and trucks picking up produce to sell at the Sigatoka market. Farming is an important source of food and income although most households have at least one person in full time paid employment. Located off a sealed road and only 3 km from Sigatoka, public transport comes to the village every 30 mins during the week although many households own a car or will pay for a taxi for the short ride into town. Vunavutu shares a fence line and church with neighbouring Nasama who also farm on Koroua Island.

3.0 Methods

The research questions, design and protocol were developed and conducted in collaboration with representatives of the Nadroga-Navosa Provincial Council. This report draws on face-to-face interviews with 99 *iTaukei* from three villages Naidiri, Narewa and Vunavutu. Interviews were conducted between September 18 and December 2, 2018. The research was conducted in accordance with ethics provided from the Human Research Ethics Committee at the University of the Sunshine Coast (approval references: A/15/751).

3.1 Interview sample

Our sample included 99 adults (18 years+) from a range of ages and genders (Table 1). All participants were permanent residents from different households and involved in food procurement. Households were not defined by a physical dwelling (a house) as some households had more than one household and other households had more than one house.

All households participated in Naidiri (n=24/24), most in Vunavutu (n=50/52) and some in Narewa (n=25/66). Non-proportional sampling was used in Narewa to ensure our sample included vulnerable households, including single parents, retirees, children and youth.

Table 1. Age and gender of participants

	Naidiri		Narewa		Vunavutu		
Age	M	F	M	F	M	F	Total
18- 29	1	2	1	3	0	3	10
30-39	4	4	3	1	2	5	19
40-49	1	7	0	5	5	4	22
50-59	1	3	1	5	7	10	27
60-69	0	0	2	3	3	4	12
70-79	1	0	0	1	3	3	8
80+	0	0	0	0	1	0	1
Total	8	16	7	18	21	29	99

3.2 Interview design

We created a semi-structured interview protocol to enable participants to share how they were experiencing food security and what challenges they faced. A *sevusevu* (an offering of *yogona* as a show of respect) was conducted in each village prior to interviews, led by representative of the Nadroga-Navosa Provincial Council, to discuss the research with village representatives, obtain feedback and agree on a time for the researcher to be in the village and interviews to take place.

Interviews were undertaken by a university researcher and village research assistant in Naidiri and Narewa and with two Nadroga-Navosa Provincial Council volunteers in Vunavutu. All interviews took place in participants homes and were conducted in Fijian and English. Interviews began with reviewing a project description and obtaining verbal consent by the interviewee. Interviews lasted from 30 minutes to 1.5 hours.

The interview protocol involved four parts:

Part 1 sought to capture participant and household demographics, household food system and consumption patterns.

Part 2 explored what foods participants preferred to eat and if their food preferences were being met. Free listing was used to collect data. Participants were asked to list all the foods they preferred to eat and given two minutes to complete the list. Then participants were asked to list all the foods they ate most often (4 or more times a week) and given two minutes to complete the list. For each list the interviewer recorded the foods in the order participants listed them. If time remained participants were encouraged to add to their list until they indicated, it was complete. If the list of food preferred and eaten often

was dissimilar participants were asked “why they were not eating the foods they preferred”.



Fisherman with his catch

Part 3 examined food security over the past year using the Food Insecurity Experience Scale (FIES). The FIES was created by the Food and Agricultural Organization (FAO) as a universal rapid assessment tool to assess food access. It is comprised of eight questions that indicate the severity of food insecurity being experienced (Table 2). Each participant was asked the eight questions in relation to the prior four weeks and the prior year. When participants responded yes to any of the questions, they were asked how often this experience occurred (Table 2). This was then followed by open ended questions to understand the causes of the experience e.g. “What happened that you had no money to buy food?”

Table 2. Food Insecurity Experience Scale questions (Ballard et al. 2013 p.10)¹

Questions Preamble – During the past 12 months, was there a time when:		Indicates severity of food insecurity	Frequency
1	You were worried you would not have enough food to eat because of a lack of money or other resources?	Mild	Rare (1-2 times)
2	You were unable to eat healthy and nutritious food because of a lack of money or other resources?		
3	You ate only a few kinds of foods because of a lack of money or other resources?		
4	You had to skip a meal because there was not enough money or other resources to get food?	Moderate	Sometimes (3-10 times)
5	You ate less than you thought you should because of a lack of money or other resources?		
6	Your household ran out of food because of a lack of money or other resources?		
7	You were hungry but did not eat because there was not enough money or other resources for food?	Severe	Often 10+ times)
8	You went without eating for a whole day because of a lack of money or other resources?		

Part 4 was an open-ended conversation to identify and explain any social and ecological factors affecting food security.

¹ Ballard T, Kepple A, Cafiero C. The food insecurity experience scale. development of a global standard for monitoring hunger worldwide [Internet]. FAO; 2013. Available from: http://www.fao.org/fileadmin/templates/ess/voh/FIES_Technical_Paper_v1.1.pdf

3.3 Data analysis

3.3.1 Numerical data were put into an Excel spreadsheet to generate basic descriptive statistics and for biserial correlation for each village and for the villages combined to determine if variables of income or household size had an impact upon food security. Incomes within each village ranged greatly from \$200 per month to \$2,000. To reduce the impact of this high and low outlier numbers the median was calculated and used.

FIES responses were categorised by severity for each village. Food lists underwent salience analysis to determine what foods were preferred and what foods were eaten most often (see analysis in Quinlan, 2005²). Salience analysis accounts for the frequency a food is mentioned and its weighted position within the list of foods (i.e. if listed first it is weighted higher than if listed 10th). Food lists underwent further statistical analysis (comparison of frequencies and paired t-test) to determine if there was a statistical difference ($p=0.05$) in the preference for local or store foods and if local or store foods were eaten more often. To determine if people were eating their preferred food, a proportional mean was calculated from the food lists.

3.3.2 Interview data were analysed using latent content analysis. Each interview was transcribed and then coded using NVivo 12, a qualitative data analysis software. Evolving themes were first organized under one of the three objectives that guide the research. Within each objective the four pillars of food security: availability, access, utilization, stability, provided a framework to organize emerging themes.

² Quinlan M. *Considerations for Collecting Freelists in the Field: Examples from Ethnobotany [sic]. Field Methods.* 2005;17(3):219–34.



Making coconut milk

Results

Results are organized by the project objectives. The key findings are given first followed by the results and discussion.

4.1 Food system

Descriptive information about the food system was gathered through a questionnaire, semi-structured interviews, key informant interviews and participant observations.

Key Findings

- Households across all villages have a dual food system comprised of local and store foods.
- Local food is sourced from family farms, the sea and/or river. Store foods are purchased from supermarkets in Sigatoka and village canteens.
- Local foods makeup the bulk of most people's diet. The most frequently consumed foods are cassava from family farms, fresh fish from the river and sea, and flour from the store.
- Sharing food is a common activity, with local foods being shared most often.



Farmer with wooden sled and bullocks

4.1.1 Food System. A dual food system comprised of local and store bought foods was present in all villages (Table 3).

Table 3. Proportion of households in each village directly sourcing local and store foods

Village	Local foods		Store foods
	Farm	Sea/river	
Naidiri	88%	92%	100%
Narewa	88%	84%	100%
Vunavutu	100%	88%	100%

4.1.2 Food Diversity. The diversity of foods varied from each source across the villages (Table 4). Overall cassava was the most commonly grown and eaten food, followed by fresh fish. The most common store-bought food was flour.

Table 4. Diversity of local and store foods and most frequently procured foods from each source

	Farm	Sea	Local foods (Total N=99)	Store
Naidiri	35	14	49	50
Narewa	47	5	52	52
Vunavutu	17	6	33	41
Total number of unique foods	49	14	63	80
Most frequently procured foods	cassava 91% bele 63% banana 46% kumala 42% dalo leaves 31% breadfruit 24%	fish 89% crabs 68% eel 33% prawns 32% seaweeds 31% octopus 30%	cassava (91%) fish (89%) crabs (68%) bele (63%) banana (46%) kumala (42%)	flour 71% tinned fish 65% sugar 65% chicken 55% rice 43% noodles 38%

4.1.3 Food consumption. We sought to move beyond documenting the diversity (number) of different foods to understand the amount of food consumed from each food source. Participants estimated the volume (%) of food consumed by their household over the past month from each food source. The results (Figure 1) shows overall local foods made up to 80% of the diet with foods from the farm providing the bulk (60%) of food.

4.1.4 Food sharing is a cultural norm in *iTaukei* villages. Our results found across all households most (96%) had given food to family or neighbours in the past week and 78% of households had received food in the past week. Local foods were given more often than store foods. Farmers and fishers explained they knew which households were less likely to be able to produce/harvest their own food and so they harvested extra allowing them to give food to those in need in the village. A participant explained, “I am old and a widow so people in the village give me food”.

Figure 1: Consumption of local and store foods over the past month

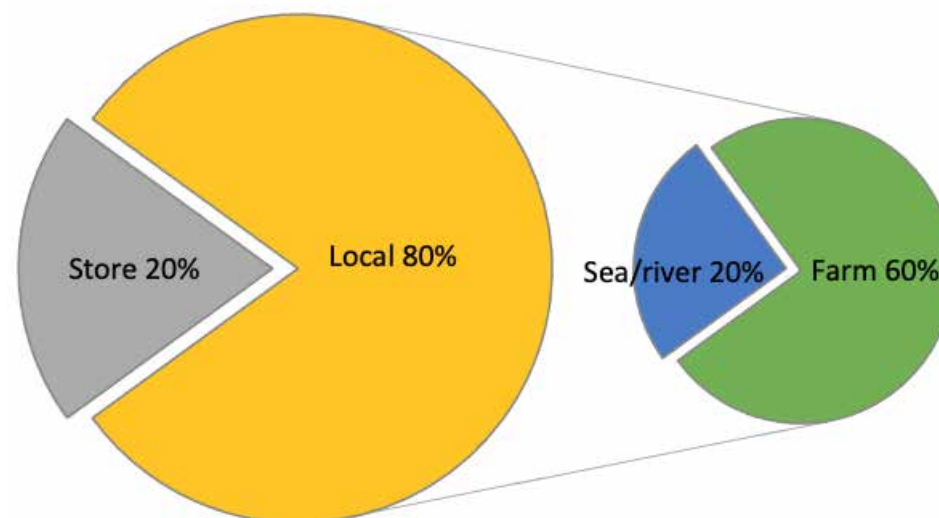
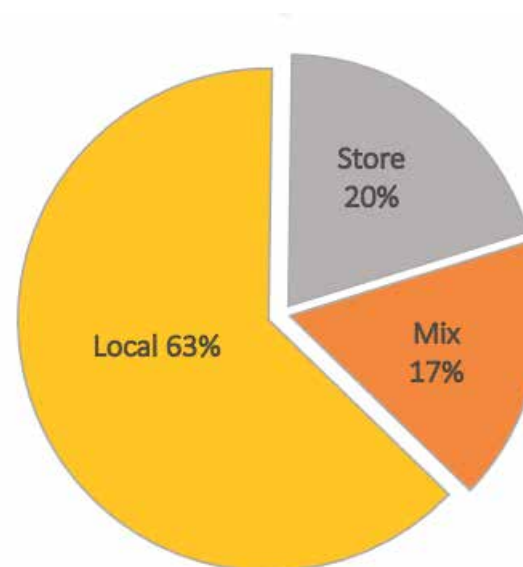


Figure 2: Proportion of local and store food shared over the past week



4.2 Survey food security

Descriptive information was gathered through the FIES, questionnaire, free listing, semi-structured interviews and participant observations. The responses to the FIES are examined first to provide an overview of the severity of food insecurity experienced by households. The results are then discussed through the three pillars: availability, access, utilization. Stability is discussed within each of the three pillars.

Key Findings

- The majority of households were food secure.
- Severe food insecurity when hunger is experienced is rare.
- The most frequent experiences of food insecurity are mild when households worry about meeting food needs or a lack of cash limits purchasing preferred store foods.
- There is always food available in the farm, sea, and store. Storms and cyclones impact food availability on farms and in rivers.
- Household's mediate food insecurity by consuming more local foods and sharing.
- There is a greater preference for local foods; however, the seasonality of local foods can cause food preferences to go unmet.



Farmer harvesting kumala

4.2.1 Severity of food insecurity experienced

Responses to the eight food security questions showed over the past year most (70%) households were food secure. Some (24%) households experienced concern about meeting food needs and/or had to limit some foods. Common reasons for these concerns included a fear flooding would damage crops, that strong waves would prevent fishing and illness would stop work attendance. While these concerns were present, they mostly did not materialize. Some participants indicated a lack of money sometimes (3-10 times) prevented them from purchasing store foods (flour, rice and sugar) and to compensate they ate more local foods, but they did not reduce the amount of food consumed. A few (5%) households had to eat less due to a lack of food. Rarely (1%) was hunger experienced and at no time were households forced to eat foods that were culturally unacceptable. Households experiencing moderate and severe food insecurity indicated this occurred sometimes (3-10 times) in the past four weeks and the past year indicating this was a chronic condition for these households.

When these results are examined for each village the results show Vunavutu was the most food secure with 82 per cent of households food secure over the past year and few (18%) experiencing mild food insecurity (Table 5).

Severe food insecurity only occurred in Naidiri and that was by one household. More people in Narewa experienced mild food insecurity as they worried about extreme weather events affecting their farm which was their main source of food and income. Additionally Narewa experienced annual droughts and floods, so these concerns were well founded.

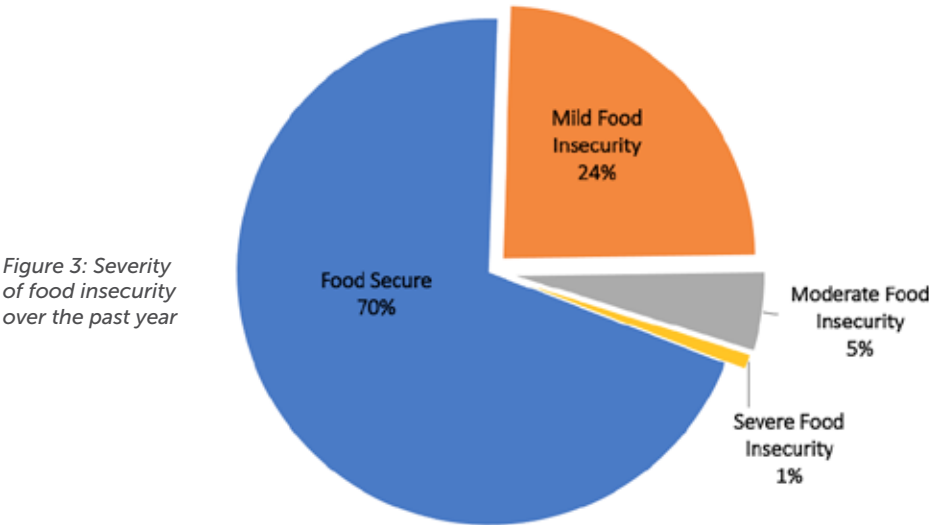


Table 5. Severity of food insecurity for each village over the past year

Severity of food insecurity		Village		
		Naidiri	Narewa	Vunavutu
Food secure	100%	62%	52%	82%
Food insecure	Mild	21%	40%	18%
	Moderate	13%	8%	0
	Severe	4%	0	0

4.2.2 Availability

Participants in each village identified there was always food available; at no time in the past year was there a time when there was no food in the farm, river/sea or shops. Farmers observed when storms and tropical cyclones struck, it sometimes reduced farm crops for a short period of time, however there was always some food, mostly cassava that could still be harvested. The wet season was the most difficult as this was when farms were less productive and storms were more likely to occur. When such events struck households pulled together sharing food and resources. Participants said financial assistance from the government to purchase food and seedlings helped at these times.

4.2.3 Access

Across the villages food insecurity was mediated by consuming more local foods if there was no cash to buy store foods. More local foods were harvested or people would *kerekere* from family and neighbours, or rely upon the sharing of other family and village members. A participant in Naidiri explained “if we have no money, it is not a problem, there is always free food in the farm and sea, we just go and take what we need. We can be a month without money, but our belly is full” (Farmer, male 53).

4.2.4 Utilization

Diet diversity is used as a proxy for nutritional intake, lower diversity is associated with lower nutrient intake. Results from the FIES (Question 3) found in the past year 90 per cent of households did not need to

reduce the diversity of foods in their diet (e.g., eat only cassava, fish and rice). Interviews found when households were forced to reduce the diversity of foods, it was the lower nutrient store foods (flour, rice and sugar) that were limited and more nutritious foods from the sea and farm were eaten suggesting nutritional intake may have increased at such times.

Preference: The free listing exercise sought to identify what foods were preferred (Table 6). Cassava was the most preferred food. In each village four of the most preferred foods are local foods, fresh fish and cassava were listed by all the villages. Of all the preferred foods listed, 67 per cent were local foods and 34 per cent were store foods, suggesting a greater preference for local foods. A paired sample t-test supported the finding that local foods are preferred over store foods

Table 6. Five most preferred foods for each village

Preferred foods	Village		
	Naidiri	Narewa	Vunavutu
1	Fresh fish	Cassava	Cassava
2	Cassava	Dalo leaves	Fresh fish
3	Bele	Flour products	Bele
4	Octopus	Dalo	Dalo leaves
5	Chicken	Fresh fish	Chicken

overall (DF 94, t = 7.8, p = 0.000) and within each village.

Participants were then asked to list the foods they eaten most often (4x or more a week). Flour products and cassava were the most frequently listed foods. Of the foods listed 48 per cent were local foods and 52 per cent were store foods. To determine if there was a statistical difference between local and store food often eaten a paired sample t-test was conducted showing (DF 94, t = -2.76, p=0.006) store foods are eaten more often. This seems contradictory to the earlier results showing local foods make up the bulk of the diet however, the food lists do not take into account the volume of food consumed. Therefore cassava is listed once but may be eaten twice a day. The results from the food lists reinforces people are relying upon a few local foods such as cassava, fish, dalo leaves to meet food needs. Should something happen to these local foods (e.g., a flood destroys a cassava crop), it is likely to have an immediate and severe impact upon food security for most households.

We sought to determine if participants were eating their preferred foods often. We conducted a proportional mean of all participant responses and found on average 44 per cent of the foods being consumed often were preferred foods, indicating preferred foods are not being eaten often. When we examined this for each village we found 27 per cent of preferred foods were being eaten by participants in Naidiri, 40 per cent were being eaten in Narewa 53 per cent in Vunavutu. Participants identified that a lack of money, seasonality and extreme weather events were the main factors limiting access to preferred foods. In each village participants stressed while they may not always be eating foods they preferred they were never forced to eat foods that were culturally unacceptable or that they did not like.

Table 7. Foods eaten most often (four or more times) by village

Foods eaten often	Village		
	Naidiri	Narewa	Vunavutu
1	Flour products	Cassava	Cassava
2	Rice	Flour products	Fresh fish
3	Cassava	Rice	Bele
4	Fresh fish	Dalo leaves	Tinned fish
5	Tinned fish	Tinned fish	Chicken

4.3 Social and ecological challenges

Information was gathered from the semi-structured interviews, a questionnaire and participant observations. Content analysis was used to identify emergent ecological and social themes. The ecological challenges are examined first followed by the social challenges.

Key Findings

Ecological

- Extreme weather events are challenging local food sources and livelihoods.
- Manmade changes in the local environment are impacting food sources. In Vunavutu river dredging is increasing flooding risk and altering local ecosystems.
- The creation of a marine protected area (MPA) and coral planting in Naidiri are restoring reef health.

Social

- When households have access to local foods low incomes are not causing food insecurity.
- Employment provides money for greater access to store foods but limits the time available to produce and harvest local foods.
- Those who are most food secure are those with access to local foods (farmer in the household) and a member in paid employment.



Damage from bulldozer clearing land to dump dredge tailings

4.3.1 Ecological challenges

The greatest (80%) concern across the villages were extreme weather events, especially flooding. When tropical cyclones and storms occur farms were flooded and some crops are damaged. The high winds of such events prevent people from fishing and cause a greater reliance upon store foods. Participants in each village had memories and stories of Tropical Cyclone Winston the first category five to strike the area in 2016. Narewa experienced the worst flooding to farms and the village in living memory. Homes in Naidiri that had never flooded before had waves washing through them. Vunavutu was less affected with flooding due to the protection it received from Koroua Island. However, in April 2018 when a category 3 tropical cyclones struck for the first time homes were flooded. Participants explained the recent dredging of the Sigatoka River had stirred up sand which flowed into the channel between Koroua Island and the village raising the river bed so now the risk of flooding was greater. Within each village, participants were concerned about the risks from climate change and the impacts for their food sources.

Each village also had local environmental management concerns. In Naidiri past overfishing, coral and sand mining have damaged the reef. In 2013 the village Youth Group worked with the Ministry of Fisheries and the Nadroga Navosa Provincial Council to created a 'no-take' Marine Protected Area (MPA). In the MPA they have replanted coral to restore the health of the reef and rejuvenate the reef and sea life. Recent (2018) video footage showed marine life was returning to the reef. Fishers observed an increase diversity and size of fish now coming

into the reef. During the recent COVID-19 pandemic the Provincial Council noted the MPA continued to enhance the diversity and size of marine life on the reef assisting with food security.



Coral nursery for coral replanting by the Youth Group in Naidiri



Five water tanks in Narewa will improve water access when connected to dam infrastructure in the village

Concerns in Narewa centred around having a stable, safe water supply. Narewa does not have access to piped treated freshwater, relying instead upon a small dam along the local river. However, when the river floods the pipeline breaks and when the rivers dries-up during the annual drought the village relies upon having a water tank filled by the government and water from the dam. The water tank was put in the village in 2016 as part of an intervention by the Fijian government as part of the Water And Sanitation Hygiene (WASH) program. The village asked for five additional tanks and they have place them on a

hill to create a reservoir for dam water. The strategy is to fill the tanks overnight when the water pressure is greater as few people are using the water and then have the water will flow down to the communal taps during the day. However, the tanks remain dry as the village needs assistance to connect the tanks to dam infrastructure. The *turaga ni koro* explained there has been no follow up since the tanks were placed in the village and although a request for assistance was sent to the Fiji government in 2018 no action has yet been taken. Hence the village remains without a stable water supply making the residents vulnerable to waterborne illnesses.

4.3.2 Social challenges

Social challenges affecting food security include: access to income, employment, household size, and educational attainment. Table 8 shows the results for these household characteristics for each village. The household size varied amongst the villages. Naidiri and Vunavutu had larger households (6 people) compared to Narewa (4 people). To determine if household size and food security were associated we conducted a Pearson biserial correlation. Food security was based in responses to the FIES (yes to any of the questions indicated food insecurity). The results showed no correlation ($r = 0.08$, $p = 0.42$).

Income impacts the ability of people to access food. Monthly incomes across the villages varied greatly from \$200 to \$2,500. The median income for Narewa and Naidiri was \$600 almost half that of Vunavutu (\$1120). To determine if there was a correlation between food security and income a Pearson biserial correlation was conducted. The results showed no correlation ($r = -0.09$, $p = 0.41$). Given many households consume local foods, which by-pass the cash system this

finding is not unexpected.

The Basic Needs Poverty Line (BNPL) is a measure to assess if there is adequate income to meet households needs, being below the BNPL suggests food needs may not be met. Naidiri and Narewa each have a median monthly income of \$600 yet the majority (79%) of household in Naidiri were below the Basic Needs Poverty Line (BNPL) while in

Narewa most (56%) households were above the BNPL. However, household size varied between the villages. To assess if household size and income were interacting to affecting food security across all the participants, we conducted a linear regression test. Results showed no interaction ($R^2 = 0.030$). These results indicate food security in *iTaukei* villages is much more complex than income and household size.

Table 8. Household characteristics by village

Household characteristics		Naidiri	Narewa	Vunavutu
Total (N/%)		24 (100%)	25 (100%)	50 (100%)
Median Household size		6	4	6
Median monthly income (FJD\$)		600	600	1120
Basic Needs Poverty Line (BNPL)*	Below BNPL	19 (79%)	11 (44%)	15 (30%)
	Above BNPL	5 (21%)	14 (56%)	35 (70%)
One member in paid employment		11 (46%)	15 (60%)	40 (80%)
Fulltime		7 (29%)	6 (33%)	38 (76%)
Part time/Casual		4 (17%)	9 (36%)	2 (4%)
Highest level of education	Primary school	8 (36%)	8 (32%)	12 (24%)
	Secondary school	10 (46%)	17 (68%)	33 (66%)
	Tertiary education	4 (18%)	0	5 (10%)

*BNPL is calculated for the median family size with an equal number of adults (\$49.50 per adult) and children (\$24.75 per child) per week as stipulated in the Fiji Household Income Expenditure Survey 2013-14

Most (80%) households in Vunavutu had at least one person in full time paid employment. There were fewer employment opportunities for households in Naidiri and Narewa. The recent growth of export farms close to Narewa has provided employment for a third of the women in the village however there are few opportunities for people in Naidiri. Employment opportunities are impacted by the level of education attained. However, the results shown in Table 8 do not show a clear trend of educational attainment and employment. Given Naidiri and Narewa are more remote it is likely this has a greater impact upon employment opportunities than education does. In Naidiri the lack of employment opportunities was causing youth and adults to seek migrant work overseas from unregistered companies placing them at risk. A recent (2018) seasonal worker scam had caused 10 people in the village to pay

money to a company for employment in the United States of America (U.S.A). Young girls were willing to travel alone, and young parents had resigned from jobs and sent children away to be with family members to be cared for in the hope of getting employment. Several of these people explained they had enough food but wanted a higher income to support other lifestyles desires such cell phones or buying a car. When asked about the risks of going overseas such as human trafficking there was a lack of knowledge.



A lovo is used to cook food for the Vakataraisulu ceremony marking 100 days after a death when mourning and Tabu are lifted

Conclusion

Food security for peri-urban households depends upon local food production and sharing. Local food production is sensitive to environmental and social changes that hinder food production and disrupt sharing networks. Efforts directed at protecting and enhancing local ecosystems to meet future climate needs, and that support village support village social cohesion will strengthen food systems and food security.



Family time after the evening meal

Recommendations

Protect and restore local ecosystems

Local foods are the cornerstone of food security and rely upon local ecosystems. Protecting and restoring local ecosystems through programmes such as the provincial council's "Ridge to reef" program need to continue if local food sources are to remain productive.

Conduct food security assessments at the household scale

Current food security assessments are conducted at the national scale, do not capture local foods that exist outside the cash economy, and therefore do not provide true reflection of household food security in the village context. Further assessments and studies are needed at the households scale to better understand local food needs.

Support village driven food security strategies

Village members know their local environment, what challenges they face and what interventions are feasible to manage food security. Naidiri Youth Group began replanting coral, Narewa created a water reservoir, and Vanavutu has sought to reduce the impacts of dredging. Supporting these local efforts will improve food security for each village.

Monitor interventions for efficacy

To determine the effectiveness of an intervention it must be monitored. Interventions by the Fiji government, international aid agencies and NGOs must include monitoring as part of their budgets.



Collecting and eating fresh mangoes on Koroua Island, Vanavutu



Traditional Fijian tapa showing a bure

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Itatau ceremony with mata ni tikina Ben Veniasi Naqio