

Status of Food Security in the Pacific Island



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➔ Dietary shifts/changes

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➔ Nutritional status

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Achievement of Food Security in the Past (Traditional)

In the past, traditional Pacific island communities enjoyed robust local food production and diverse ways of achieving food security mainly through;



Gardening

Consumption of arrays of fresh garden foods

Vitamins and Mineral sources

Vegetables (taro leaves, edible hibiscus, ferns)

Fruits – pawpaw, banana, mangoes

Carbohydrate sources - root crops:
taro, yams, sweet potatoes





Fishing

Sea protein sources-fish, shell fish,
seaweeds, octopus, sea urchin
River protein sources- fresh water
fish, prawn, crabs



Hunting

Alternative protein
Wild pigs, birds, bats

Batter system for exchange of foods
(A forced method due to lack of
available preservation techniques-
refrigeration)

Selling products/labor for cash)



Dietary shifts/ change

Caused a radical shifts and changes in eating patterns have taken place among the Pacific Islanders

Resulted in major changes in nutrient composition of the diet

Most obvious in urban settings but also occurring in rural communities



Traditional diet

- Moderate to high in energy
- Moderate to low in fat (*trans*-fats)
- Moderate to low in protein
- High in complex carbo and fibre
- High in antioxidants, phytochemicals
- potassium and trace minerals
- Low in simple carbo; sugar and salt

Current modern (urban) diet

- Moderate to high in energy
- High in fat and protein
- Low in complex carbohydrates and fibre
- Low in antioxidants, phytochemicals, potassium and trace minerals
- High in simple carbohydrates and salt

Comparison of nutritional values of traditional vs contemporary diets

Nutrient or food composition	Hunter-gather	Traditional Fijian diet	Contemporary Fijian diet
Protein	High	Low	Moderate
Carbohydrate (complex)	Moderate	High	Moderate
Total fat	Moderate	Moderate	High
Saturated fat	Moderate	Low	High
Monounsaturated fat	High	High	Moderate
Polyunsaturated fat	Moderate	Moderate	Low
Omega-3-fat	High	High	Low
Total fiber	High	High	Low
Fruits and vegetables	High	High	Low
Nuts and seeds	Moderate	Moderate	Low
Salt	Low	Low	High
Refined sugars	Low	Moderate	High
Glycemic load	Low	Moderate	High

Table 3

Production, imports and exports of cereals, roots and tubers (in 100 metric tons)

	Production				Imports				Exports			
	1991-93	1994-96	1997-99	2000-02	1991-93	1994-96	1997-99	2000-02	1991-93	1994-96	1997-99	2000-02
Total cereals												
Cook Islands	0	0	0	0	16	15	23	9	0	0	0	0
Fiji Islands	310	200	150	150	1184	1126	1394	1734	23	32	33	125
Papua New Guinea	30	50	100	120	2591	2898	3772	3284	0	0	0	16
Samoa	0	0	0	0	118	153	127	149	0	0	0	0
Solomon Islands	0	0	20	50	206	257	347	341	0	0	0	0
Tonga	0	0	0	0	70	71	81	75	0	0	0	0
Vanuatu	10	10	10	10	104	116	163	174	0	0	0	0
Wheat and flour												
Cook Islands	0	0	0	0	14	13	21	8	0	0	0	0
Fiji Islands	0	0	0	0	798	1085	829	1345	22	32	33	123
Papua New Guinea	0	0	0	0	902	1150	1325	946	0	0	0	0
Samoa	0	0	0	0	67	64	60	96	0	0	0	0
Solomon Islands	0	0	0	0	57	35	111	78	0	0	0	0
Tonga	0	0	0	0	68	68	78	72	0	0	0	0
Vanuatu	0	0	0	0	33	27	49	50	0	0	0	0
Rice												
Cook Islands	0	0	0	0	2	3	2	1	0	0	0	0
Fiji Islands	290	180	130	140	284	284	487	263	0	0	0	2
Papua New Guinea	10	10	10	10	1600	1507	2195	1820	0	0	0	4
Samoa	0	0	0	0	50	55	67	53	0	0	0	0
Solomon Islands	0	0	20	50	149	223	237	263	0	0	0	0
Tonga	0	0	0	0	2	2	4	3	0	0	0	0
Vanuatu	0	0	0	0	71	89	113	124	0	0	0	0
Coarse grains												
Cook Islands	0	0	0	0	0	0	0	0	0	0	0	0
Fiji Islands	20	20	10	10	0	0	0	0	0	0	0	0
Papua New Guinea	20	50	0	120	0	0	0	0	0	0	0	0
Samoa	0	0	0	0	0	0	0	0	0	0	0	0
Solomon Islands	0	0	0	0	0	0	0	0	0	0	0	0
Tonga	0	0	0	0	0	0	0	0	0	0	0	0
Vanuatu	10	10	10	10	0	0	0	0	0	0	0	0
Roots and tubers												
Cook Islands	100	70	60	60	0	0	0	0	0	0	0	0
Fiji Islands	500	550	730	820	0	0	0	0	0	0	0	0
Papua New Guinea	12210	12240	12790	14000	0	0	0	0	0	0	0	0
Samoa	190	70	180	220	0	0	0	0	0	0	0	0
Solomon Islands	1110	1180	1290	1450	0	0	0	0	0	0	0	0
Tonga	590	570	380	260	0	0	0	0	0	0	0	0
Vanuatu	370	360	380	400	0	0	0	0	0	0	0	0

Source: Computed from FAO (2004), accessed on internet website.

Import dependence on cereals, and the degree of globalization, 1991-2002

Country	Production ('00 tons)				Net imports ('00 tons)				Consumption ('00 tons)				Import dependence (%)				Degree of globalization			
	1991-93	1994-96	1997-99	2000-02	1991-93	1994-96	1997-99	2000-02	1991-93	1994-96	1997-99	2000-02	1991-93	1994-96	1997-99	2000-02	1991-93	1994-96	1997-99	2000-02
Total cereals																				
Cook Islands	0	0	0	0	16	15	23	9	16	15	23	9	100.0	100.0	100.0	100.0	-	-	-	-
Fiji Islands	310	200	150	150	1162	1427	1362	1609	1472	1293	1512	1759	78.9	84.5	90.1	91.5	3.9	7.5	9.5	12.4
Papua New Guinea	30	50	100	120	2591	2898	3772	3268	2621	2948	3872	3388	98.9	98.3	97.4	96.5	86.4	58.0	37.7	27.5
Samoa	0	0	0	0	118	153	127	149	118	153	127	149	100.0	100.0	100.0	100.0	-	-	-	-
Solomon Islands	0	0	20	50	206	257	347	341	206	257	367	391	100.0	100.0	94.6	87.2	-	-	17.4	6.8
Tonga	0	0	0	0	70	71	81	75	70	71	81	75	100.0	100.0	100.0	100.0	-	-	-	-
Vanuatu	10	10	10	10	104	116	163	174	114	126	173	184	91.2	92.1	94.2	94.6	10.4	11.6	16.3	17.4
Wheat & flour																				
Cook Islands	0	0	0	0	14	13	21	8	14	13	21	8	100.0	100.0	100.0	100.0	-	-	-	-
Fiji Islands	0	0	0	0	798	1053	796	1222	776	1053	796	1222	100.0	100.0	100.0	100.0	-	-	-	-
Papua New Guinea	0	0	0	0	902	1150	1325	946	902	1150	1325	946	100.0	100.0	100.0	100.0	-	-	-	-
Samoa	0	0	0	0	67	64	60	96	67	64	60	96	100.0	100.0	100.0	100.0	-	-	-	-
Solomon Islands	0	0	0	0	57	35	111	78	57	35	111	78	100.0	100.0	100.0	100.0	-	-	-	-
Tonga	0	0	0	0	68	68	78	72	68	68	78	72	100.0	100.0	100.0	100.0	-	-	-	-
Vanuatu	0	0	0	0	33	27	49	50	33	27	49	50	100.0	100.0	100.0	100.0	-	-	-	-
Rice																				
Cook Islands	0	0	0	0	2	3	2	1	2	3	2	1	100.0	100.0	100.0	100.0	-	-	-	-
Fiji Islands	290	180	130	140	283	284	487	261	573	464	617	401	49.4	61.2	78.9	65.1	1.0	0.6	3.7	1.9
Papua New Guinea	10	10	10	10	1600	1507	2195	1817	1610	1517	2205	1827	99.4	99.3	99.5	99.5	160	150.7	219.5	182.4
Samoa	0	0	0	0	50	55	67	53	50	55	67	53	100.0	100.0	100.0	100.0	-	-	-	-
Solomon Islands	0	0	20	50	149	223	237	263	149	223	257	313	100.0	100.0	92.2	84.0	-	-	11.9	5.3
Tonga	0	0	0	0	2	2	4	3	2	2	4	3	100.0	100.0	100.0	100.0	-	-	-	-
Vanuatu	0	0	0	0	71	89	113	124	71	89	113	124	100.0	100.0	100.0	100.0	-	-	-	-

Note: Triennium is an average figure of three years.

Source: Computed from FAO (2004).

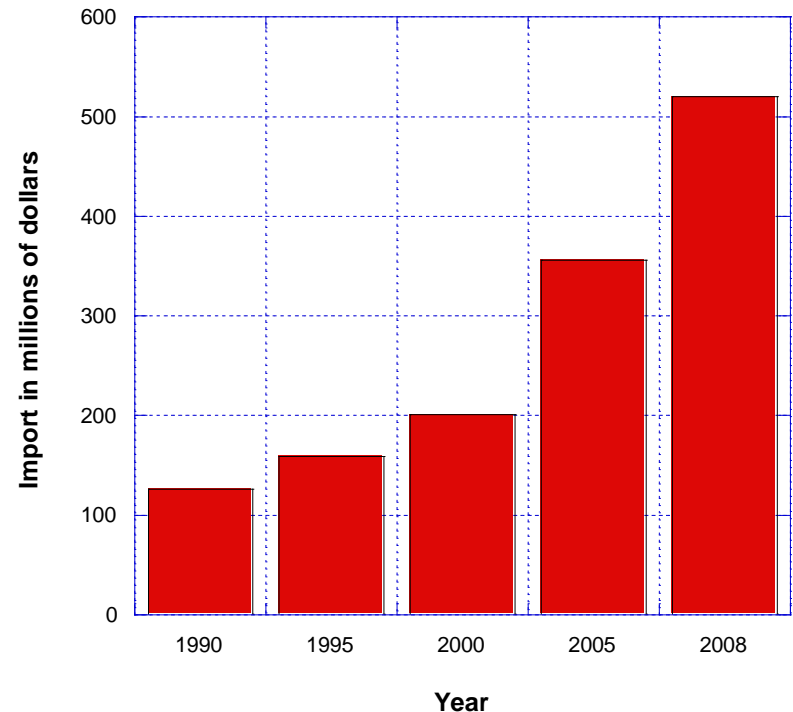
Detailed Food import dependency for Fiji

Food imports in Fiji have significantly increased over the years;

\$126m in 1990,
\$158.5m in 1995,
\$200.8m in 2000,
\$355.5million in 2005
\$520 millions in 2008

(Fiji Bureau of Stats, FAO
(Fiji Times, Dec 5, 2009)

Imported foods include:
dairy products (\$40-\$45m),
potatoes (\$17-\$19m),
beef (\$11m),
rice (\$21-\$40m), cereals, wheat, etc



\$ is in Fijian dollars

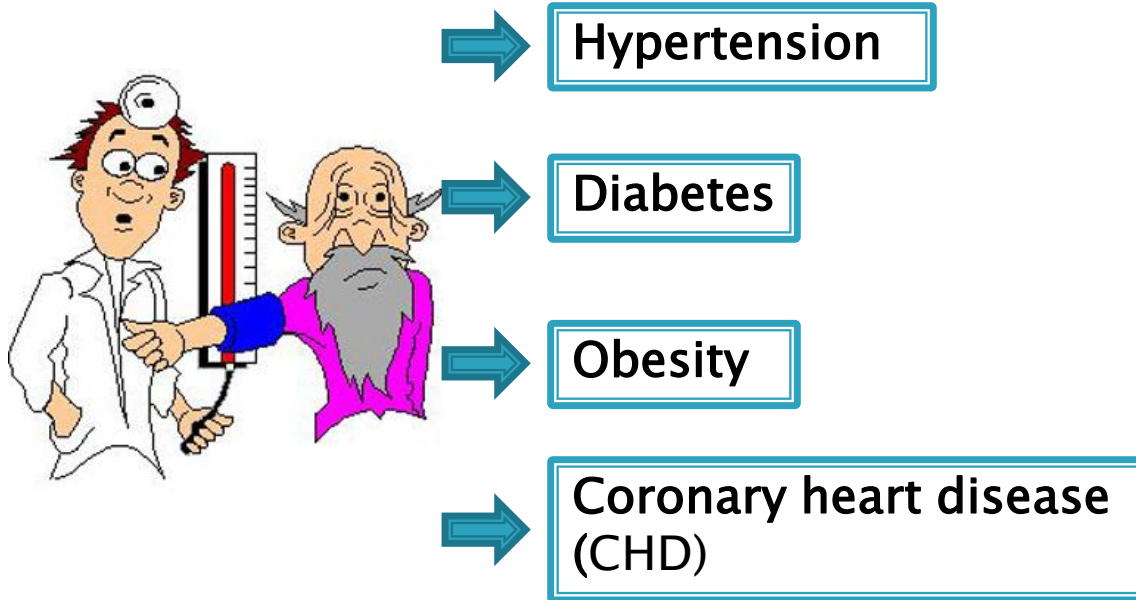
Fiji Food Imports, 1988-2000

	1988-90	1991-95	1996-2000
Value of food imports (\$F million)	126.0	158.5	200.8
Total value of imports (\$F million)	877.4	1 113.2	1 554.8
Total food exports (\$F million)	279.7	332.8	341.3
Total exports (\$F million)	n.a.	n.a.	917.1
Rice imports (\$F million)	9.1	12.3	16.7
Sugar exports (\$F million)	n.a.	230.0	250.0
Food imports as a percent of total imports	14.7	14.2	13.2
Food imports as a percent of food exports	45.3	47.8	55.8
Food imports as a percent of total merchandise exports	n.a.	n.a.	22.0

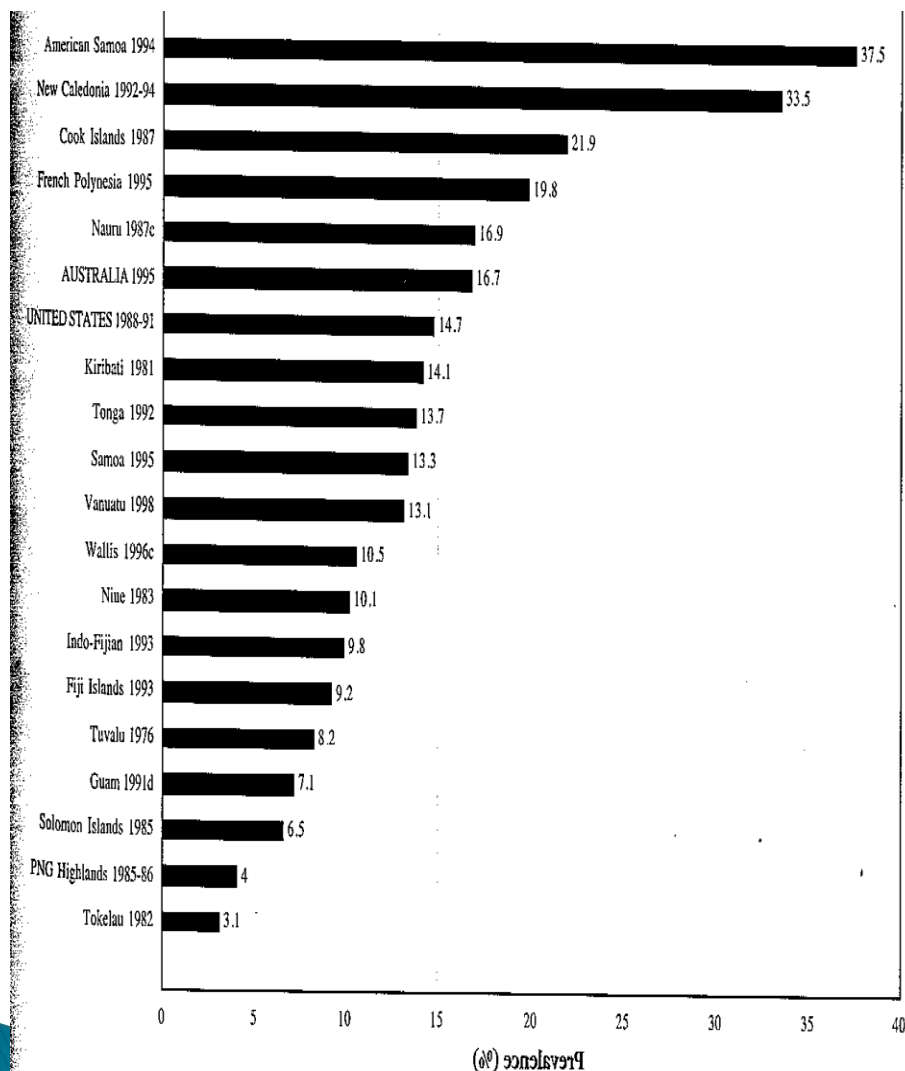
Source: Bureau of Statistics, Key Statistics (various), Current Economic Statistics (various).

Food and Nutrition Status

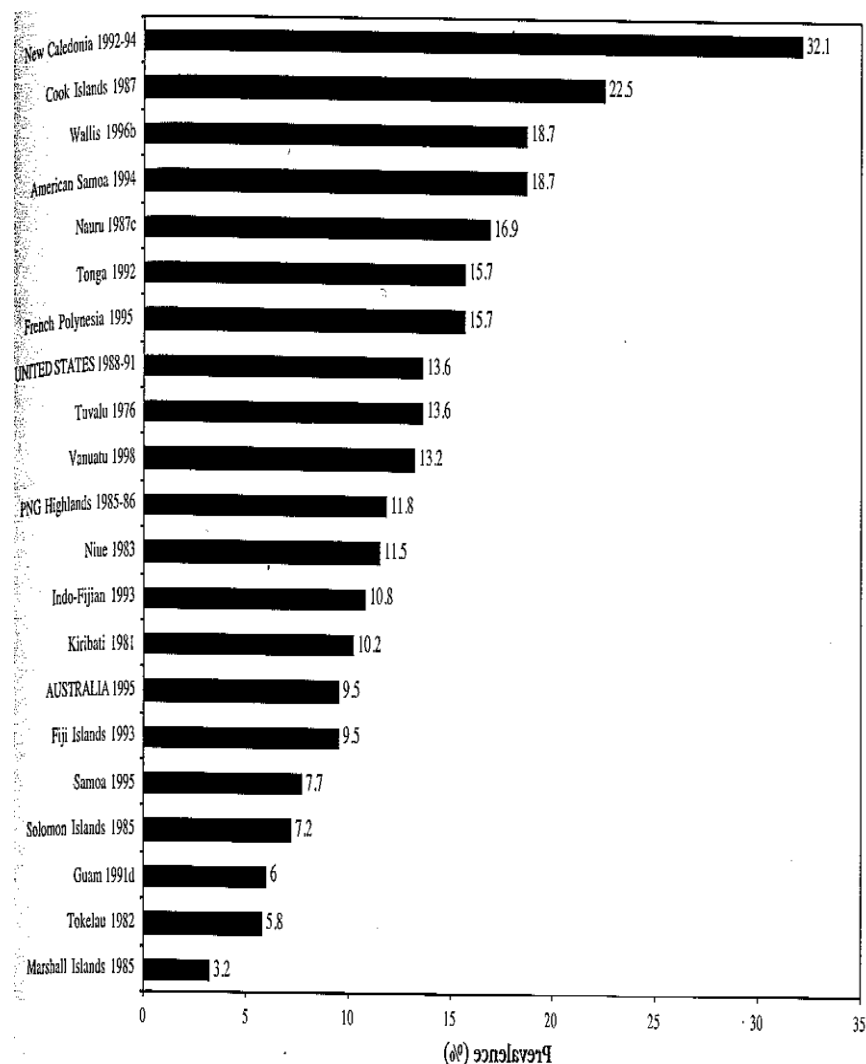
Changes/shifts in food and nutrition patterns from traditional to contemporary style have resulted in increased rates of non-communicable diseases in Pacific island communities



Prevalence of Hypertension in the Pacific



% Prevalence in males



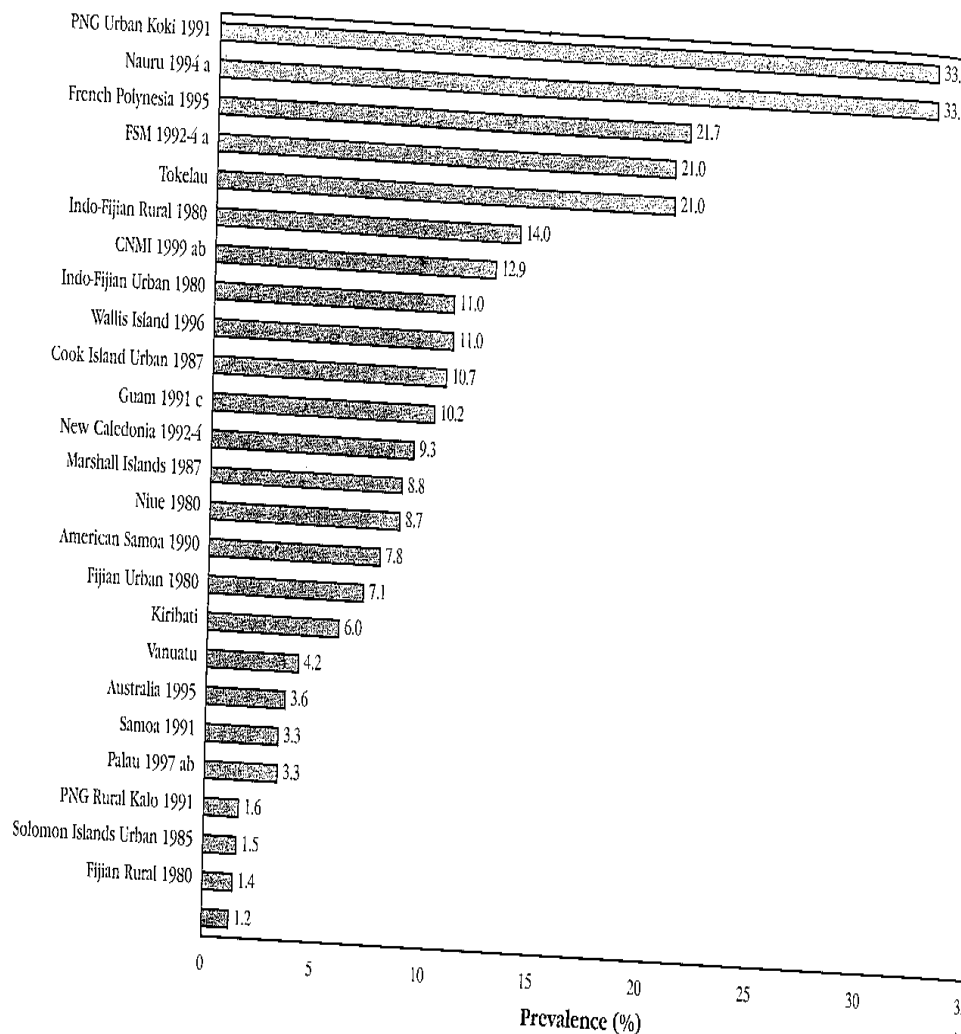
% Prevalence in females

CHD as cause of death in Pacific islands

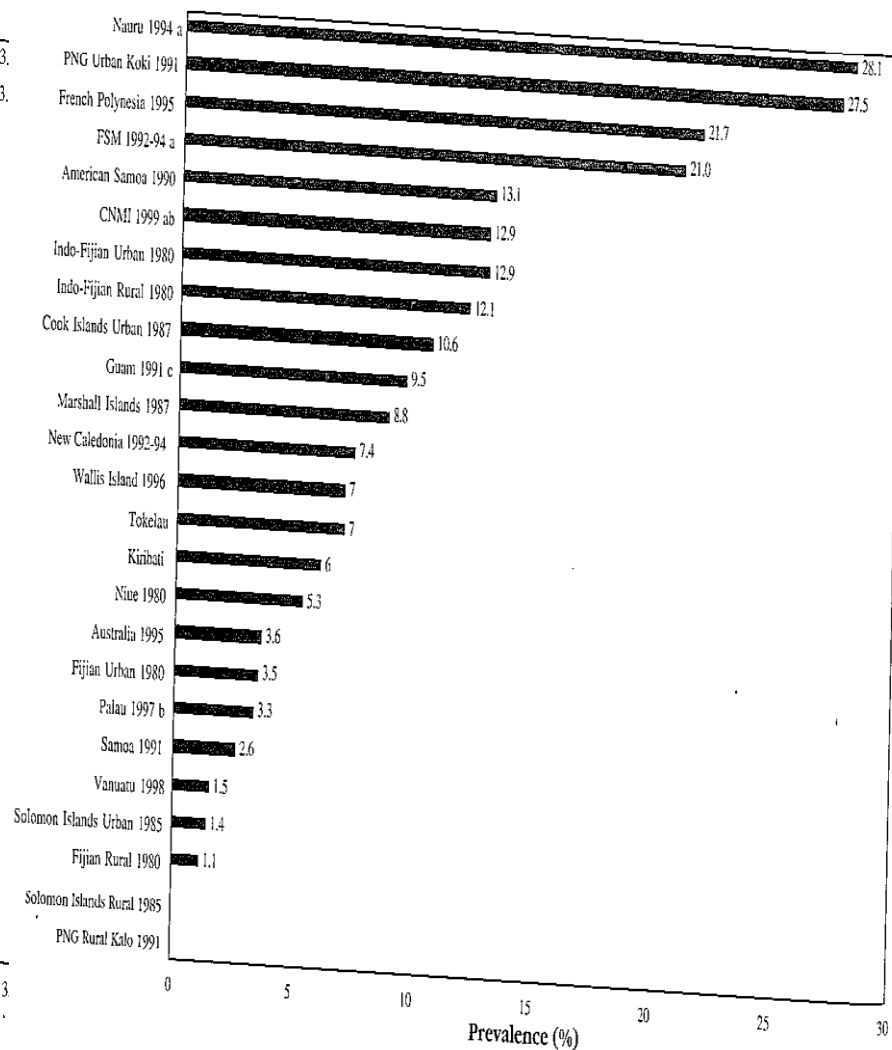
Country	Year	CHD deaths	Total deaths all causes	Per cent of total deaths	Ranking as leading cause of death
MELANESIA					
Fiji Islands*		2071		45.0	
New Caledonia				22.9	
PNG		306		5.4	
Solomon Islands*		81		16.1	
Vanuatu		30		5.7	
MICRONESIA					
FSM	1989	156	886	17.6	1st
Guam	1997	111	865	12.8	2nd
Kiribati	1987-90	42	736	5.7	5th
Marshall Islands	1996	15	233	6.4	5th
Nauru	1994	25	121	20.7	1st
Palau	1997	18	122	14.8	2nd
POLYNESIA					
American Samoa	1997	56	259	21.6	1st
Cook Islands	1997		128		12th
French Polynesia	1996		1029		2nd
Samoa	1991-92		532		1st
Tokelau	1993-97		59		1st
Tonga*	1995		242		1st
Tuvalu	1993		94		3rd
Wallis and Futuna	1998-99		62		2nd

All circulatory diseases combined

% Prevalence of Diabetes in the Pacific

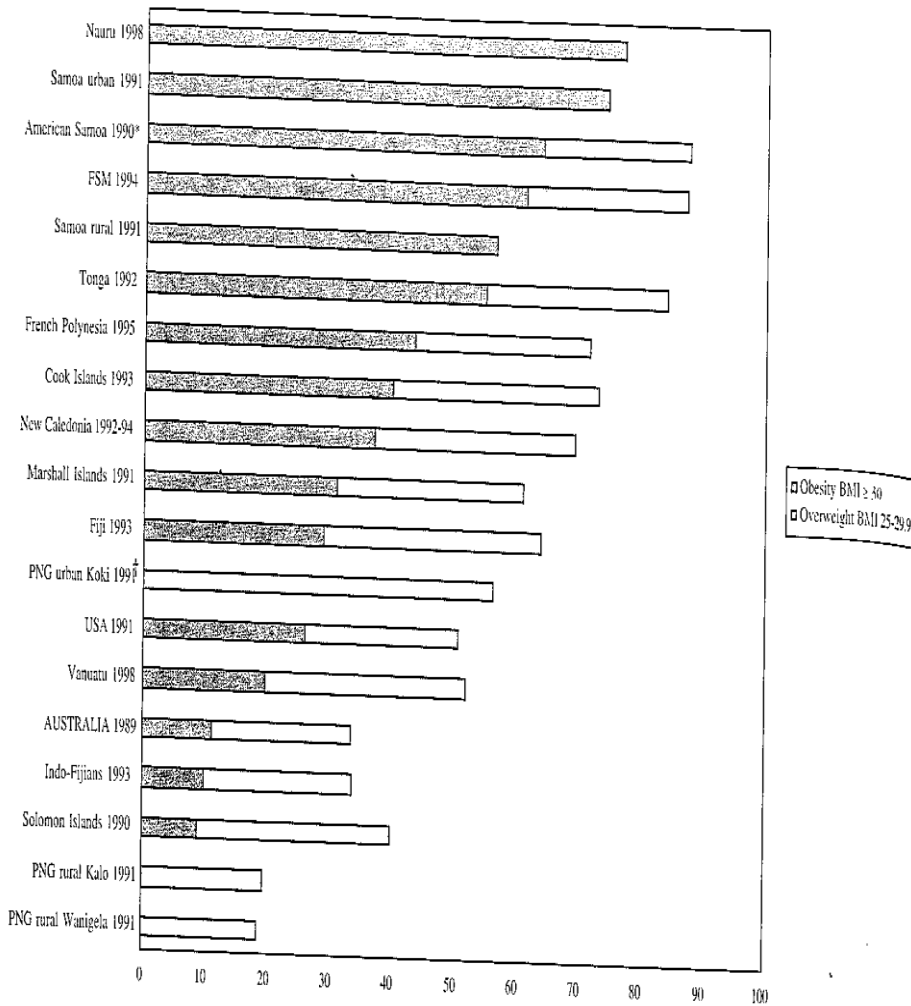


Females

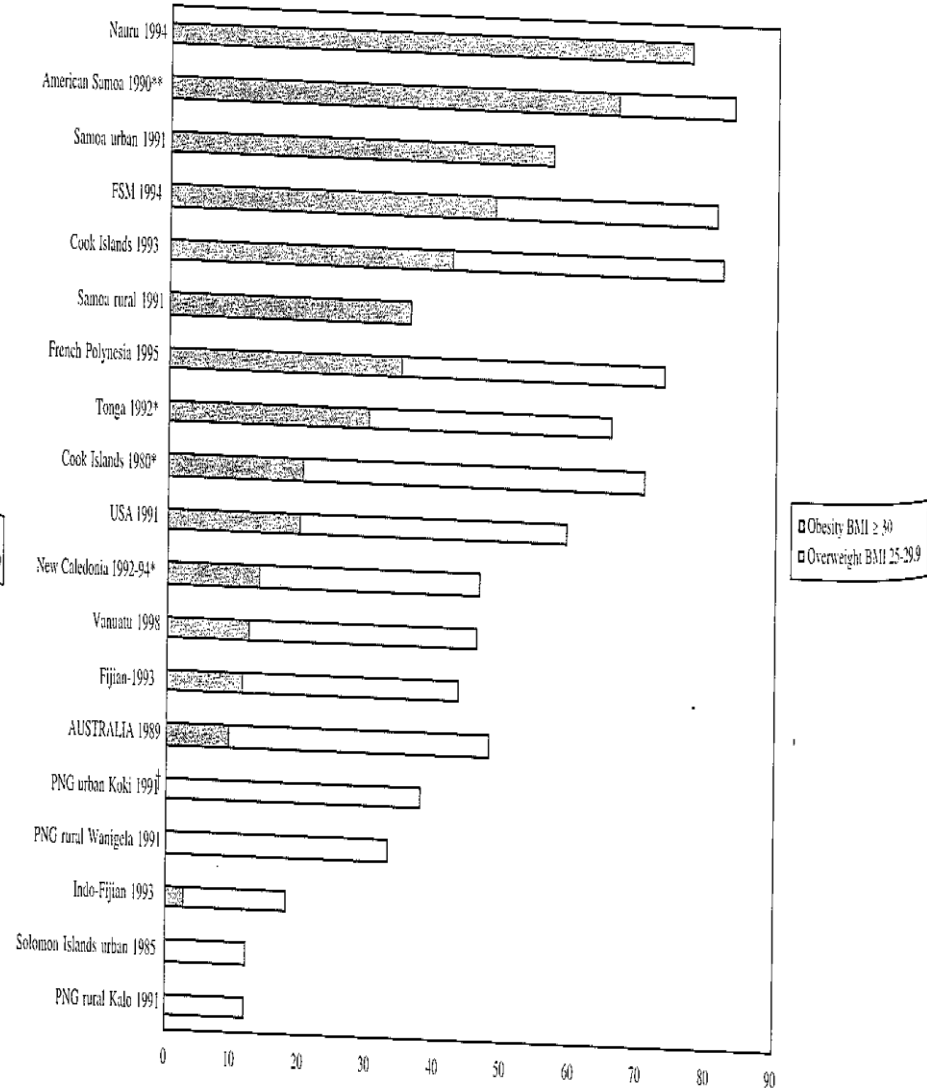


Males

% Prevalence of overweight and obese in the Pacific islands

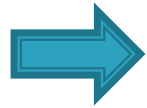


% Female



% Male

Micronutrient Deficiency in Fiji



Iron deficiency anemia is prevalent



Overall rates for the surveyed population:
27.2% in 1999 and 32.4% in 2004



Pregnant women – 55.6 in 1999 and 43.5% in
2004 (study population is questionable)
Hb level = 11.0g/dl



Rates for Indo-Fijians 37.5%, Fijian 28.8%



Fortification programme on flour was
introduced in 2008 to curb the anemia
problem.

Pacific Plan



Through Regionalism, Pacific countries to enhance and stimulate;

Economic growth

increased sustainable trade and investment, improved efficiency and effectiveness of infrastructure development and other service delivery, increased private sector participation and contribution to development

Good governance

Improved transparency, accountability, equity and efficiency in the management and use of resources in the Pacific

Security

Improved political and social conditions for stability and safety

Sustainable development

Reduced poverty, improved natural resource and environment management, improved health, education and training, gender equality, enhanced involvement of youth, increased participation and achievement in sports, recognised and protected cultural values, identities and traditional knowledge

Framework for Food Security in the Pacific (2010)

Developed in response to Pacific leaders 39th Pacific Island Forum in 2008, in order to progress the food security agenda as an instrumental part of the Pacific Plan for Strengthening Regional Cooperation and Integration.

It was formulated through the Pacific Regional Food Summit after national food summits from each country

Towards a Food Secure Pacific



Framework for Action on
Food Security in the Pacific

Framework's 7 themes in improving Food Security in the Pacific



Leadership and cooperation



Regulatory frameworks, enforcement and compliance and public-private sector collaboration



Enhanced and sustainable production, processing, marketing, trading and use of safe and nutritious local food



Protect infants and vulnerable groups



Consumer empowerment and mobilizing partners

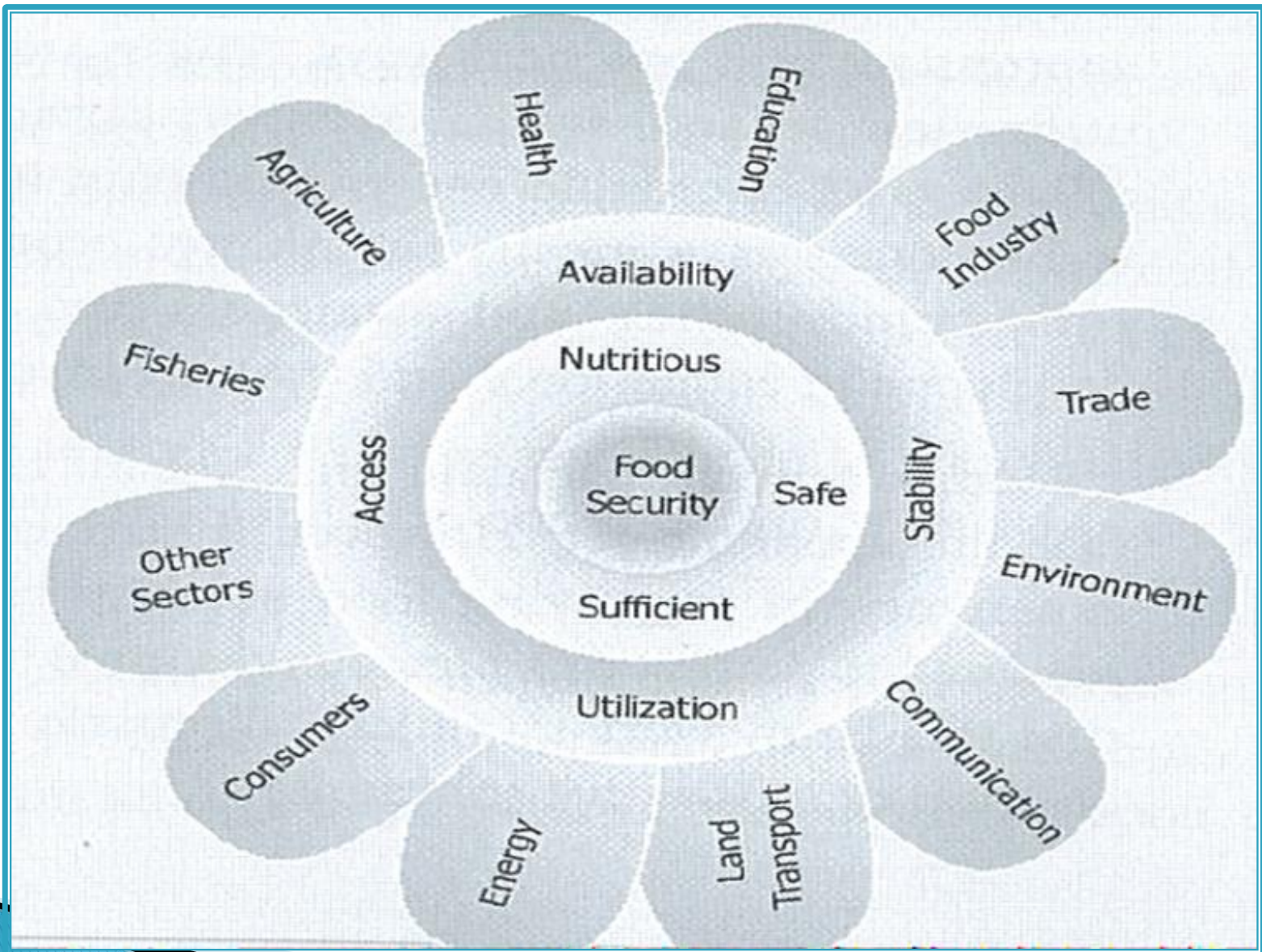


Food security information system



Enhanced land tenure systems and land-use policies, energy, transport, education and communication systems to underpin food security

Conceptual Model of Food Security in the Pacific



Source: Towards a Food Secure Pacific, 2010

Fiji Nutrition Policy and related Policies

National Food and Nutrition Policy (2008)

Developed by the National Food and Nutrition Centre

Plan of Action on Nutrition (2010–2014)

National FPAN Advisory Committee, NFNC

National non-communicable diseases strategic plan (2004–2008)

National Health Promotion Policy

Ministry of Health

National Food and Nutrition Policy for School

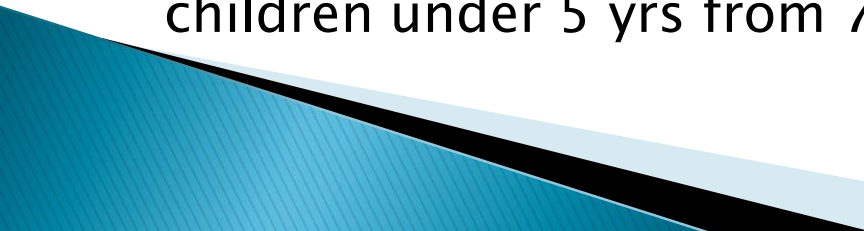
Developed by the Ministry of Education

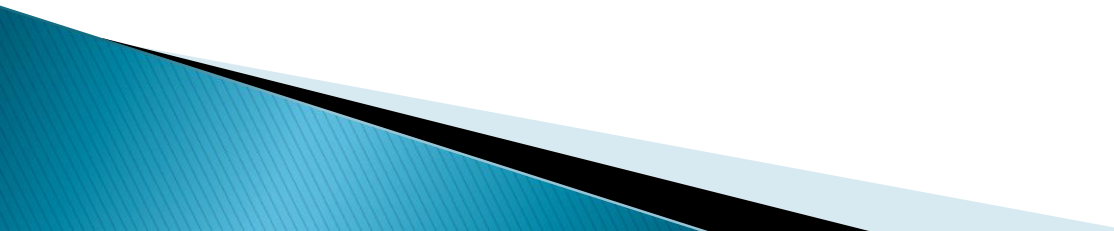
9 National nutrition policies for Fiji

- ➡ Advocate nutritional issues and mainstreaming into government decision-making system
- ➡ Promote and sustain household food security
- ➡ Improve national and nutritional status (NS)
- ➡ Protect consumers thru improved food and water quality and safety
- ➡ Improve NS of the socio-economically disadvantaged and the groups that are nutritionally vulnerable
- ➡ Support Nutrition Policy for schools
- ➡ Promote health diets and lifestyles
- ➡ Establish and promote a nutrition surveillance and monitoring system
- ➡ Strengthen collaboration with development partners

Fiji Plan of Action on Nutrition (FPAN)

- ▶ Ensure a level of food supply to maintain adequate nutrition and dietary well-being for all sectors of the population by 2014 maintain calories per capita per day at 3040 kcals (2002 level) or reduce by 5% to 2888 kcals;
- ▶ Simultaneously with i) reduce imported kilocalories per capita per day to 50% by 2014;
- ▶ Increase percent of population achieving minimum energy requirements (1850 kcal/day) from 47% (2004 level) to 55% by 2014;
- ▶ Increase percent total energy from traditional starchy foods per capita (2001 level 19%) to 25% in 2014

- ▶ By 2014, reduce % fat contribution to total kcal per capita per day from 30% (2002 level) to 25%
 - ▶ Increase percent total population consuming at least 3 serves of fruits and vegetables per day to 50% in 2014
 - ▶ Increase percent total population with healthy weight from 38% (2004 level) to 45% in 2014
 - ▶ Simultaneously reduce rates of overweight and obesity from 60% (2004 level) to 55% in 2014
 - ▶ By 2014, decrease rates of low birth weight babies from 10.2 (2004 level) to 9%;
 - ▶ By 2014, decrease percent prevalence of underweight in children under 5 yrs from 7% (2004 level) to 6.5%;
- 

- ▶ By 2014, decrease % of anaemia in the population from 32% (2004 level) to 20–25%;
 - ▶ By 2014 decrease % iron deficiency in CBA women from 23% (2004 level) to 15–20%;
 - ▶ By 2014 decrease % zinc deficiency in CBA women from 39% (2004 level) to 37%.
- 

National Nutrition Policy for Secondary Schools

▶ **Boarding Schools**


- All boarding schools must provide balanced meals.
- All food handlers in boarding schools must undergo annual medical examinations.

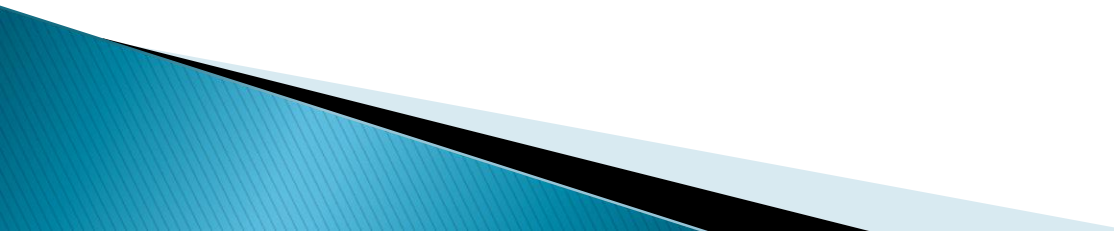
▶ **School Canteens**

- All food services (school canteens, boarding schools, outside vendors) to be directed towards obtaining and maintaining optimal food quality and safety.
- All catering/canteen facilities and other providers must obtain and display an operating license from relevant authorities before operating their business.
- All school canteen operators should comply with the Canteen Guidelines.

► Schools and Curriculum

- All schools must provide nutritious foods and drinks in the school premises.
- All schools shall have their own food policies which should be in line with the Nutrition Policy for Schools.
- Nutrition subjects in schools must incorporate nutrition stakeholders' initiatives outside the school framework.
- All levels of education in schools must include Nutrition in their curriculum (early childhood through to secondary schools). All must have some elements of nutrition education in their subjects.

- ▶ All school functions and meetings must practice healthy eating practices using the Healthy Eating Guidelines.
 - ▶ All nutrition information from schools must be disseminated to nutrition stakeholders through the annual reports.
 - ▶ All school food services must coordinate with the school nutrition policy to reinforce messages about healthy eating and ensure that foods offered in Fiji schools promote good nutrition and contribute to the development of lifelong healthy eating habits.
- 

- ▶ All school compounds should have gardens and fruit trees and should link to the Enterprising Education in schools and Agriculture Science in secondary schools.
 - ▶ All education premises will observe at least one day a week for Fruit and Water Day.
 - ▶ All schools must provide proper linkage between good nutrition and physical education.
- 



involvement and approach

Education

Agriculture School in Samoa



Bachelor of Agriculture

**NOT ENOUGH to
ADDRESS the NEED**



**New Food Science programme
Expected year of offer 2014**

Research

Research cluster

- Food security and climate change

- Human security

- Natural disaster

Other research projects

- ACIAR – PARDI

- Value addition and value chain
analysis of Pacific foods

- Seaweed, VCO, Tilapia,
Taro, etc

Community approach

- PACE-SD

- IAS – CROWRIE project

The Fijian Government Approach

Land Use Planning, Training & Application

Community Forest Nursery Developed with Restoration Plan, targeting native wood & fruit trees

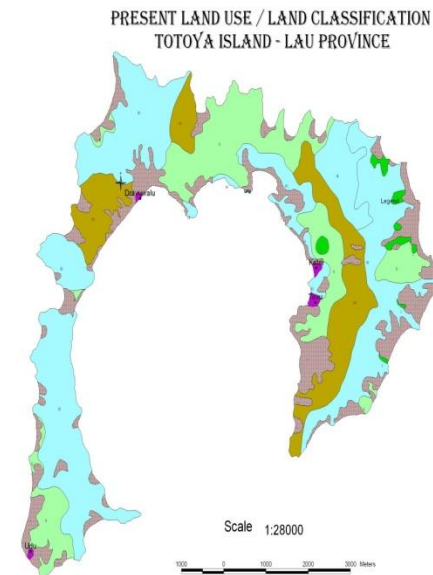
Working with youth to apply model farming Methods- integrated & organic farming



Community outreach

- ▶ GEF–Small Grants Programme– Totoya Island Project
- ▶ The project attempts to strengthen community adaptation and boost local food security in a climate changing environment

TOTAL LAND AREA
[3433.17 ha] – 23sq km



Pop;
1936- 731
1946-860
1956-997
1976- 952
1986- 1046
1996- 895
2007- 705
2010 – 500 (est)

Present Land Use

1. Coconut Plantation
[334.14 ha = 9.7%]
2. Suitable Arable Land
(Class I to III combine)
[101.21 ha = 3%]
3. Suitable for Tree Crop
or Grazing
(Class IV & V combined)
[943.31 ha = 27.5%]
4. Marginal Forest- Grazing
Land
[1546.55 ha = 45%]
5. Unsuitable Land
(Class VII & VIII)
[507.69 ha = 14.8%]

Four villages all coastal and located along the fringes of the remnant caldera.

Island economy is predominately subsistence, with copra production being the major commercial activity, as well as fishing supplemented by *voivoi* and *yaqona*.

Transport system: fibre, on foot.
(Ministry of Agriculture)

Low Tech Food Processing Methods & Encouraging Local Food Production

1. Set up of community solar drier
2. Drying of breadfruit for flour for Making scones, bread, etc



Production of virgin coconut oil for

1. Cooking
2. Soap making

Handicrafts from plants and other natural resources



..... and our effort to improve food security continues.....

