



FOOD SECURITY IN THE PACIFIC IS UNDER THREAT

HIGHLIGHTS OF SPC/USAID PROJECT ON BUILDING
RESILIENT FOOD PRODUCTION SYSTEMS IN THE PACIFIC

LEG Regional Training Workshop on National Adaptation Planning (NAP)
for the Pacific LDCs

Port Vila, Vanuatu
3 – 7 November 2014

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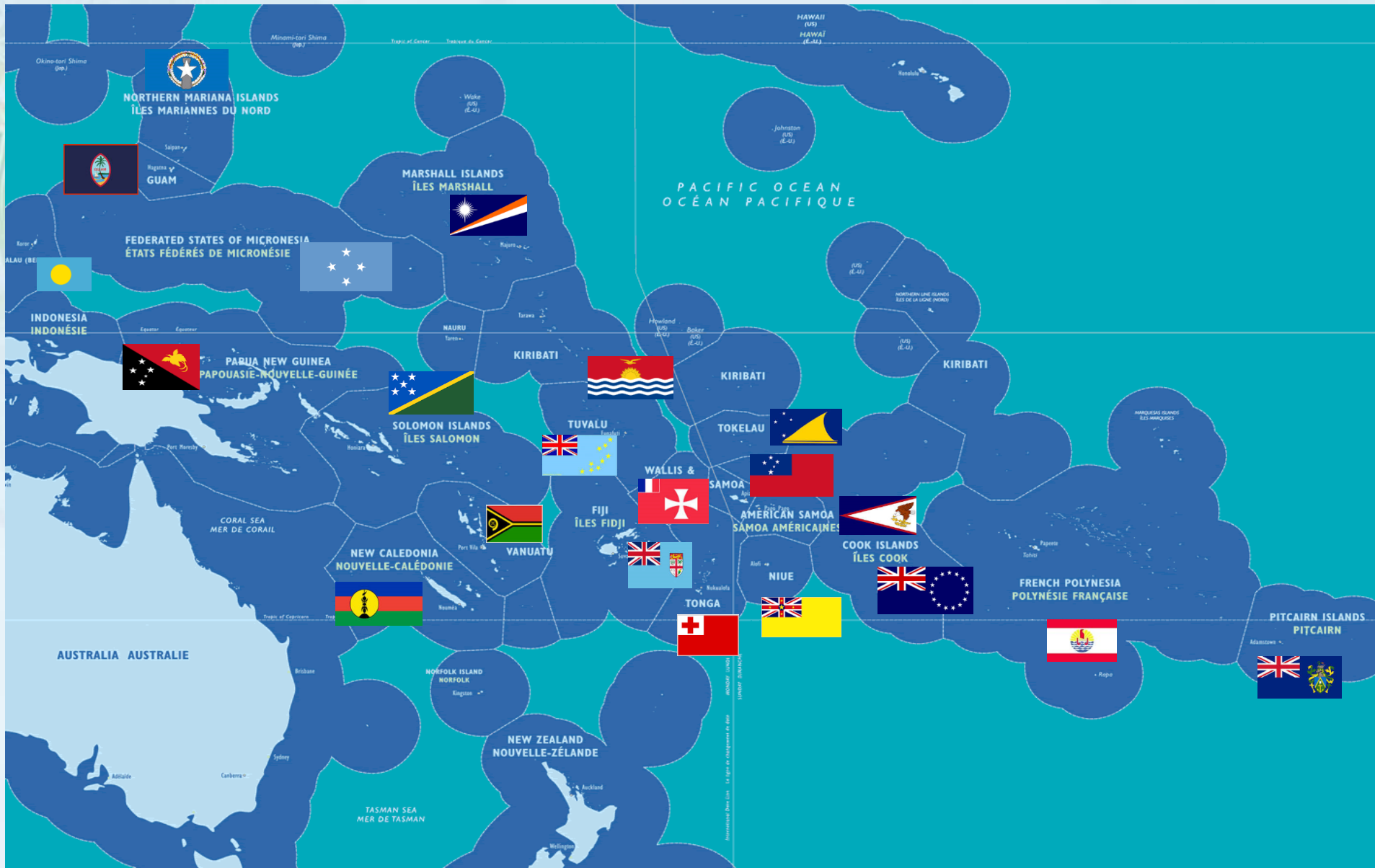


- Overview of SPC
 - SPC Member Countries
 - Mandates of SPC
 - SPC's Engagement Strategy for Climate Change
 - Climate Change Projects and Partners
 - SPC's Engagement in Food Security
- Snapshots of Food Security Issues in the Pacific
 - Food Availability, Food Access, Food Utilization, Food Stability
- Highlights of SPC/USAID Project
 - SPC CC and FS Community Vulnerability Assessment (CVA) Framework
 - CVA results
 - Adaptation Approaches

SPC Member Countries



- 22 Countries and Territories in the Pacific (Australia and New Zealand)



SPC's Mandates



- SPC's mandates cover almost all key development areas:
 - Natural resources sectors (agriculture, aquaculture, fisheries, forestry, water);
 - the human and social development sectors (education, health, sanitation, culture, gender, youth, human rights);
 - the oceans and islands sectors (coastal zone management, geological assessment, sea-bed mapping, maritime boundary delineation);
 - the economic development sectors (energy, ICT, infrastructure, transport); and
 - cross-cutting areas (disaster risk reduction, statistics and demography, food security, and research, policy analysis and advice).

Climate Change Engagement Strategy for SPC



Internal Climate Change Engagement Strategy
for the Secretariat of the Pacific Community

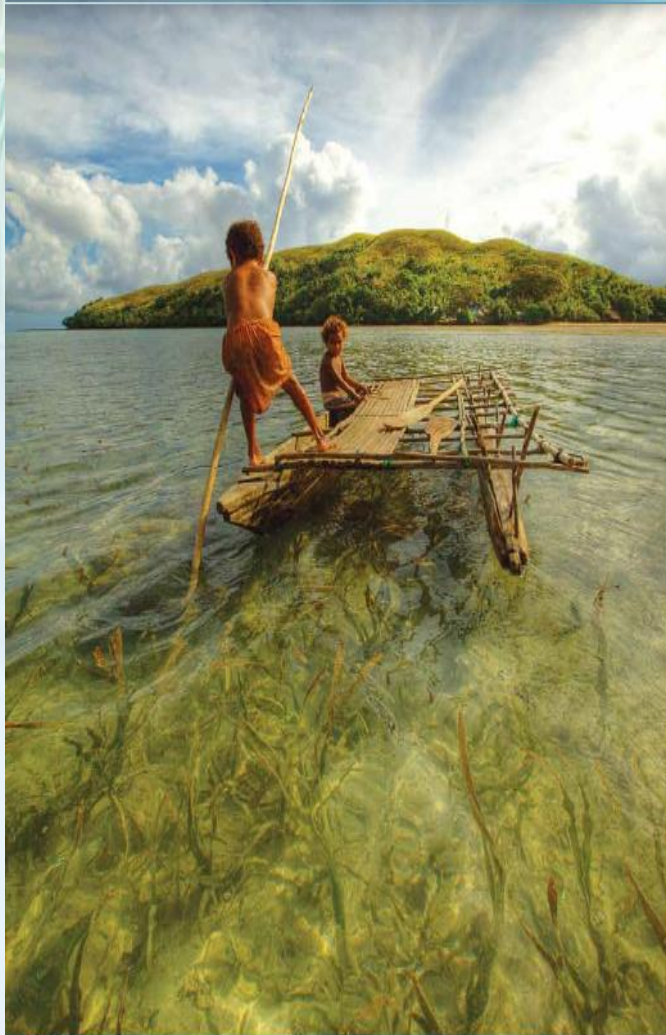


Photo: Christophe Lacroix

www.spc.int

- SPC's Climate Change Engagement Strategy (2011 – 2015) provides an overarching framework for the organization's climate change programs and guides the implementation of new and existing climate change related projects.
- The strategy targets three outcomes that are directly linked to SPC's mandates:
 - Strengthened capacity of Pacific island communities to respond effectively to climate change
 - Climate Change integrated into SPC programs and operations
 - Strengthened partnerships at the regional and international level
- SPC Internal Working Group on CC and DRR

SPC Climate Change Projects



- Global Climate Change Alliance: Pacific Small Island States (GCCA: PSIS); funded by European Union



- Coping with Climate Change in the Pacific Region (CCCPIR); implemented in partnership with Deutsche Gesellschaft fuer Internationale Zusammenarbeit (GIZ) on behalf of the German Federal Ministry for Economic Cooperation & Development (BMZ)



- Vegetation and Land Cover Mapping and Improving Food Security for Building Resilience to a Changing Climate in Pacific Island Communities; funded by USAID



- International Climate Change Adaptation Initiative (ICCAI): focusing on building resilience in the fisheries, agriculture and health sectors; funded by AusAID



- World Bank

SPC's Engagement in Food Security



Towards a Food Secure Pacific



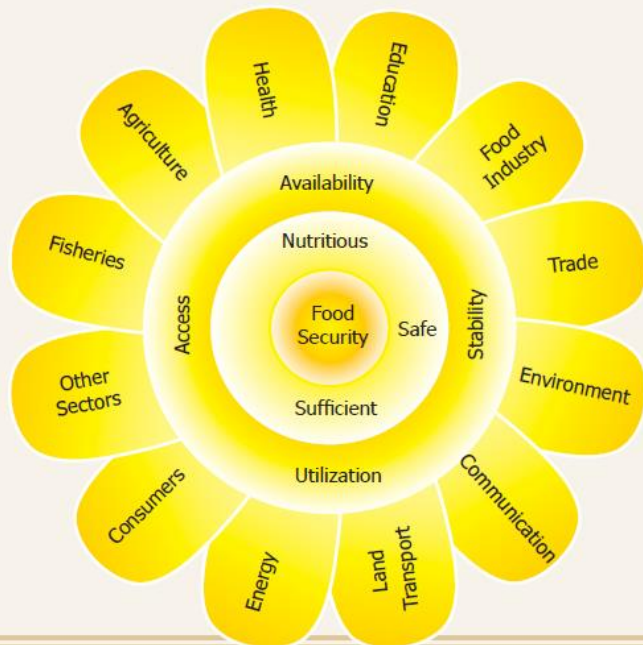
Framework for Action on
Food Security in the Pacific

- Adopted by the Pacific Leaders at the 1st Pacific Food Summit held in Port Vila, 2010

- SPC is the Secretariat for a Working Group established in 2011, representing all CROP Agencies

- An SPC Internal Working Group on Food Security and NCDs created to integrate FS and NCD across SPC programs

Figure 1: Conceptual model of food security in the Pacific





“Food Security exists when all people, at all times, have physical [social] and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life” (WFS, 1996/2001)



Deconstruction of the Definition

Secure access	The right to food. People are entitled to enough food. Affordability depending on purchasing power and market prices. Own production depending on land rights, etc
By all people	Equity; everyone
At all times	Food security should be achieved on a sustainable basis in a long-term perspective.
Adequate food	Both quantity and quality of food must meet nutritional requirements and food safety standards for an active and healthy life.
Safe and nutritious	Good quality, safe and culturally appropriate foods
Food preference	By enculturation. Food consumption bundle. Can change
For an active and healthy life	Proper consumption and good utilization of food, resulting in an adequate nutritional status

Food Security Pillars



FOOD SECURITY

Food Availability

Refers to “Sufficient” amount of food that is present in a country/area through local food production and imports or food aid

Food Access

Refers to “physical, social and economic access” to acquire adequate amount of food consistently through production, purchases, barter, borrowings

Food Utilisation

Refers to “safe and nutritious food which meets dietary needs for an active and healthy life”

Food Stability

Refers to “at all times” in the definition and applies to all 3 dimensions

Determinants of Food Security



**Domestic
production**



Indicators

- **Soil and water Quality**
- **total area cultivated**
- **Food production**

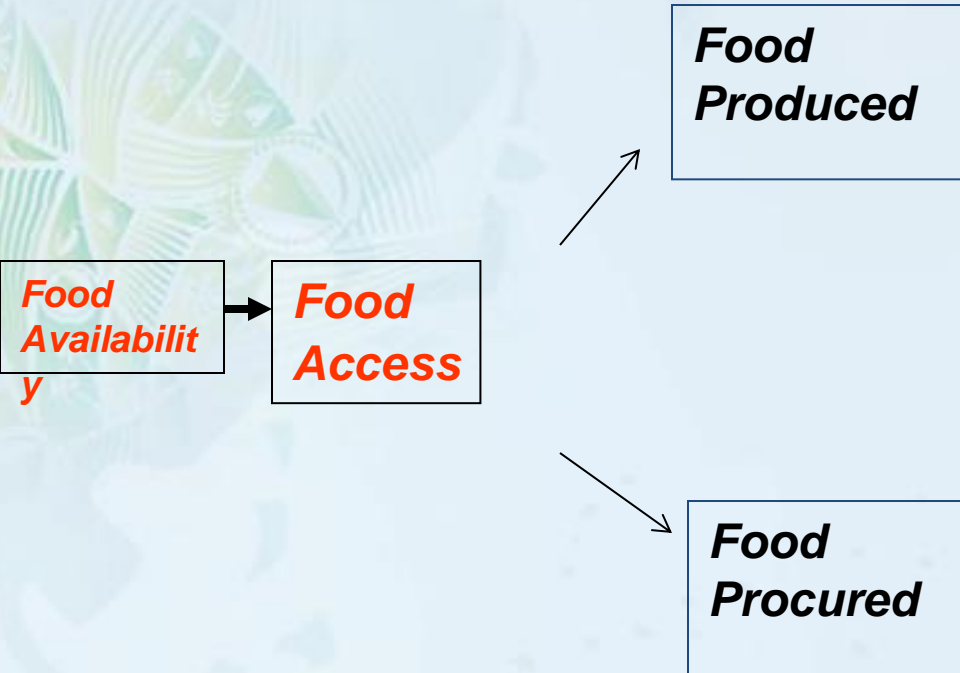
**Food
Availability**

**Food
Imports**



- **Amount of imported food**
- **Contribution of imported food to the diet**
- **National Food Balance Sheet**

Determinants of Food Security

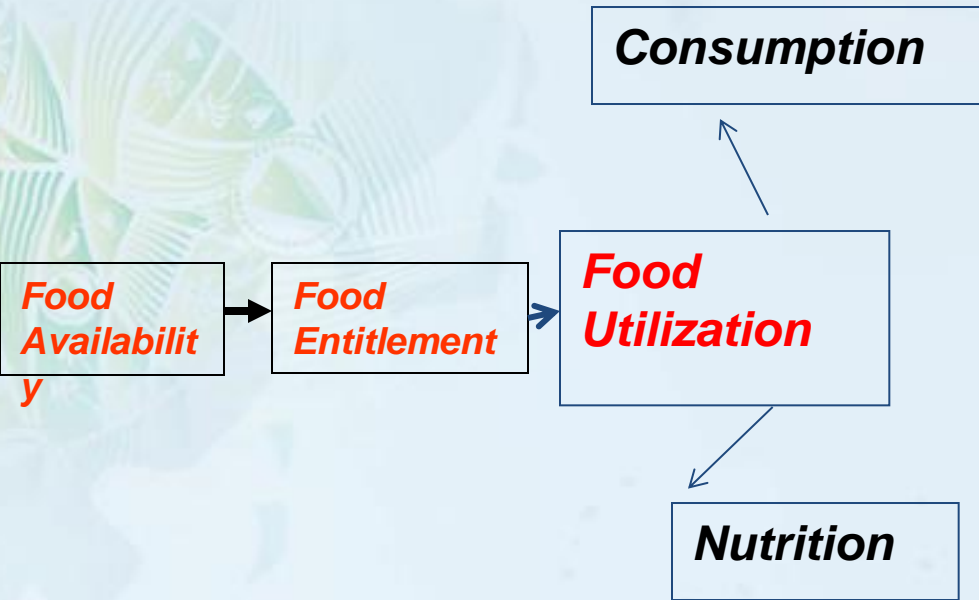


Indicators

- total area cultivated
- Access to and use of inputs

- Household expenditure
- Food prices

Determinants of Food Security



Indicators

- Meal frequency
- Composition of meals
- Anthropometric data
- Access to potable water
- BMI

Changing times



1970s



NOW

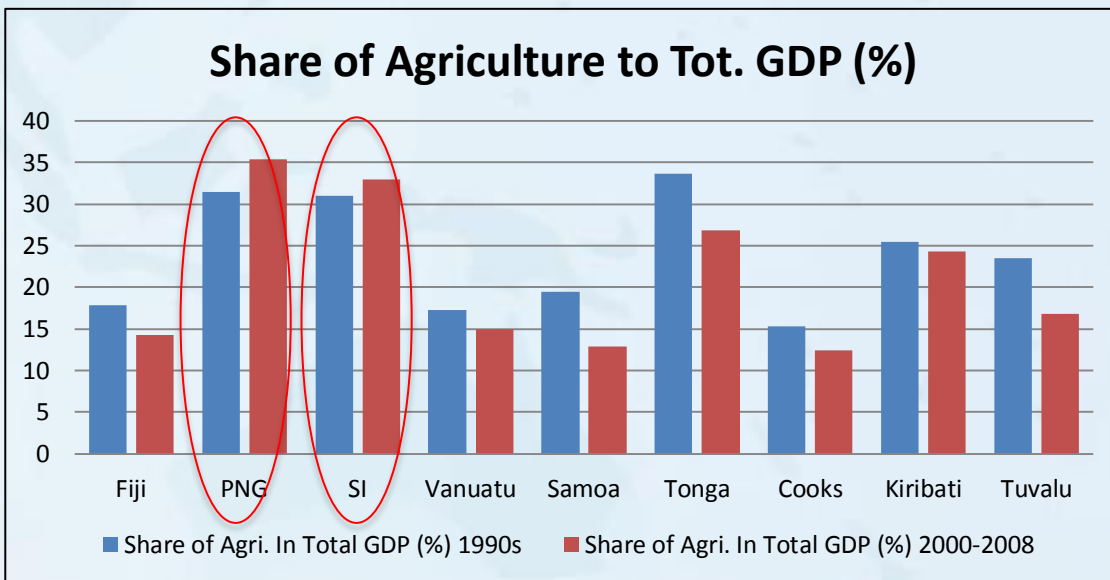
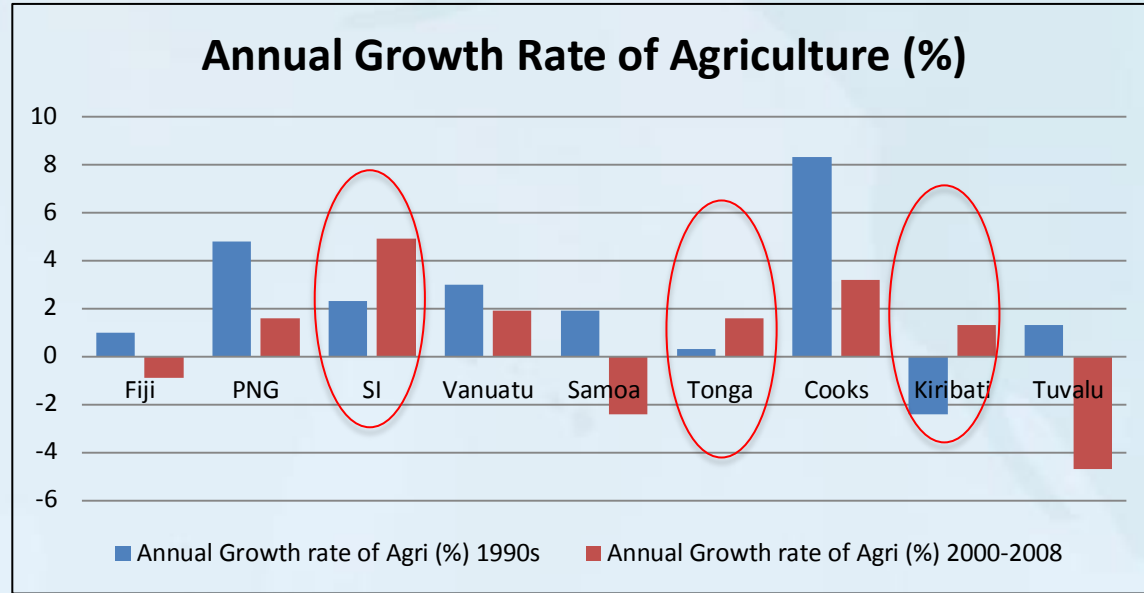


FS Availability Issues in PIs



Food Production

- Except SI, Tonga & Kiribati, average agriculture annual growth rate has declined since 1990s
- Similar trend for share of agriculture to total GDP

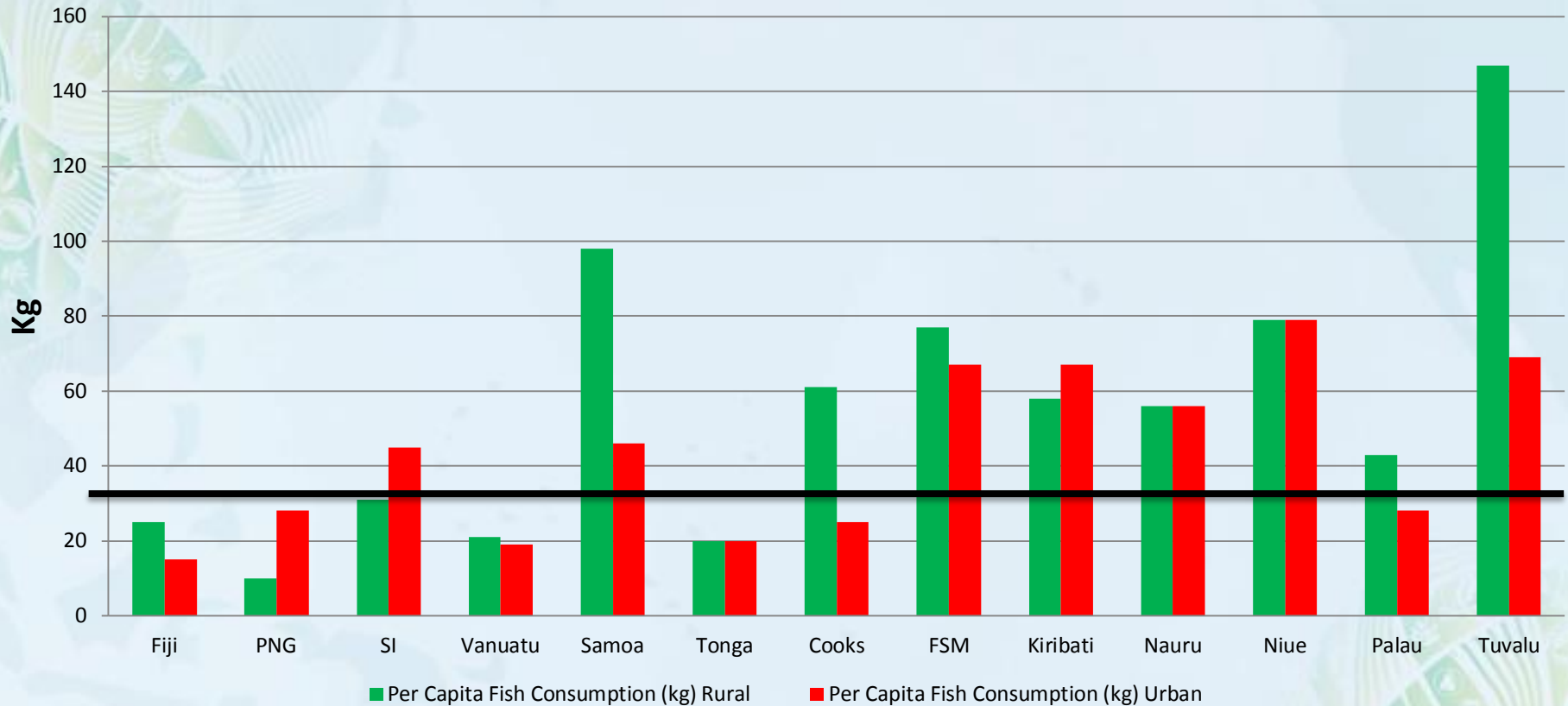


- Share of agriculture to total GDP for PNG and SI are mainly due to increased export of coffee, palm oil & coconut oil

Food Availability Issues



Per capita Fish Consumption (kg/person/day)



- Most fish consumption comes from coastal fisheries
- Most countries (especially rural) above requirements (35kg/year)
- Even well managed coastal fisheries will not provide the future fish needs

Food Availability – National Level



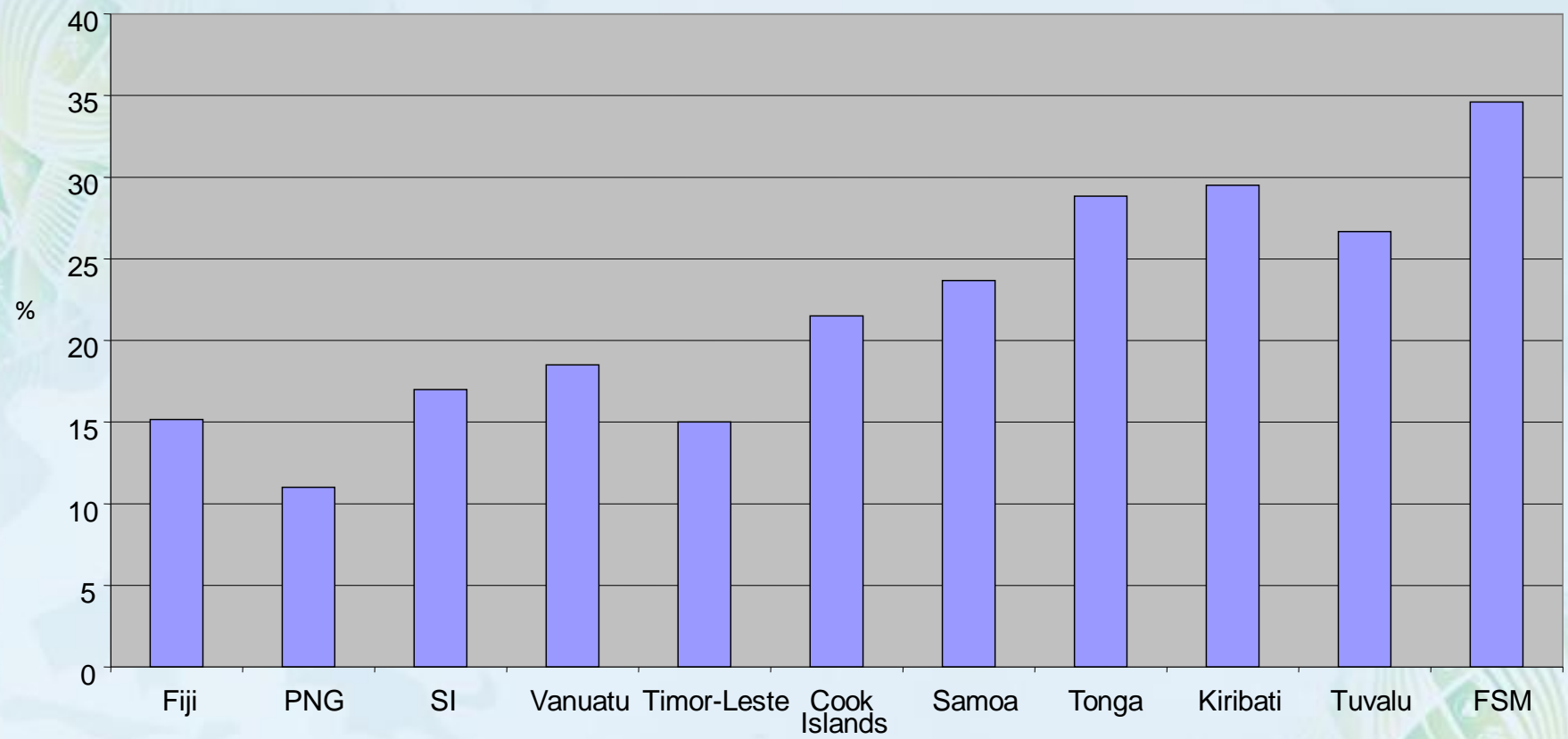
Country	Kcalorie/per/day	% Import
Fiji	3663	51
Kiribati	3534	63.7
Solomon Islands	2422	55.8
Vanuatu	2757	49.2
Cook Islands	3185	83.4
Samoa	2886	60%
Marshall Islands	2950	89

- Food availability does not mean all people access this amount.
- Proportion of food imported is quite alarming

Food Imports



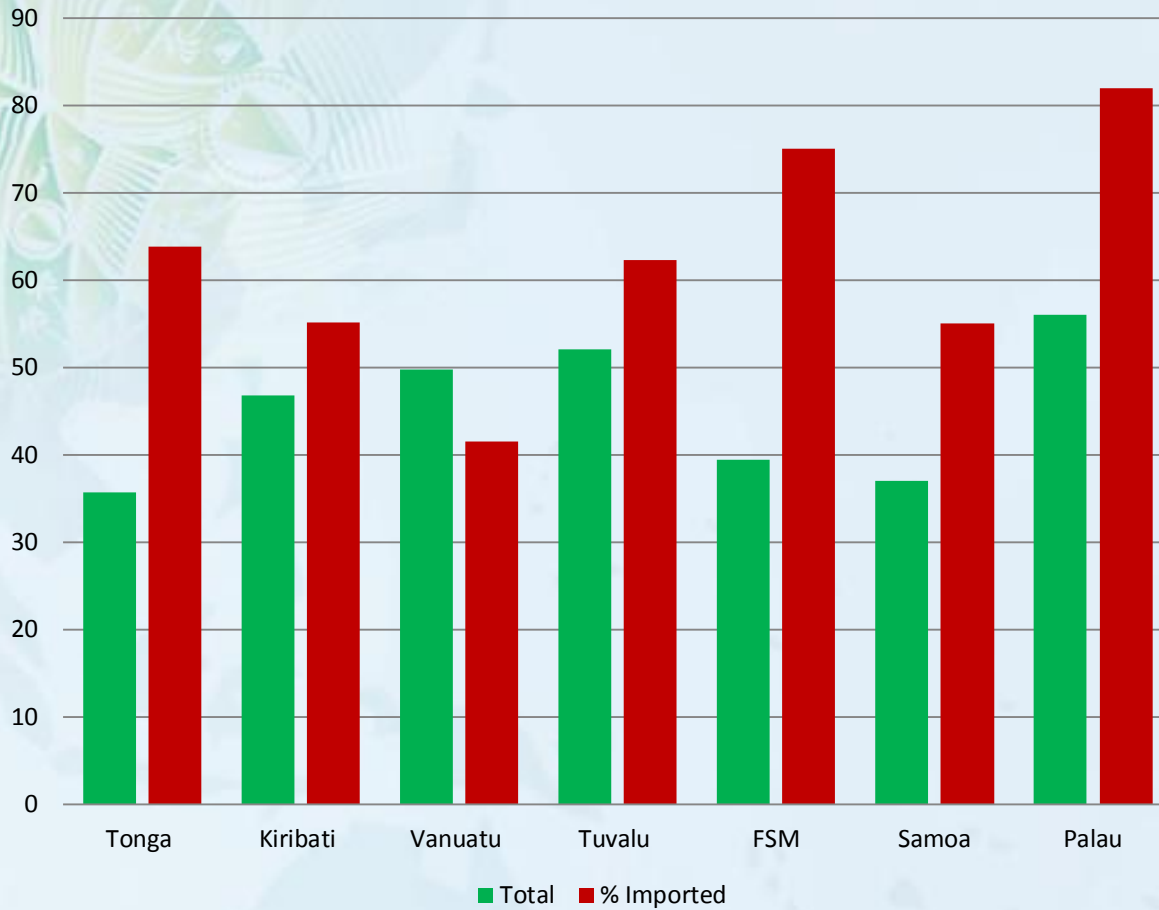
Food Imports as % of Total Imports (average 2002-2007*)



Food Access Issues



Tot. Food Expenditure & Imported Food (%)



Food Access Issues



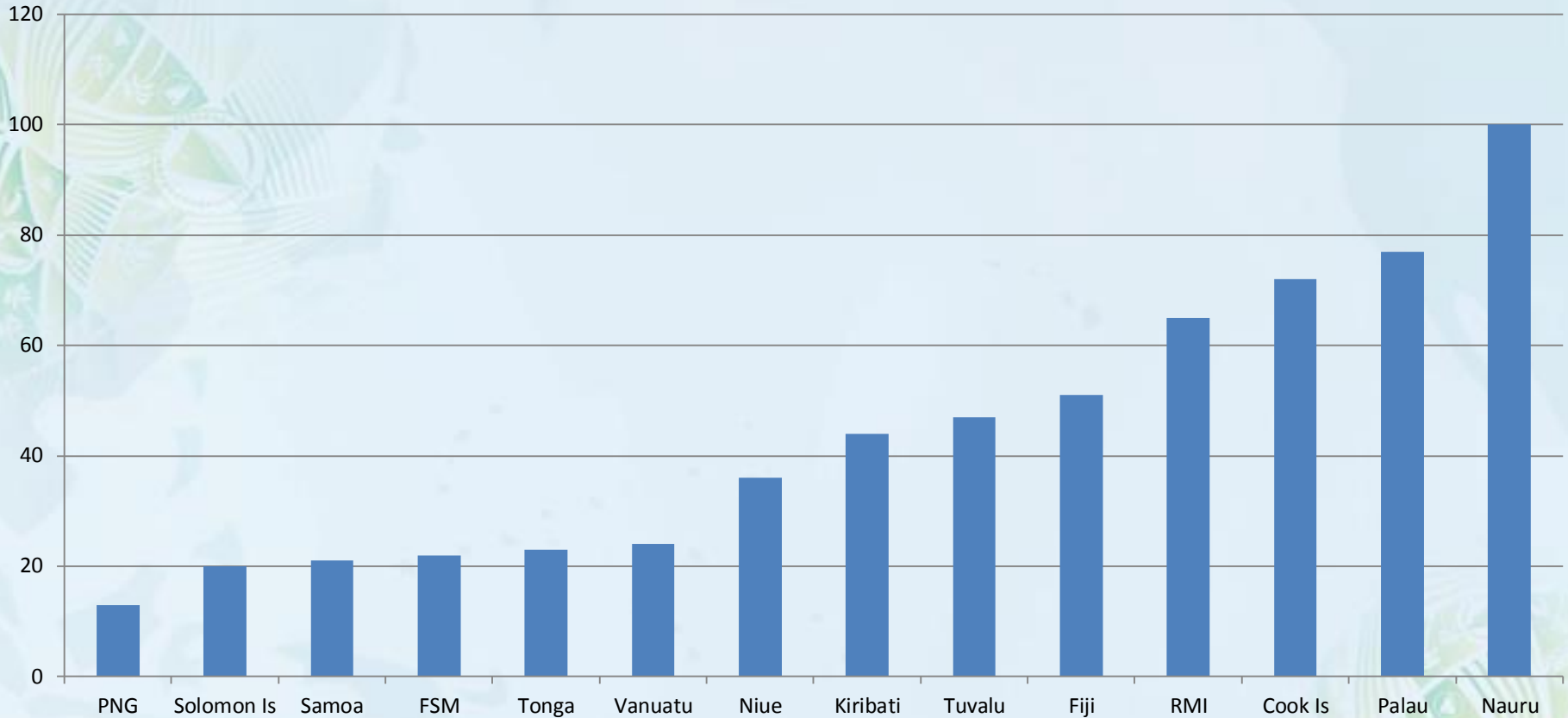
Poverty



Food Access Issues



% Urbanization

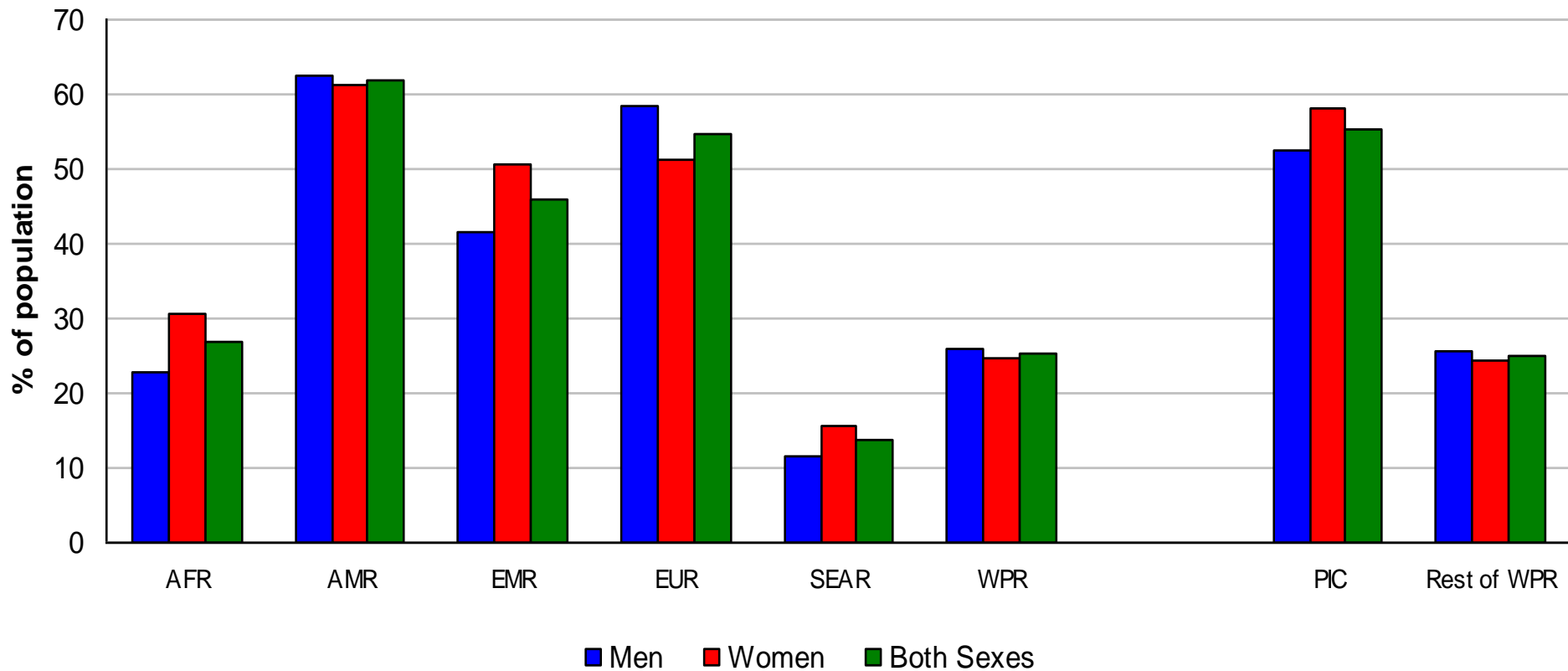


- No longer grow own food
- Increasing control of supermarkets on diet
- High prices forcing to buy cheap, poor quality food import
- Unemployment = low labor productivity = Loss of traditional knowledge

Utilisation Issues



Age-standardized prevalence of overweight* in adults aged 20+ years by WHO Region and for PIC, 2008

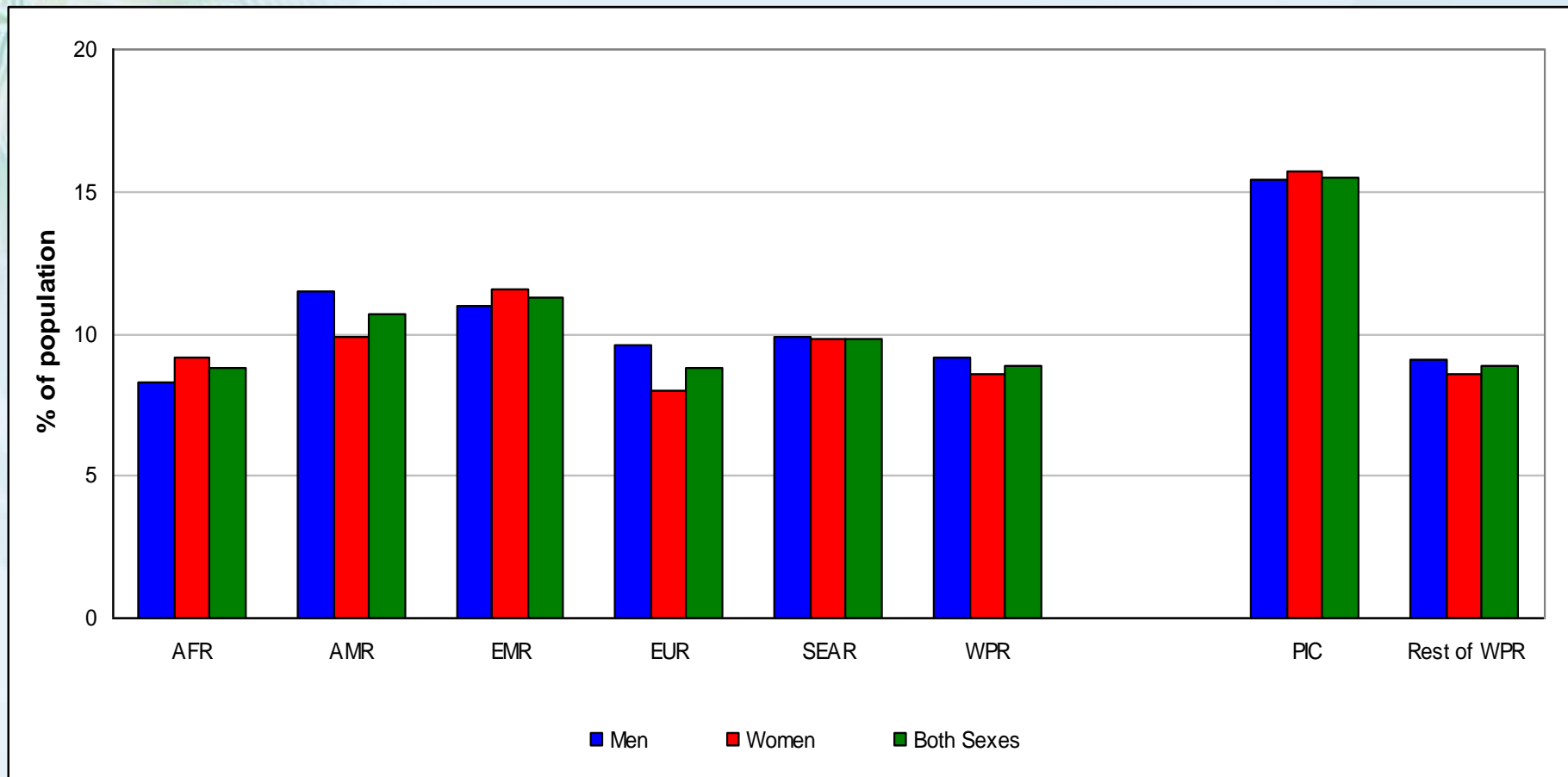


* Defined as BMI \geq 25kg/m²

Utilisation Issues



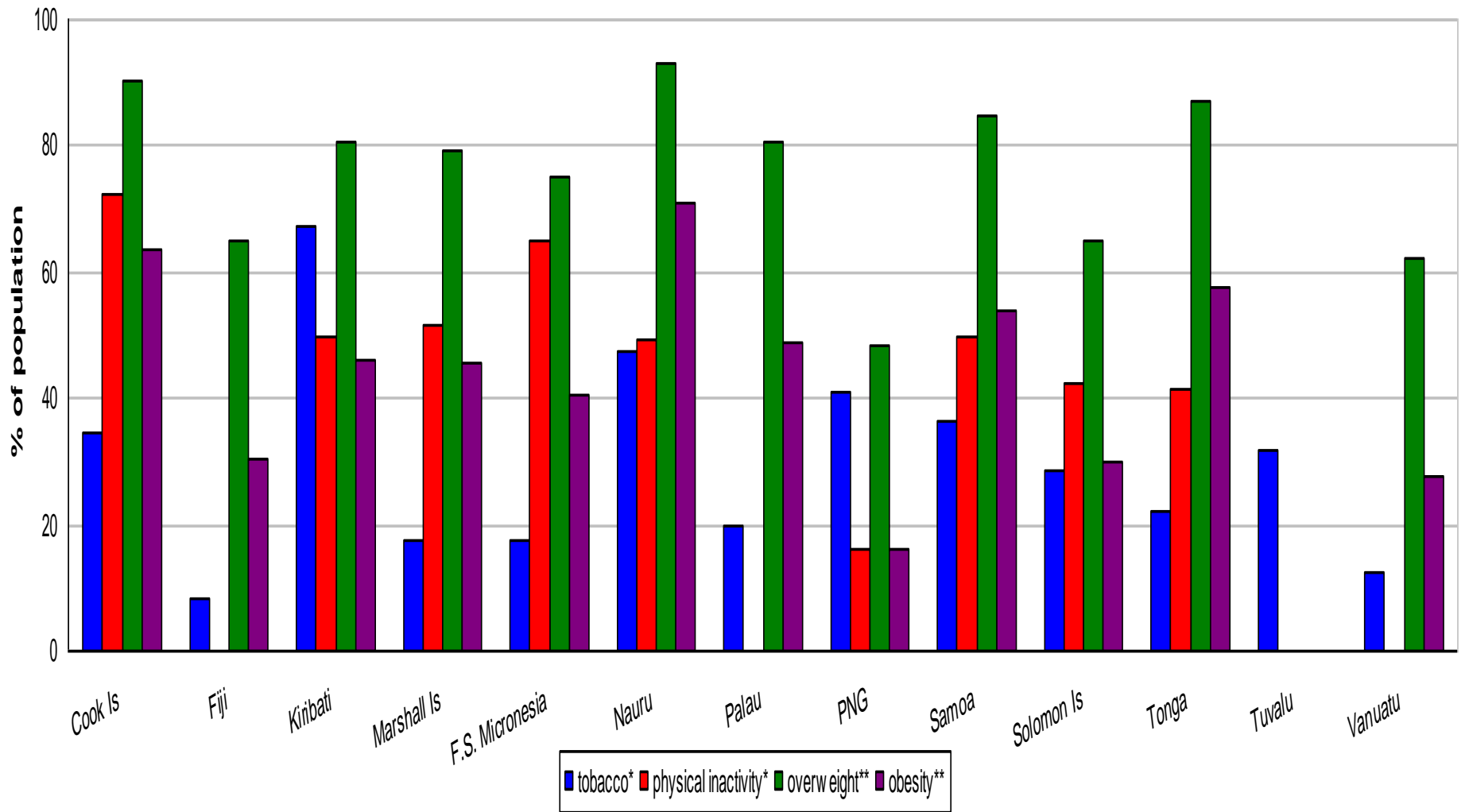
Age-standardized prevalence of diabetes* in adults aged 25+ years by WHO Region and for PIC, 2008



*Defined as raised fasting glucose ≥ 126 mg/dl or on medication



Prevalence of key NCD risk factors in Pacific Island Countries, 2008



*Defined as 15+ years

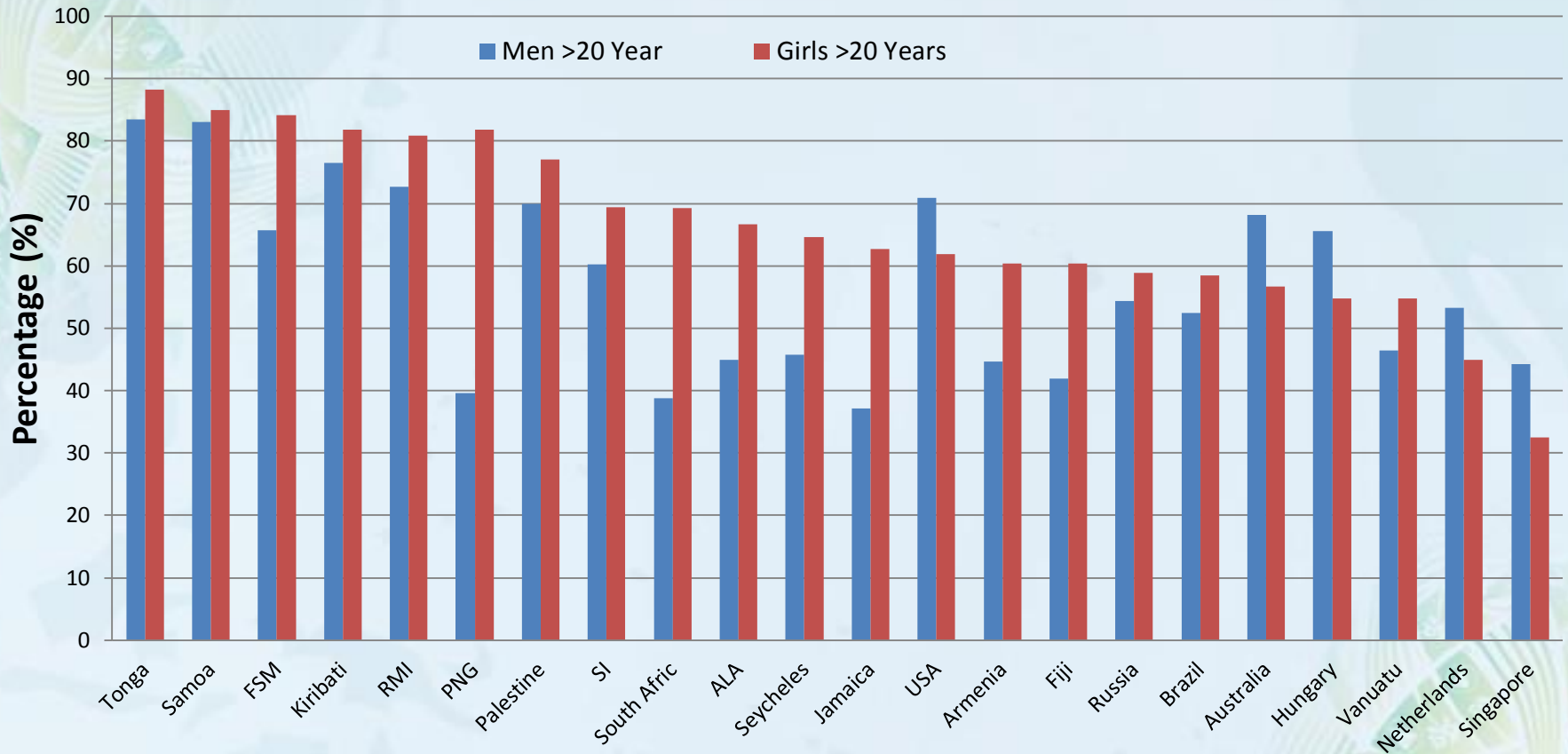
** Defined as 20+ years

Source: Country HIES

Global comparison

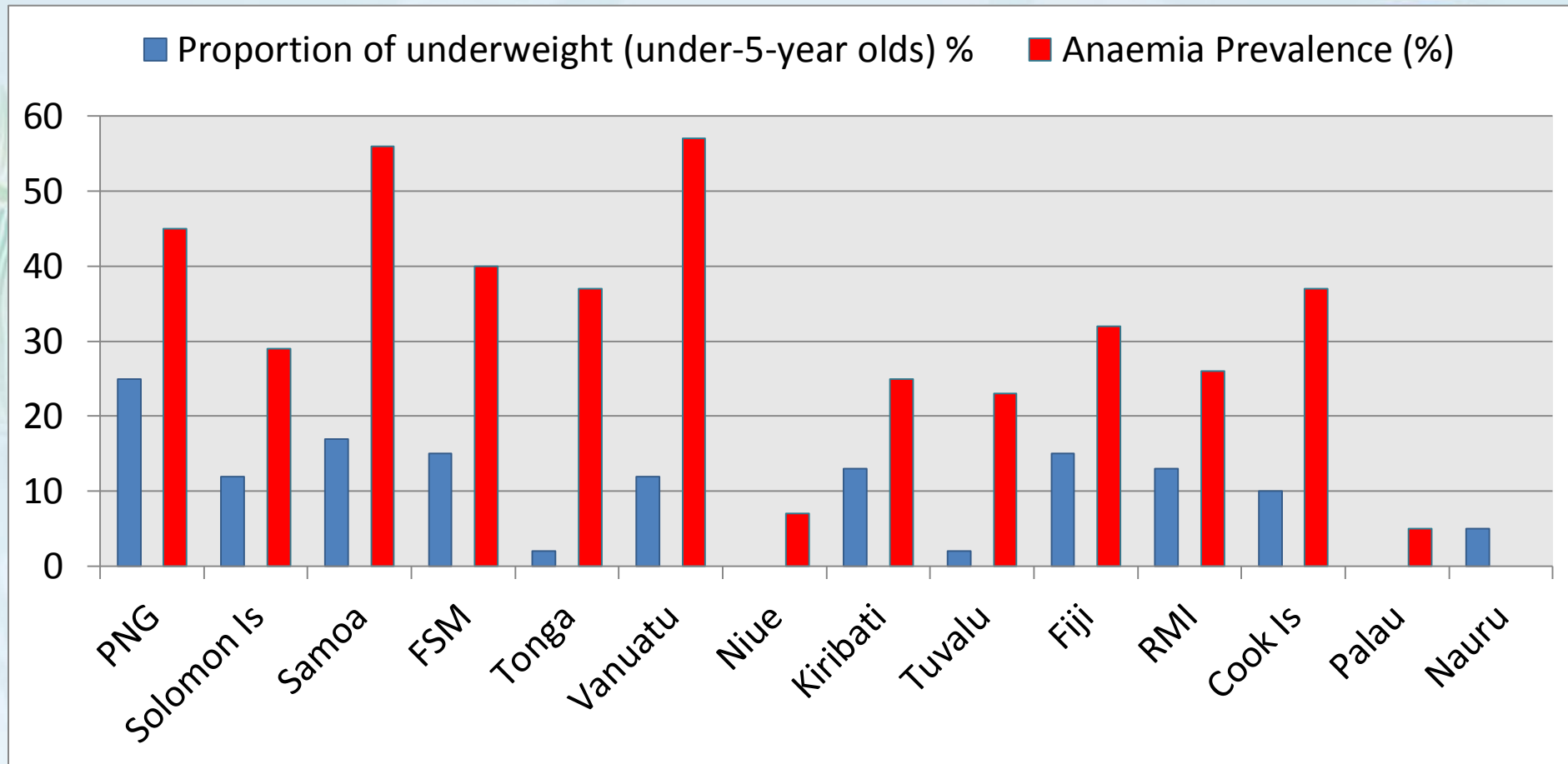


Global Overweight/Obese Comparison (Men and Girls >20 years)



Source: Marie, Ng. et al, 2013

Underweight/Anaemia



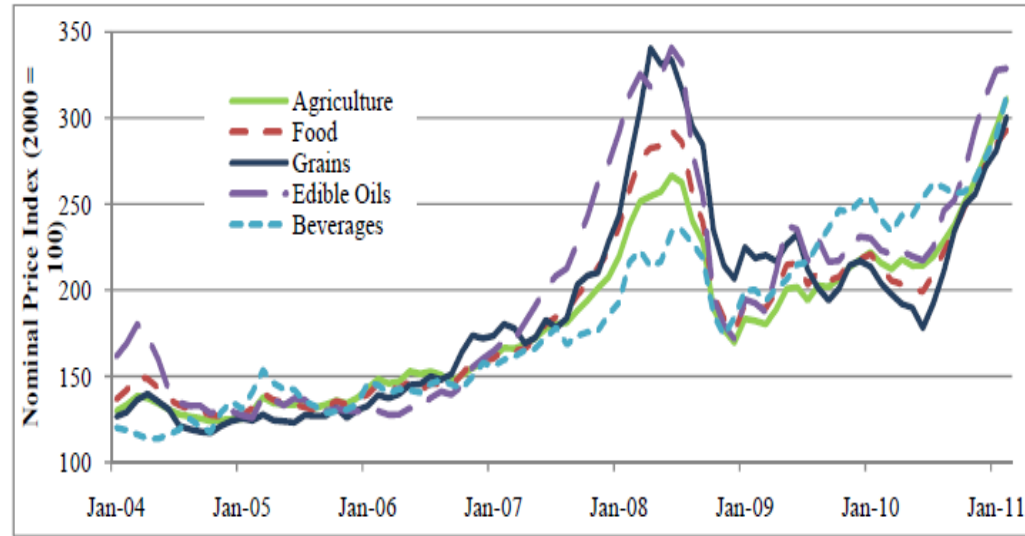
Food Stability Issues



Food and Oil Prices

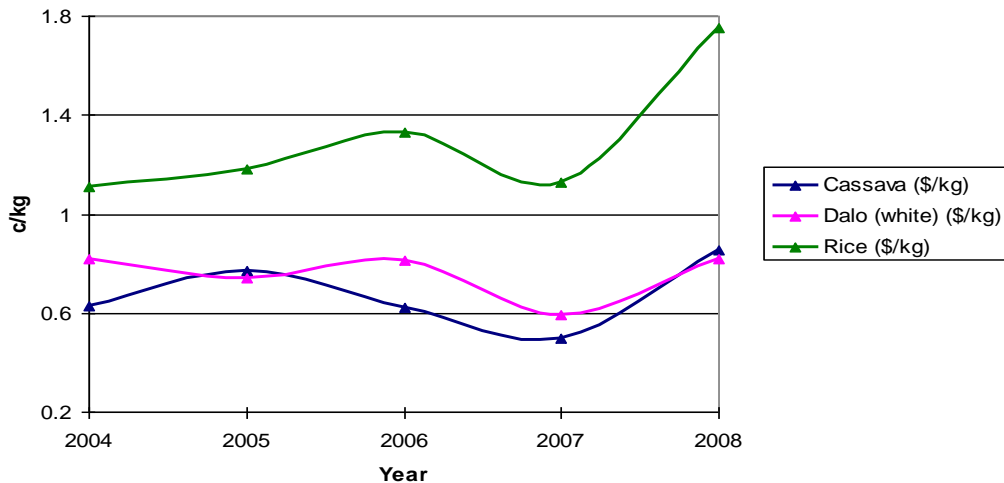
- Food and oil price will continue to increase
- Two third of PICTs are net food importers

Figure 1: Food commodity price spikes since 2004

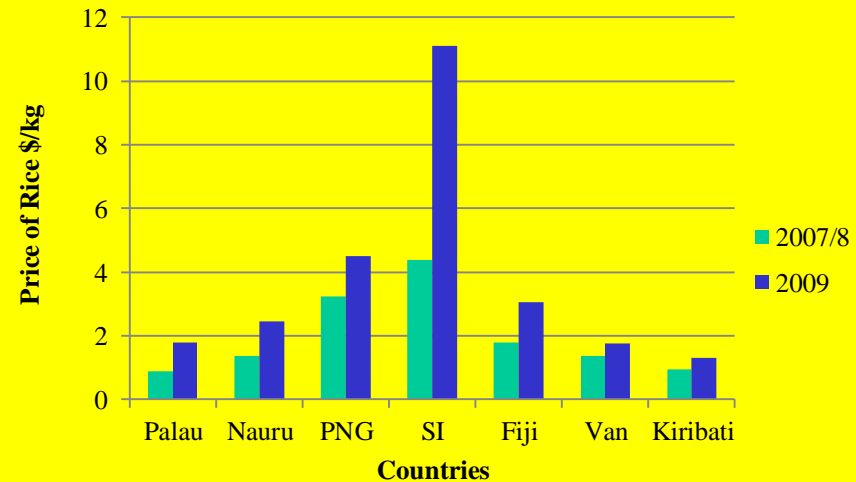


Source: World Bank.

Fig 1: A comparison of Suva cassava, dalo and rice prices



Effect of the Global Crisis on Price of Rice



SPC/USAID Climate Change and Food Security Project



- Title:
 - *“Vegetation and land cover mapping and improving food security for building resilience to a changing climate in Pacific island communities”*
- Goal:
 - *To evaluate and implement innovative techniques and management approaches to increase climate change resilience of terrestrial food production systems for communities in selected PICTs (Fiji, Kiribati, Samoa, Solomon Islands, Tonga and Vanuatu).*

Project Objectives



1. Improved understanding of present and future climate related constraints on sustainable food productions and the adoption of innovative adaptation responses that contribute to maintaining or increasing food security.
2. Strengthened national and community capacity to build food security and respond proactively to climate change and climate variability
3. Improved integration of successful approaches into national and sector-wide climate change adaptation strategies

Participatory Implementation Process



Community Vulnerability Assessments (PRAs; Vegetation and Land cover Mapping)



Identification of Adaption Approaches



Impact Assessments (Assessment and Exit Strategies)



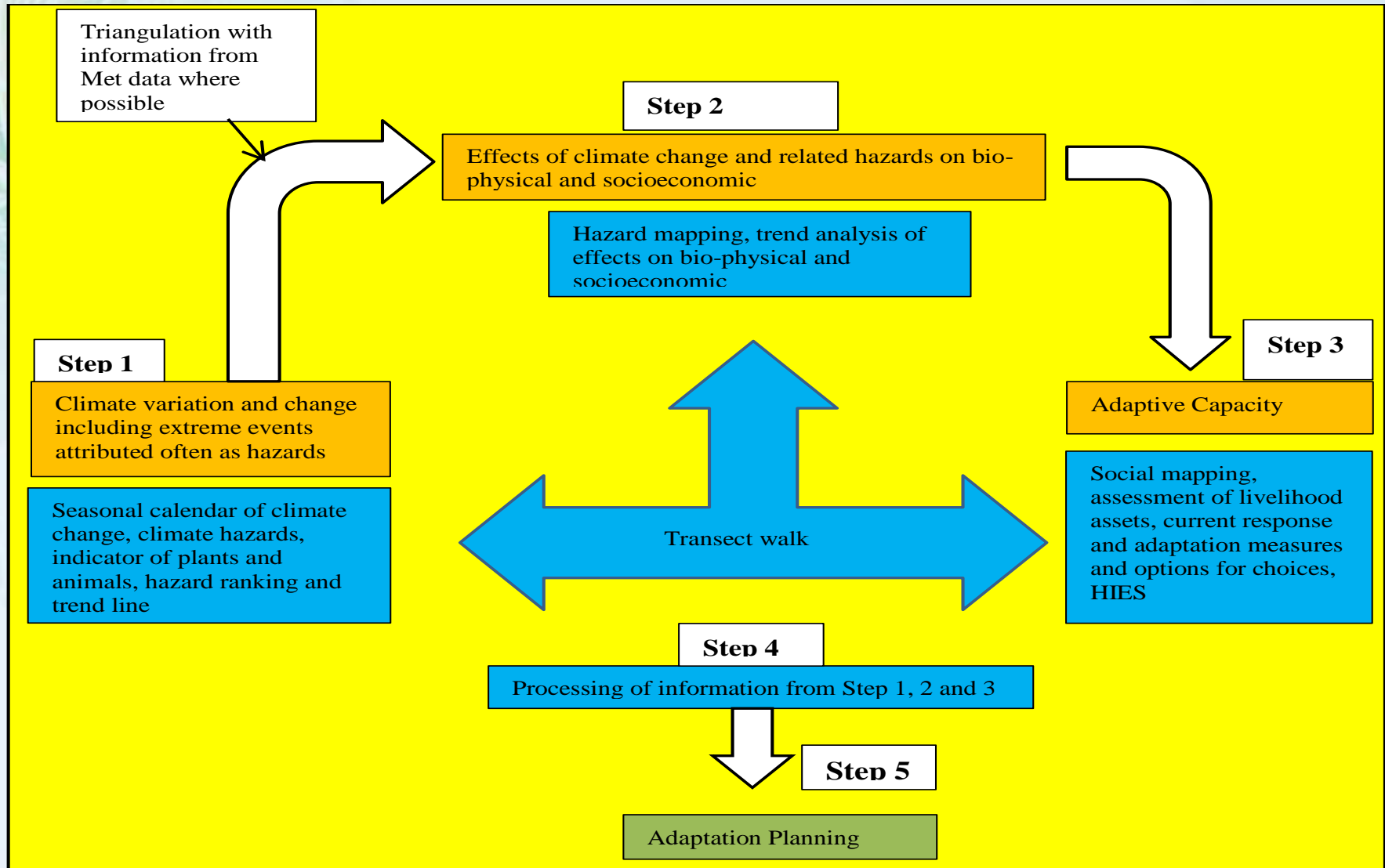
Implement Integrated Participatory Approaches (All sectors/partners)

SPC Participatory CVA Framework



*“Vulnerability is a function of character, magnitude and rate of **climate variation** to which a system is **exposed**, its **sensitivity**, and its **adaptive capacity**” -*

Vulnerability = EXS/A (IPCC)



Exposure to CC for Divers Bay, Vanuatu



1= Low;

2=Medium;

3=High;

4= Very High

Parameters	Indicators	Community Perception	Scale Value
Temperature	• Number of hot days has increased	Very High	4.00
	• Number of cold days has decreased	High	3.00
Rainfall	• Rainfall has become increasingly unpredictable (more frequent)	High - Very High	3.67
Climate induced disasters	• Occurrence of Landslides has increased; and; • Sea level rise increased	Medium - High	2.67
	• Occurrence of drought has decreased	High	3.00
Mango	• Not fruiting for about ten years	Very High	4.00
Breadfruit	• Unlike before, fruiting all year round	High	3.00
Yams	• Shorter Season but smaller tubers and more diseases (Anthracnose)	High	3.00
Cassava	• Smaller tubers and taste change (bitter) and harder tubers; rat problems	Medium	2.00
Banana	• Fruits are smaller and taste changed (saltier); more damage from fowls	Low	1.00
Pigs	• Higher mortality; less pigs now; slow growth; low survival rate	High	3.00
Chicken	• Lowered egg production = less number of chickens; eye disease problem	High	3.67
Fish/Crab	• Declining fish stocks	Very High	4.00
Average Exposure Index:		High	3.08

CC Sensitivity for Divers Bay, Vanuatu



1= Low;

2=Medium;

3=High;

4= Very High

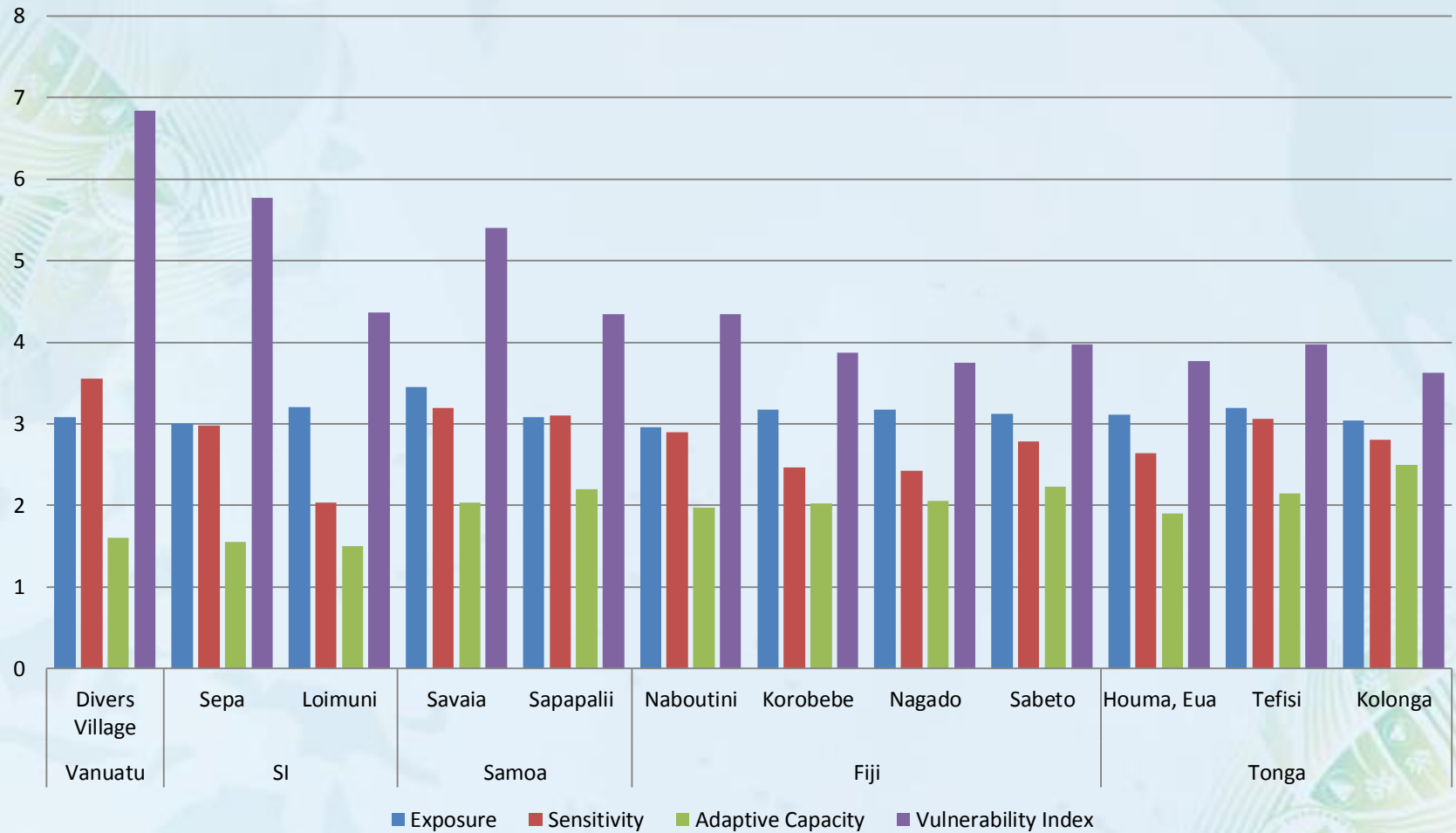
Parameters/ Sectors	Hazards	Indicators	Community Perception	Scale Value
Agriculture and Food Security	Landslides & Cyclone	<ul style="list-style-type: none"> Agricultural land damaged 	High	3.67
	Cyclone & landslides	<ul style="list-style-type: none"> Loss of Crop lands 	High	3.33
Forest and Biodiversity	Cyclone	<ul style="list-style-type: none"> Loss of Forest cover 	High	3.00
	Cyclone	<ul style="list-style-type: none"> Loss of Forest products 	High	3.33
Water	Cyclone and landslides	<ul style="list-style-type: none"> Reduced quantity of water 	High	3.33
	Cyclone and landslides	<ul style="list-style-type: none"> 6 months to recover water quality 	High	3.33
	Cyclone and landslides	<ul style="list-style-type: none"> Reduced Quality of water 	High	3.67
Settlement and Infrastructure	Cyclone and landslides	<ul style="list-style-type: none"> Damaged infrastructure 	Very High	4.00
	Cyclone	<ul style="list-style-type: none"> All infrastructure (houses) damaged 	Very High	4.00
Human Health	Cyclone and landslides	<ul style="list-style-type: none"> Outbreak of Malaria & diarrhoea 	High	3.33
	Cyclone and landslides	<ul style="list-style-type: none"> Number of people (majority of the population) 	Very High	4.00
Average Index Score:			High	3.55

Adaptive Capacity of Divers Bay, Vanuatu



Assets	Parameters	Criteria	Community Perception	Scale Value
Natural Assets	Agriculture Land	<ul style="list-style-type: none"> Land use and productivity 	M	2.00
	Forests Land & Forest products	<ul style="list-style-type: none"> Availability of product and services 	M	2.00
	Water	<ul style="list-style-type: none"> Availability of drinking water and Water Quality 	L	1.67
Physical Assets	Infrastructure for services	<ul style="list-style-type: none"> Trails 	L	1.67
		<ul style="list-style-type: none"> Drinking water and electricity 	L	1.67
		<ul style="list-style-type: none"> Settlements and Community Hall 	M	2.00
		<ul style="list-style-type: none"> Housing standards 	M	2.00
		<ul style="list-style-type: none"> Access to transportation (land, air, sea) 	L	1.33
		<ul style="list-style-type: none"> Access to Health Posts 	L	1.67
	<ul style="list-style-type: none"> Access to Schools 	M	2.00	
	Information and communication sources	<ul style="list-style-type: none"> Access to mobile phones, radio, TVs, papers, and internet 	L	1.33
Social	Social institutions and service providers	<ul style="list-style-type: none"> Community affiliations to formal/non-formal institutions and engagements of NGOs and GOs with community 	L	1.00
Financial	Financial institutions and sufficiency of incomes	<ul style="list-style-type: none"> Access to Banks, cooperatives and sufficiency for household needs 	L	1.00
Human	Demography, Education, Skilled Labour	<ul style="list-style-type: none"> More elderly and young (lack trained or skilled labour and low education levels) 	L	1.00
Total				22.33
Average Index Score			Low	1.60

Aggregate Results



HIES- Housing types, Water Sources and Facilities



Village	Living Quarters	Water sources		Toilet Facilities	Power & Light	Cooking
		Drinking	Washing			
Divers Bay	<ul style="list-style-type: none"> Independent (38%) Share 62% Bamboo (15%) Thatch (85%) 	<ul style="list-style-type: none"> Household tank (77%) Community water supply (8%) Unprotected well & Spring 15%) 	<ul style="list-style-type: none"> Spring (100%) 	<ul style="list-style-type: none"> Outhouse pit toilet (100%) 	<ul style="list-style-type: none"> Solar Panels/ Generator (38%) None (62%) 92% Battery Lamp 	<ul style="list-style-type: none"> Open fire (100%)
Sepa	<ul style="list-style-type: none"> Independent (85%) Share 15% Timber/Wood /Tin (12%) Thatch (88%) 	<ul style="list-style-type: none"> Community water supply (84.6%) Unprotected well and others (15.4%) 	<ul style="list-style-type: none"> Community water supply (84.6%) Unprotected well, Spring, river lake (15.4%) 	<ul style="list-style-type: none"> Outhouse pit toilet (7.5%) Waterseal & Flush (4%) Outdoor (88.5%) 	<ul style="list-style-type: none"> Kerosene lamp (11.5%) Solar Panels (88.5%) 	<ul style="list-style-type: none"> Open fire (100%)
Loimu ni	<ul style="list-style-type: none"> Independent (85%) Share 15% Timber/Wood /Tin (31%) Thatch (69%) 	<ul style="list-style-type: none"> Protected well (74%) Unprotected well and others (26%) 	<ul style="list-style-type: none"> 88% water tank) Unprotected well and others (12%) 	<ul style="list-style-type: none"> Outhouse pit toilet (9%) Outdoor (91%) 	<ul style="list-style-type: none"> Kerosene lamp (27) Solar Panels (73%) 	<ul style="list-style-type: none"> Open fire (100%)

HIES - HHs Income Levels



Village	Weekly Income Sources (\$VATU)						Income Sufficiency	Expenses Impacting financial situation most
	Farming	Cooked food	Handicrafts	Other	Total	Income/HH /Month	%	
Divers Bay	19900	1300	2500	32500	58700	1087.037	10	School fees (1), Church Obligations (1) and food security (2)
Sepa	147	42	-	-	47.83	8.77	63	Food Security
Loimuni	76.56	20.25	93.27	51.0	11.31	9.34	81	Traditional Obligations, Church & food security

Land Access (Ureparapara)

Country	Village	Average size (acre)	Land Quality	% Grow own food
Vanuatu	Divers Bay	6.42	<ul style="list-style-type: none"> • Good (23%) • Average (77%) 	100

SPC/USAID Community HIES



ENERGY SUPPLY/SOURCE

Country	Community	Kcal/per/day	% Import
Fiji	Naboutini (Sabeto Catchment)	1672.2	54.4
	Nagado (Sabeto Catchment)	1655.2	51
	Sabeto Village (Sabeto Catchment)	1732.2	51.2
	Korobebe Village (Sabeto Catchment)	1693.5	51.1
SI	Sepa Village, Choiseul	1399.10	78.8
	Loimuni Village, Choiseul	1797.38	83.8
Vanuatu	Dives Bay, Ureparapara, Banks, Torba	1027.6	24.5
Tonga	Houma	950.7	48.2
	Tefisi	936.6	45.1
	Kolonga	852	39.1
Samoa	Sapapalii	2850	44
	Savaia	3021	48
RMI*	Arno	3158	91

*SPC/UNDP Drought Recovery Project, 2013

SPC/USAID Community HIES



PROTEIN SUPPLY/SOURCE

Country	Community	g/per/day	% Import
Fiji	Naboutini (Sabeto Catchment)	47.4	62
	Nagado (Sabeto Catchment)	56.4	56.4
	Sabeto Village (Sabeto Catchment)	50.5	64.9
	Korobebe Village (Sabeto Catchment)	53.6	66.8
SI	Sepa Village, Choiseul	78.98	57.67
	Loimuni Village, Choiseul	116.32	84.71
Vanuatu	Dives Bay, Ureparapara, Banks, Torba	41.8	36.81
Tonga	Houma	55.83	53.8
	Tefisi	34.31	44.4
	Kolonga	64.56	67.5
	Sapapalii	165	30
	Savaia	104	49
*RMI	Arno	140	81

*SPC/UNDP Drought Recovery Project, 2013

Sea Level Rise



- Loss of agricultural land
- Damage to atoll and coastal volcanic island crops



Poor native soil fertility (atolls)



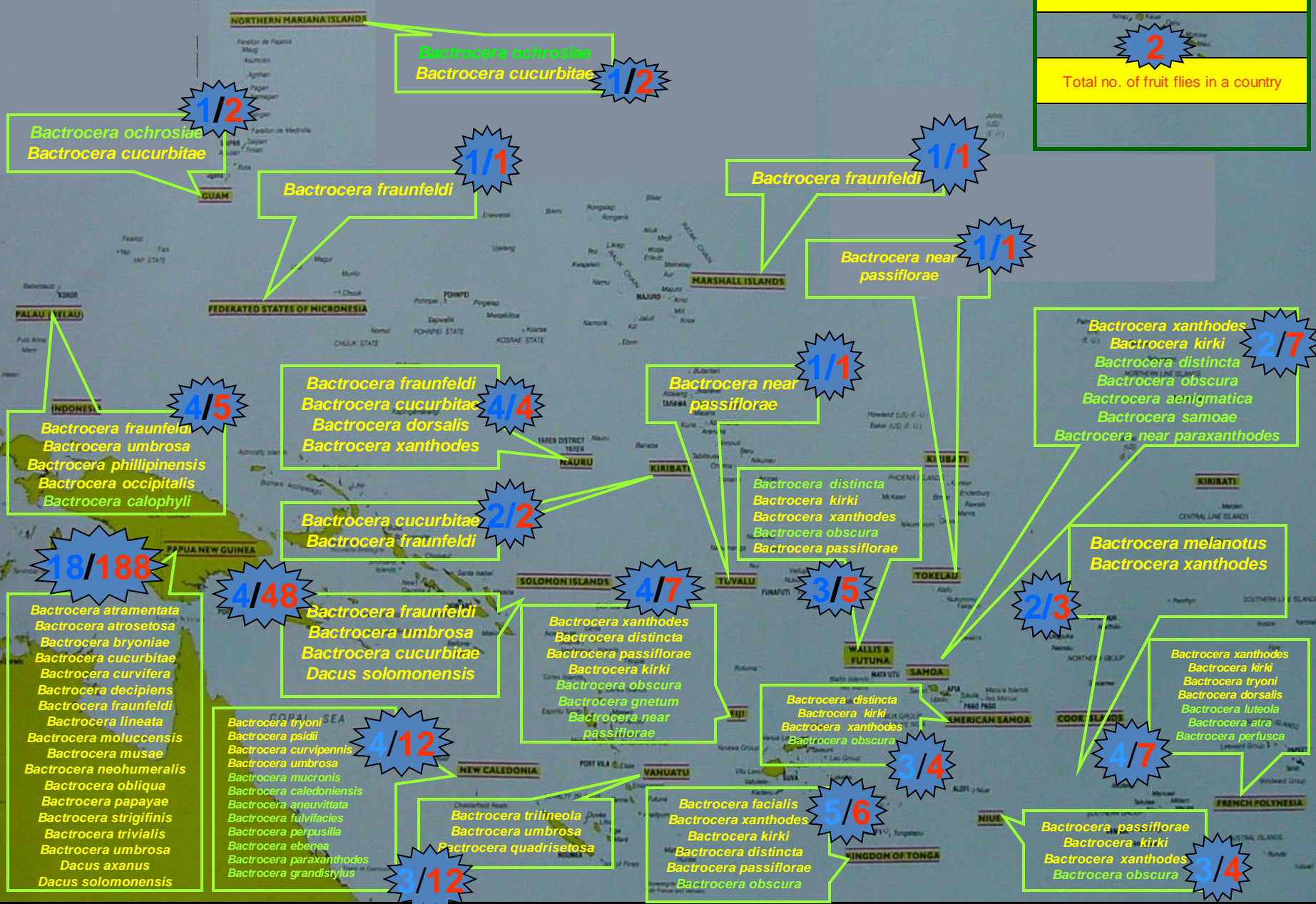
Soil Health and productivity



Pest and Disease Distribution

1
No. of economically important species

2
Total no. of fruit flies in a country



Adaptation Approaches - Kiribati



- “Whole of Island Approach” (WOI) in Kiribati
 - WOIA targets the whole island ecosystem, communities and governance structures involving national line ministries
 - Multi-partnership (SPC, GIZ, SPREP and others to join)
 - Donors – USAID, GIZ CCCPIR and others to join



Adaptation Approaches – Ridge to Reef Concept



- Solomon Islands Line Ministries - MECDM, MoF, MAL, MDPAC, MOE, MMERE, MFMR
- Regional Organisations - SPC, Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ), SPREP, Australian Government (PACCSAP), UNDP & TNC
- Development Partners - USAID, Australian Government, UNDP, TNC; GIZ
- Provincial Government, Wards & Communities
- Same Concept being promoted in:
 - Sabeto in Fiji
 - Divers Bay in Vanuatu



Sector Activities - Forestry

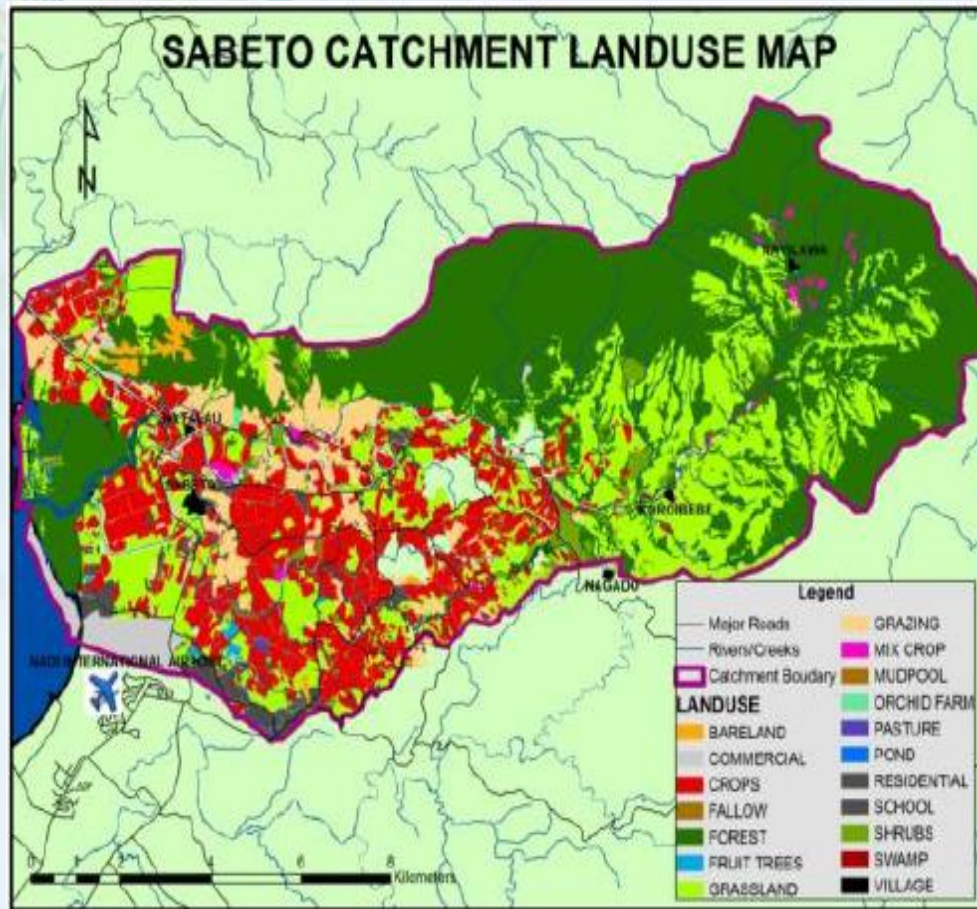
- Water catchment, Agroforestry and High value trees



Sector Activities - Land-use



- Land use planning and Ecosystem based approaches



Sector Activities – Resilient Farming systems



- Evaluating resilient crop varieties (SPC CePaCT)
- Diversifying crop production
- Research capacities



Sector Activities – Livestock Production



- Conservation of resilient local breeds
- Improving genetics,
- Improving husbandry practices,
- Livestock breeding centres



Sector Activities - Fisheries



Fisheries and coastal management

- Coastal fisheries management area
- Mangrove and coastal rehabilitation
- Aquaculture systems



Mangrove and coastal rehabilitation



Sector Activities - Awareness and Capacity Building

- Food Security awareness
- Climate Change awareness
- Climate change farmer field schools



Policy and legislation alignment



SOLOMON ISLANDS GOVERNMENT



NASINOL LOKOL KAIKAI

A FRAMEWORK FOR ACTION

TONGA FRAMEWORK FOR ACTION

DRAFT FOR FOLLOW UP CONSULTATION

2015-2020

TONGA FRAMEWORK FOR ACTION ON FOOD SECURITY



Photo by: Siosua Halavatau

THE KINGDOM OF TONGA

MINISTRY OF AGRICULTURE AND FOOD,
FORESTRY AND FISHERIES

Key lessons



- Food Security in the Pacific is under threat
- Food Security needs to be addressed in a holistic and integrated manner
- Participatory approaches empower communities to understand their own issues and identify solutions
- The 'whole-of-island'/ridge-to-reef approach is an important concept that can bring together a range of development and natural resource management objectives which must be addressed in the climate change adaptation context.
- Strengthening coordination from regional agencies down to national government and provincial levels strengthens ownership and sustainability
- Relevant policy and legislations need to be aligned



VINAKA