

TONGA FRAMEWORK FOR ACTION ON

DRAFT FOR FOLLOW UP CONSULTATION

2015-2020

TONGA FRAMEWORK FOR ACTION ON FOOD SECURITY

Photo by: Siosuia Halavatau



THE KINGDOM OF TONGA

**MINISTRY OF AGRICULTURE AND FOOD,
FORESTRY AND FISHERIES**

TONGA FRAMEWORK FOR ACTION ON FOOD SECURITY

TITLE PAGE

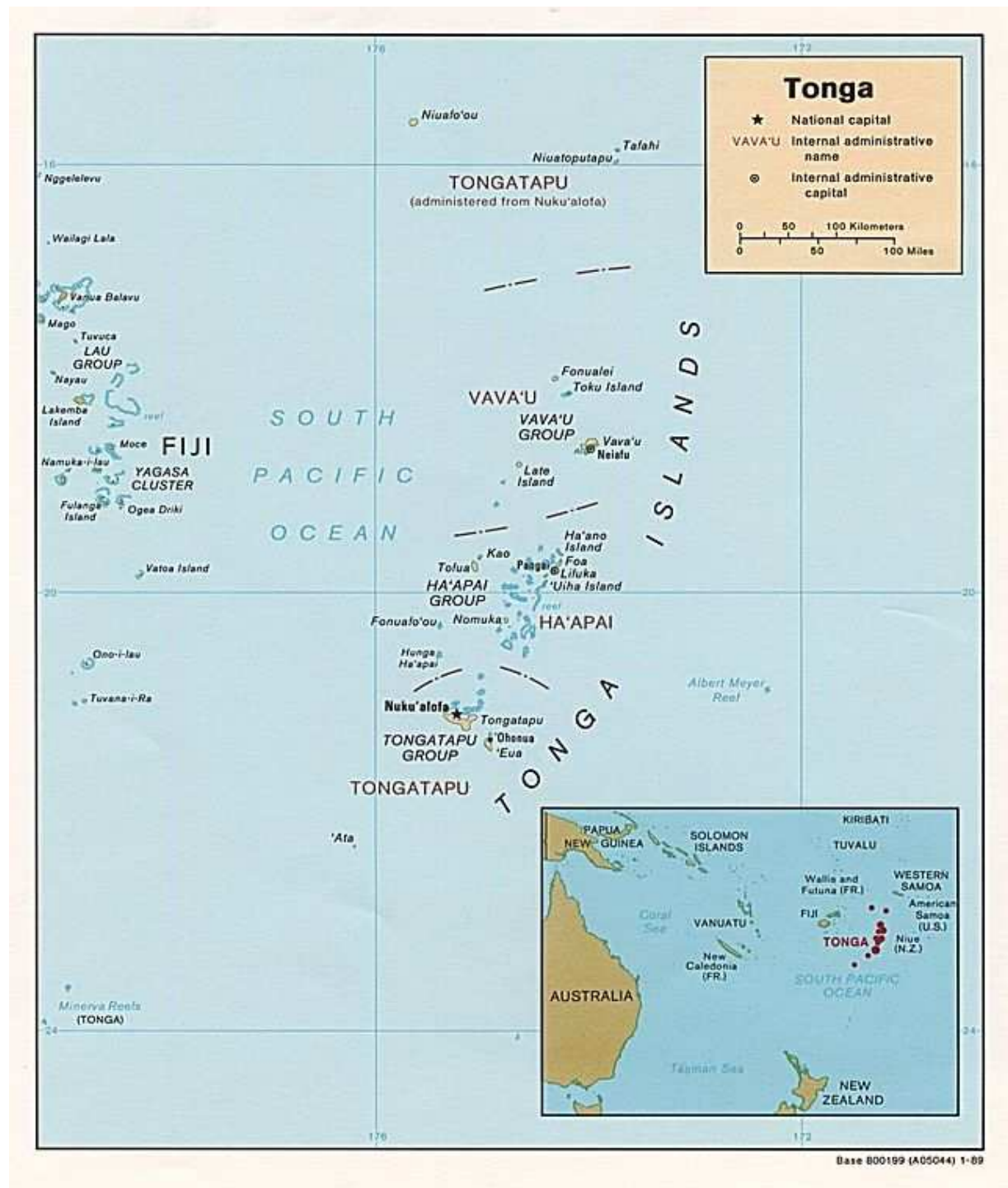
TONGA FRAMEWORK FOR ACTION ON FOOD SECURITY
2015 - 2020

MINISTRY OF AGRICULTURE AND FOOD, FORESTRY AND FISHERIES

THE KINGDOM OF TONGA

TONGA FRAMEWORK FOR ACTION ON FOOD SECURITY

MAP OF TONGA



(Source: http://en.wikipedia.org/wiki/Geography_of_Tonga#mediaviewer/File:Tonga.jpg)

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ACKNOWLEDGEMENT

DRAFT

CEO
MAFF

TONGA FRAMEWORK FOR ACTION ON FOOD SECURITY

FOREWORD

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MINISTER,
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TONGA FRAMEWORK FOR ACTION ON FOOD SECURITY

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ACRONYMS

Acronyms	Definitions
CBO	Community Based Organization
CEO	Chief Executive Officer
CU	Coordinating Unit
FAO	UN Food and Agriculture Organizations
FNS	Food and Nutrition Security
FSCU	Food Security Coordination Unit
MAFF	Ministry of Agriculture and Food, Forestry and Fisheries
M&E	Monitoring and Evaluation
MIS	Management Information System
NCAC	National Codex Alimentarius Committee
NCDs	Non-Communicable Diseases
NGOs	Non-Governmental Organizations
SIDS	Small Island Developing States
TFAFS	Tonga Framework for Action on Food Security
TFSC	Tonga Food Security Council
ToR	Terms of Reference

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EXECUTIVE SUMMARY

TO BE COMPLETED

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1. INTRODUCTION

Food security has been recognized an important priority for Tonga. Development of a Tonga Food Security Strategy was identified as a priority in order to progress food security work in Tonga. Several attempts to address food security have been undertaken in the past but there is limited follow up actions to achieve the desired outcomes. For instance, a National Food Summit was undertaken in 2010 involving a spectrum of stakeholders however, there was no follow up action taken to implement the outcomes of the Summit. In addition, a series of policies and legislations have been enacted to address certain aspects of food security and responsible ministries have been tasked for their implementation. However, during the process, it was revealed that weak and fragmented cooperation is resulting in dispersion of assistance in large number of projects which in turn lack scale to make significant impact adding to high administrative costs.

With that, there is a general understanding across a spectrum of stakeholders the need to strengthen coordination mechanisms to facilitate cross-sectoral collaboration to address the causal factors influencing food security in Tonga. There also a general understanding amongst stakeholders involved in the process that food security provides an intersection for all sectors to work together under a common interest to improve food security and economic development in Tonga. Hence, the Tonga Food Security Action Framework (TFAFS) was undertaken to harmonize approaches to provide a basis for improving multi-sectoral and multi-partnership to address both the immediate food security issues and the broader issues around food security in Tonga. TFAFS was formulated through technical consultations with various ministries and stakeholders. A comprehensive food security analysis was also conducted based on available data obtained from various sources. The process centered on participatory process to elicit inclusive dialogue among diverse stakeholders involved in the multiple aspects of food security.

1.1 TFAFS GUIDING PRINCIPLES

Food security is defined as “when all people, at all times, have physical and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life” (World Food Summit, 1996). The definition introduces four dimensions of food security, food availability, food access, food utilization and stability of the other three dimensions. The definition goes beyond the traditional narrow vision of having food availability and food sufficiency but also include socio-cultural, health, environment and economic dimensions. This means food security cuts across all areas of economic development and that food security is everyone’s business. Hence, in order to inform the development of TFAFS and to underpin all activities in the area of food security over the implementation period, TFAFS is founded on the following principles which are essential to improve food security in Tonga.

1.2.1 FOOD IS A FUNDAMENTAL HUMAN RIGHT

Access to adequate and nutritious food is a fundamental human right as stated in the Universal Declaration of Human Rights, adopted by the United Nations in 1948 (Article 3, 25) and recognized in various international (World Food Summit Declarations, 1996; 2002; 2009; Millennium Development Goals) and regional (Healthy Islands

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Vision, 1995; The Pacific Plan, 2002; Food Secure Pacific, 2009 and the Pacific NCD Partnership, 2014) treaties. Tonga is committed to adhere to all these international and regional treaties/commitments.

1.2.2 AN EQUITY AND GENDER BASED APPROACH

Addressing food security in Tonga should focus actions and investments on the more vulnerable and disadvantaged population especially women, youth and children. Communities and households with limitations in resources, land, income, and transportation are more vulnerable to food insecurity. Incorporating equity and gender based right to food principles in the design and implementation of food security strategies, policies and programs is an important step in this direction.

1.2.3 ENVIRONMENTAL SUSTAINABILITY

Food availability is dependent on the state of the environment and the natural resource base especially for small island developing states (SIDS) like Tonga. As such, maintaining the integrity and building resilient of the natural ecosystems against climate change impacts and other calamities underpin increasing agricultural productivity and long-term food security systems that can mitigate risk and cope with stress.

1.2.4 ECONOMIC GROWTH

Food security underpins all development areas and is closely interconnected with economic growth and social progress. Food security Interventions should recognize and or focus on agriculture (including fisheries and forestry) as an engine for economic development. There is a particular need to support vulnerable population and smallholder farmers to adapt to changes through improved access to markets, the adaptation and adoption of appropriate technologies, institutional innovations, and improved access to natural, financial, social and human capital.

1.2.4 IMPROVE HEALTH OUTCOMES

The ultimate outcome of food security is the health status of the population. Currently, Tonga ranked the most overweight country in the world. Consumption of low quality and poor nutrition food is directly linked to NCDs in Tonga. Improving food security can reduce the incidence of NCD rates in Tonga.

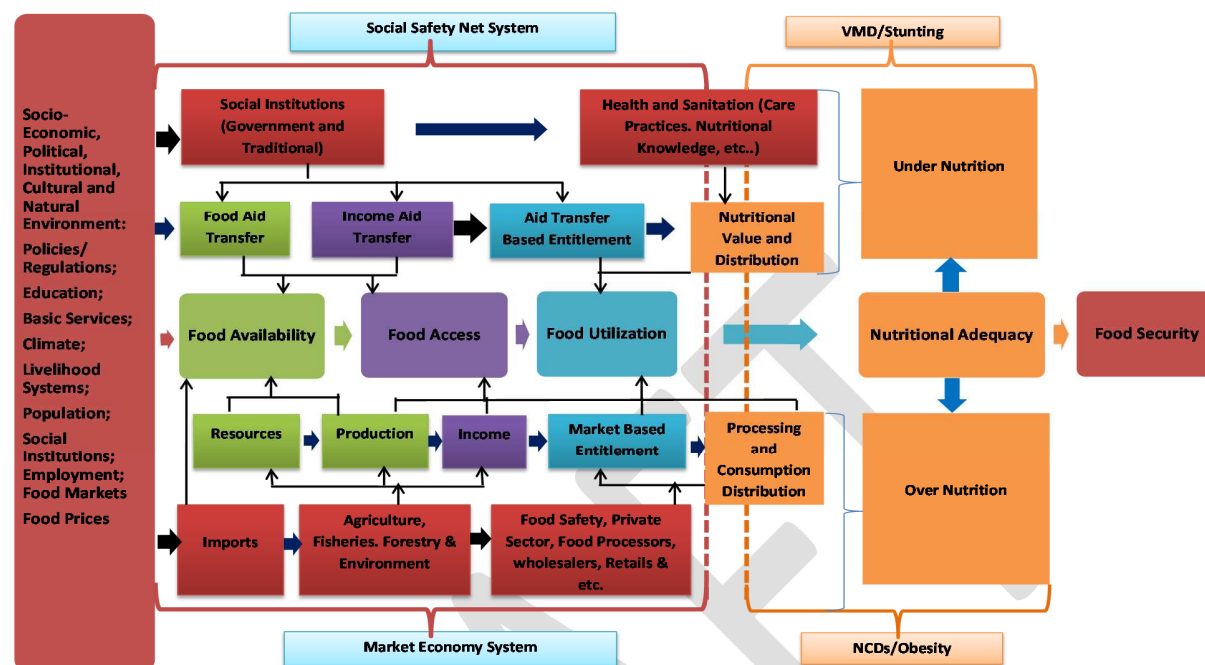
1.2.5 CONVERGENCE FOR MULTI-SECTORAL AND MULTIPARTNERSHIP APPROACH

The complexity and multidimensional characteristics of food security would require integrated approach to ensure complementary inputs and coordination among all relevant sectors (agriculture, education, health, trade, industry and infrastructure, etc.) and at different levels (household, community, national, regional and international levels). Hence, food security provides a convergence for multi-sectoral and multi-partnership approaches to food and nutrition security that integrate the technical, financial and human resources required to effectively address food security in Tonga (Figure 1).

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Figure 1. Integrated Approach to Food Security

SPC Integrated Approach to Food Security and NCDs



Source: SPC Integrated Approach to Food Security and NCDs

1.2. SOCIO-ECONOMIC CONTEXT OF TONGA

1.1.1 GEOGRAPHY AND DEMOGRAPHY

The Kingdom of Tonga comprises 171 islands of volcanic and coral origin spread over a sea area of 360,000 km² but has a land area of only 750 km² (Halavatau and Halavatau, 2001). There are four main islands groups: Tongatapu and 'Eua, Vavau, Ha'apai and the remote Niua (Table 1). The average population density was 138 people/km² in 2011. However, this varies widely across island division and districts. For example, population density for Tongatapu in 2011 was 291 people/km² compared to only 18 people/km² in Ongo Niua. Land resources are limited, and only 24% of the land area is arable. Of the 24% arable land, around 42% is currently farmed (Halavatau and Halavatau, 2002).

Table 1. Geography and Demography of Tonga

Island Groups	No. of Islands	Population (2011)	% Population Growth (2006-2011)	% Annual Population Growth (2006 -2011)	Land Area (Km ²)	Population Density
Tonga	171	103,252	1.2	0.25	747	138
Tongatapu	2	75,416	4.4	0.91	259	291
Vava'u	55	14,922	-4.2	-0.8	119	125
Hapa'ai	43	6,616	-26.0	-2.7	110	60
'Eua	2	5,016	-3.8	-0.7	87	58
Niua	3	1,282	-29.9	-5.9	72	18

Source: Tonga Department of Statistics (2011)

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In 2011, the total population of Tonga was 103,252 which represent a natural increase of 1.2% or 1,261 people between 2006 and 2011. Population growth has varied extensively by division and district (Table 1). While Tonga's average population growth rate was 0.25% per annum in 2011, Tongatapu's population grew slightly faster at a rate of 0.91%, while the rest of the islands experienced negative growth (i.e. population loss). Ongo Niua's population experienced bigger population decline during that period.

Based on the 2011 population census, 62.6% of the population is aged 15 and over and 32.7% of these were economically active (i.e. in the labor force) but on 23% are paid workers. The number of people aged 15 and older unemployed are 11,862 people, or an unemployment rate of 33.2% (33.1% for males and 33.3% for females, and 16% for the urban area and 38% in rural areas). Of the 33.2% unemployed is engaged, in agriculture, fishing and other subsistence activities.

1.1.2 ECONOMY

The economy of Tonga is characterized by small in size, with a GDP of less than US\$500 million in 2011 (Table 2). The per-capita income is around US\$4,500 which makes Tonga ranks among the other Pacific Islands. Government finances are highly dependent on project grants and budget support from donors. The Tongan economy experienced some challenges over the last seven years with riots in 2006 and the global economic crisis in 2008/2009 and later in 2011. GDP growth declined sharply in 2006/07, but subsequent reconstruction led to a modest recovery until the past two years are characterized by virtual stagnation mainly as a result of the economic crisis in 2008-2009 and later in 2011.

Table 2. Selected Economic Indicators for Tonga

Economic Indicators	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12
Real GDP annual growth (%)	-4.5	1.9	3.2	3.3	2.9	0.8
GDP per capita at current market prices (US\$)	2,864.7	3,298.4	3,067.0	3,586.4	4,101.5	4,556.9
Current GDP (US\$ million)	292.3	337.3	314.4	368.6	422.6	470.7
Current GDP (T\$ million)	602.8	659.3	664.3	712.2	775.0	799.3
Agriculture and forestry	14.0	12.6	13.2	13.7	14.5	14.1
Fishing	2.7	2.2	2.1	2.7	2.5	2.6
Services	54.2	55.1	57.3	55.6	53.8	53.4

Source:

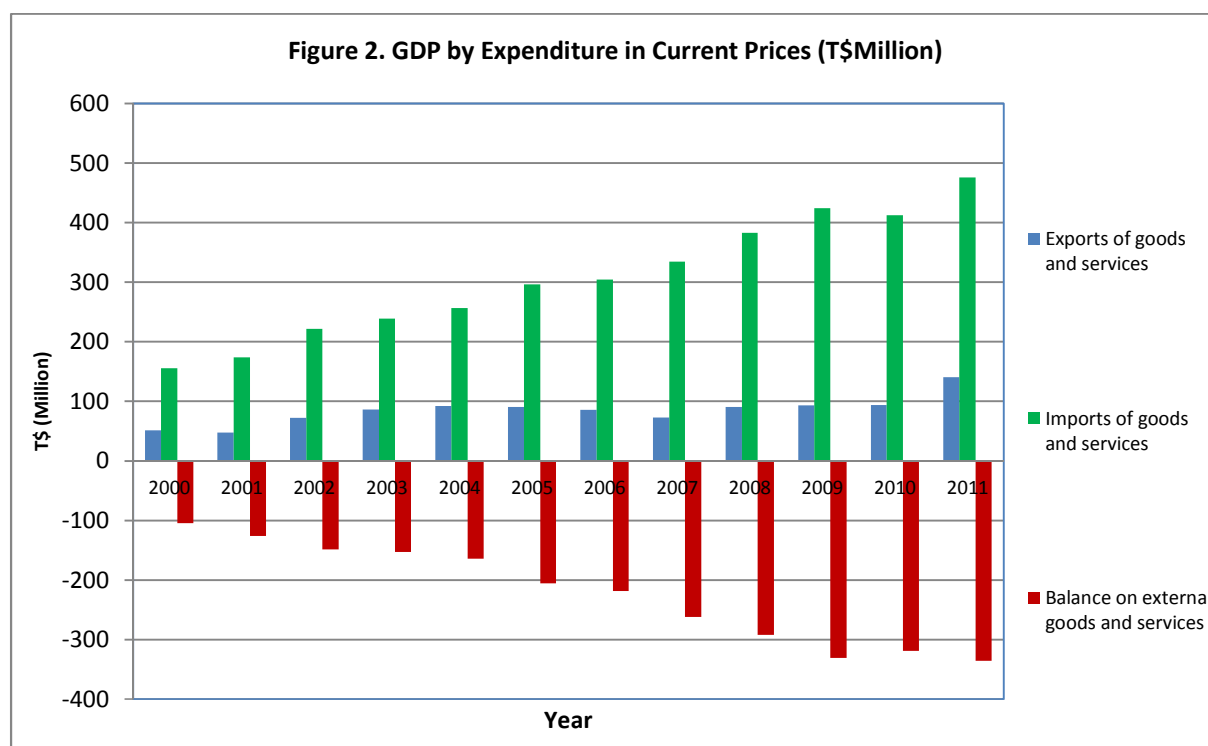
Remittances from more than half of the country's population living abroad, mainly in Australia, New Zealand, and the United States is a major contributor to Tonga's GDP growth. Around 75% of households receive remittances, and they account for 20% total of household cash incomes and 40% of the total GDP (ADB, 2006). Despite the contribution of remittances to the economy, emigration is contributing to shortage of skilled labour in some sectors, and low productivity growth.

Fishing and agriculture is the second largest income source and accounts for about for 23% of GDP, 70% of total merchandise export, and 40% of the total employment. The main export commodities are squash, vanilla beans, root crops, fish, and other marine products. The manufacturing sector consists of handicrafts and a few other very small-scale and cottage industries, which together contribute only

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about 3% of GDP. Tourism contributes about 14% of total GDP and efforts are being considered to increase this potentially important source of revenue. The manufacturing sector contributes only about 3% and consists of handicrafts and a few small scale cottage industries.

Tonga runs a deep trade deficit which has been increasing over the past 11 years (Figure 2). In 2011, the total value of merchandise imports is almost 20 times higher than the total exports; approximately 29 % of these imports are food products.



Source: Tonga Department of Statistics (2000-2011)

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2. FOOD SECURITY SITUATION IN TONGA

As noted earlier, food security has four determinants—food availability (production and food import), food access (social, cultural and economic access), food utilization (nutritional adequacy, consumption, biological utilization and care practices) and the stability of the three dimensions.

2.1 FOOD PRODUCTION AND AVAILABILITY

2.1.1 AGRICULTURE PRODUCTION

Majority of Tongans depend largely on Agriculture for food and income. Based on the 2001 Agriculture Census (AC), approximately 64.2% of the 15,738 total households were actively engaged in agriculture (Table 3). Of this total, 59% of the total households are engaged in subsistence

activities solely for home consumption, 38.6% in subsistence cash income and 24% in commercial farming.

In Tonga the Crown owns all land, with almost two-thirds allocated to adult males over 16 years of age to meet their families' subsistence needs. With 64.2% of the total households actively engaged in agricultural activities would equate to about 35 000 ha of the area cultivated under tax allotments. Highest proportion of agriculturally active households is located in the remote islands of Niuas, 'Eua, Vava'u, and Ha'apai.

According to the 2001 AC, the common crop types grown by most households were cassava, yam and taro occupying approximately 40,087 acres or 30% of all farmed lands representing an increase of 47.3% since 1985 (Table 4).

Table 3: Proportion of HHs Engaged in Farming (%)

Location	Total HHs	Proportion of HHs Engaged in Farming (%)		
		Non-Agricultural	Minor Agricultural	Agricultural Active
Tonga	15738	30.4	5.3	64.2
Tongatapu	10583	38.6	7.3	54.2
Vavau	2625	15.4	1.4	83.2
Ha'apai	1298	15.6	1.5	82.9
'Eua	863	9	1.3	89.7
Niuas	369	8.9	0.5	90.5

Data Source: Tonga Agriculture Census (2002)

Table 4. Number of HHs Owning Tax Allotment

Present Status of Tax Allotment	No. of HHs owning Tax Allotment	Number Owned Tax Allotment	Area of Owned Tax Allotment
Total	6,447	6577	53725
Cultivated under crops by owner/household	3695	3734	31216
Rented out to other HHs for pay	245	245	3769
Rented out to another HH without pay	2102	2124	17881
Fallow	2311	2317	18190
Under bush/forest growth	689	701	7316
Other Status	241	243	2424

Source: Tonga Agriculture Census (2002)

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Although the 2011 census indicated an increase in acreage of cropped area compared to in 1985, total production and productivity has fallen in recent years. The declining production and productivity is due to several factors including declining soil productivity due to unsustainable agricultural practices; pests and diseases; increasing urbanization to name a few.

Table 5. Total Cropped Area in each Region

Crops	Tongatapu	Vava'au	Haapai	Eu	Niuas	TOTAL
Hina (Squash)	3375	7	0	151	0	3,533
Kape (Giant Taro)	937	1017	293	220	82	2,549
Kumala (Swt. Potato)	1050	83	96	138	21	1,388
Manioke (Cassava)	4568	667	1070	312	101	6,718
Meleni (Watermelon)	533	62	32	20	4	651
Talo Futuna (America Taro)	3378	735	451	522	42	5,128
Talo Tonga (Common Taro)	3207	875	143	575	85	4,885
Ufi Tokamu'a (Early Yam)	3546	878	434	492	76	5,426
Ufi Tokamui (Late Yam)	1456	301	228	100	43	2,128
Hiapo (Paper Mulberry)	375	43	195	158	5	776
Kava Tonga	415	2769	220	1661	208	5,273
Banana	178	138	67	29	3	415
Vanilla	330	561	7	318	1	1,217
TOTAL						40,087

Source: Tonga Agriculture Census (2001)

This is also reflected in the export volumes (Figure 3) for agricultural export commodities which made up of 70% of export values. The total exports declined from 2007 – 2010. The period of declines in export corresponds to the market and food price shocks in 2008 and later in 2011 which also reflects Tonga's vulnerability to price volatilities and economic shocks.

2.1.2 LIVESTOCK PRODUCTION

Domestic pigs play an important role in social obligations mainly for gifts and exchange at feasts, weddings and funerals. Almost every rural household (4 out of 5) raised pigs in a free range system which causes

Table 6. Number of Households Keeping Livestock and Number of Livestock

Livestock Types	No. of HHs		% of HHs		Average No. of Livestock Kept		No. of Livestock	
	1985 (16,194)	2001 (18,209)	1985	2001	1985	2001	1985	2001
Cattle	2,429	2,311	15	13	4	4	9,318	10,354
Pig	10,202	11,594	63	64	5.6	10	80,850	113,580
Horse	5992	1,640	37	9	8	2	10,555	3,255
Goat	4049	805	25	4	4	3	13,939	2,741
Chicken	2,915	7,729	68	42	27	23	263,318	177,829
Duck		126		1		9	2793	1,119
TOTAL								308,878

Source: Tonga Agriculture Census (2001)

substantial damage to crops. Village livestock are mainly kept for food and social occasions. The total number of pigs increased from 80,850 pigs (5.6pigs/HH) in 1985 to 113,580 (10pigs/HH) pigs in 2001 (Table 6). This represents an increase of 1% of HHs keeping pigs between 1985 and 2001.

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All villages have an abundant number of scavenging fowls (mostly chickens), chiefly used for home consumption. The proportion of HHs keeping chickens fell from 68% in 1985 to 42% in 2001 with over 20% of total the total. This has resulted in total number of chickens fell from 263,318 (27chickend/HH) in 1985 to 177,829 (23 chickens/HH) in 2001. The same trend was observed for ducks.

Cattle are mainly tethered to graze fallow land, and have entered the social system as most are traded or exchanged and butchered for feasts. Although total number of cattle increased from 9,318 (1985 AC) to 10,354 in 2001, the proportion of households keeping cattle dropped from 15% in 1985 to 13% in 2001. Horses are very common in the villages and are raised for transport and meat. Total number of horse dropped from 10,555 horses in 1985 to 3,255 in 2001. Only 9% of total HHs own horse in 2001 compared to 37% owning horse in 1985. The proportion of households owned goat in 1985 dropped from 4049 (25%) of total households in 1985 to 805 households (4%) in 2001. This has resulted in total number of goats fell from 13,939 goats in 1985 to 2,741 in 2001.

Based on literature, commercial livestock production in Tonga is limited mainly due to high cost of production due to high cost of imported feed. In the 'seventies Tonga was almost self-sufficient in meat production. In addition, the removal of tariffs on poultry has eliminated domestic production of broilers (Situa, 2005). Resurrection of this industry would require effective policy support to boost livestock production. In addition, improving husbandry practices would be need to increase livestock production in Tonga.

2.1.3 2.1.5 FISHERIES PRODUCTION

The Agriculture census also revealed that a total of 7,704 persons were engaged in the fishing activities at least on a weekly basis. On an average, two persons per households were engaged in fishing. About 22% (1,139) of the total fishing households sell their catches, reflecting the importance of fisheries to the livelihood and food security for Tongans. Tonga has a large exclusive economic zone for exploitation of marine resources of around 700,000 km².

Numerous reports have indicated that coastal fishery resources, which have provided the bulk of protein sources for the population, are close to being fully exploited and there is a concern about their degradation from over fishing. Exploring sustainable fisheries resource management and other alternative means to supplement contribution of fisheries to the diet is a priority for the Government of Tonga.

2.1.4 EXPORTS

Commodity exports provide a good proxy indicator for performance of participating sectors (Agriculture, Forestry and Fisheries). Figure 3 shows value of major commodity exports for Tonga. Total exports including all agricultural commodity exports declined from 2007 – 2010. The declines correspond to the global economic crisis in 2008 to 2011 indicating the vulnerability of the country to global market shocks.

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Squash exports have dropped dramatically due to export market failures. Fisheries exports increased in 2010 but declined thereafter.

2.1.3 FOOD IMPORTS

Tonga's food import bill continues to show an upward trend (Figure 4 and Table 7). The value of imports represents over 300 million in 2007 although declined in 2008/2009 to a little over

290 million but increased thereafter. The decline in import during this period corresponds to the decline in exports around the period of economic and global market shocks period. Food comprise about 30% of total imports.

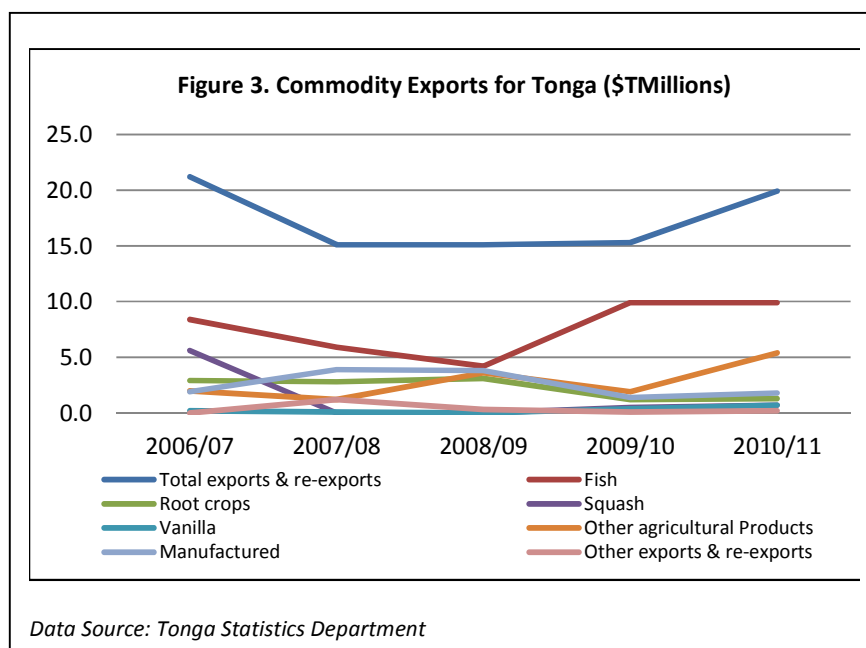


Table 7. Total Value of Food Imports for Tonga

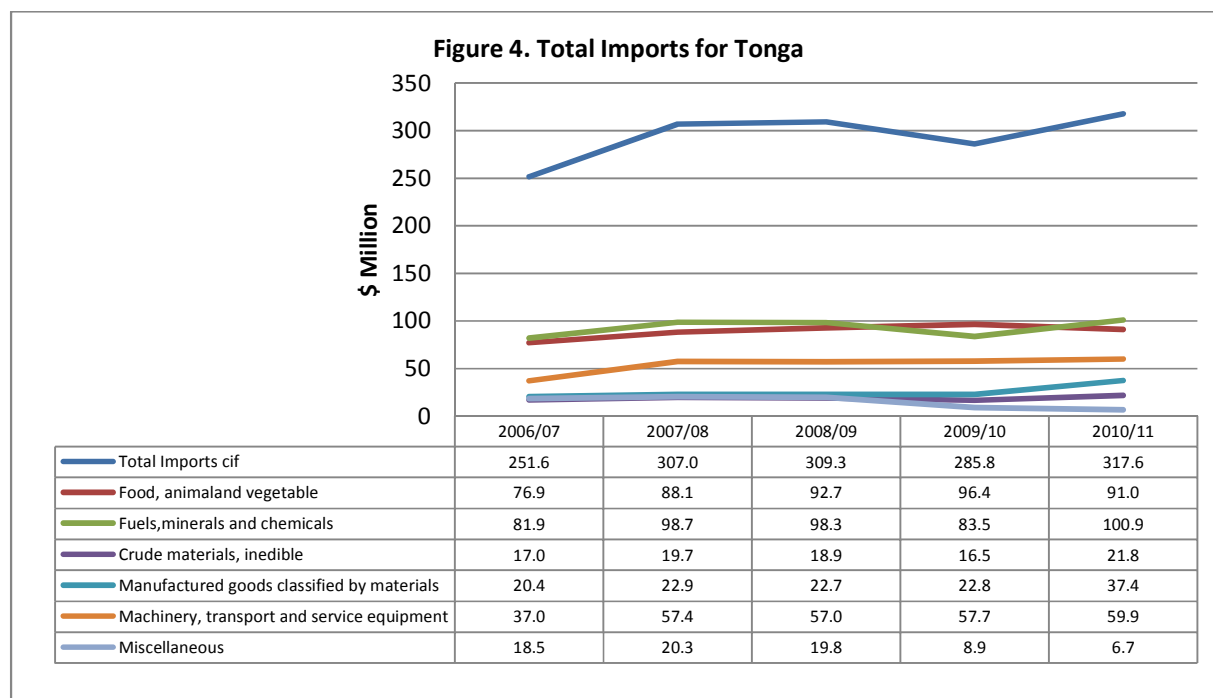
Commodities	2008	2009	2010	2011	2012
Total Imports (\$T Millions)	324,444,963	291,925,758	301,754,340	332,209,582	342,742,209
Total Food (\$T Millions)	93,408,001	99,039,191	88,355,046	99,309,136	99,952,182
Proportion of Food to Total Imports (%)	28.79	33.93	29.28	29.89	29.16
Live Animals; Animal Products - (\$T Millions)	34,723,769	42,620,519	34,792,112	40,253,284	43,434,101
Vegetable Products	10,533,684	9,853,333	9,622,267	10,796,812	10,693,708
Animal or Vegetable Fats and Oils and their Cleavage Products; Prepared Edible Fats; Animal or Vegetable Waxes (\$T Millions)	1,497,407	1,745,358	1,559,314	1,788,022	1,796,660
Prepared Foodstuff; Beverages; Spirits and Vinegar (\$T Millions)	46,653,141	44,819,981	42,381,353	46,471,018	44,027,713

Source: Tonga Trade Report (2008 – 2011)

Figure 5 shows imports of major food items. Meat and processed (although declining) food have been the top imported food items which reflects increasing shift in diet from nutritious healthy foods to cheap but low quality imported food items. The next important imports have been cereals and rice followed by dairy and fruits and vegetables. The value of imported fruits and vegetables is between 1-2 million from 2008 to 2011. With the tendency to continue relying on imported food with declining performance of export have serious implications for Tonga's terms of trade. Strengthening export would be important to reduce vulnerabilities to external market and price shocks. Increased productivity is important for improving agricultural performance. Improving productivity would also help alleviate poverty and improve accessibility of food by households. Government investment in rural infrastructure, agricultural research and extension and the development appropriate price incentives can accelerate

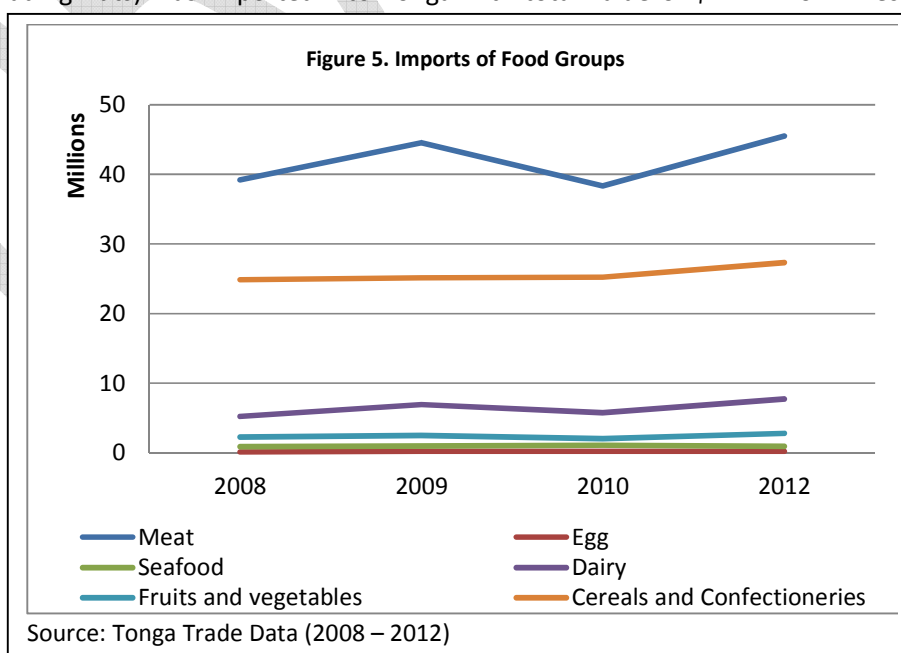
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agricultural performance. Diversifying export products especially into higher value products can strengthen export capacity.



Source: Tonga Trade Data (2006-2001)

In addition, import substitution opportunity exist for some of the major imported items that can be readily grown in Tonga such as chicken, eggs, fruits and vegetables. In 2011, about 772 tonnes of fresh fruits and vegetables (including nuts) was imported into Tonga with total value of \$T2 Million. These amounts nearly tripled since 2004. Tropical fruits that can be grown in Tonga such as bananas, citrus, mangoes and guavas accounted about \$T 800,000 indicating good opportunity to reduce the import bill for a number of commodities that currently imported in Tonga.



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2.1.6 FOREST RESOURCES AND PRODUCTION

Tonga has limited forestry resources, with only about 4000 hectares of natural forests which are located chiefly on uninhabited islands and on slopes that are too steep for cultivation (FAO, 2010). Pine plantation forests have been established on approximately 700 hectares and there is a plan to expand these plantations by 80 hectares each year.

There is considerable potential for agro-forestry development, with 48,000 hectares of potential agro-forestry land which at present is mainly planted to coconuts (FAO, 2010). The forests and forest industries are making a small (<1 percent of GDP), but important contribution to sustainable development and livelihoods of Tonga's population.

Forest products such as mat (and tapa) weaving continues to play an important part of the culture and income for a good proportion of the population, especially in the rural areas. As such, careful planning and management of the use of the forests is important to ensure that the values supplied by forests are not jeopardized by unsustainable development.

Table 8. Land Use Types

Land Use	Land Use	
	Parcels	%
Annual Crops	8119	54
Mix Cropping	5,216	35
Perennial	1176	8
Under Preparation	51	0.3
Fallow for 5 Years or Less	275	1.8
Bush/Forest growth	115	0.8
Livestock	93	0.6
Non-Agricultural Purposes	15	0.1

Source: Tonga Agriculture Census, 2011

2.1.4 LAND USE AND FARMING SYSTEMS

Table 8 shows the land-use types in Tonga the distribution of crops in the different farming systems. More than half of the parcels recorded in the 2001 Agriculture Census were lands under annual crops (8,119 parcels or 54%) and more than one-third were lands under mixed crops (5,216 parcels or 35%). Lands under perennial crops comprised about 8% or 1,176 parcels. There were also lands which were still under preparation for planting (51 parcels or 0.3%), under fallow for 5 years or less (275 parcels or 1.8%) and under bush/forest growth (115 parcels or 0.8%). Other lands were used for livestock (93 parcels or 0.6%) and for non-agriculture purposes (15 parcels or 0.1%) such as homestead, quarry, etc. Manioc farming is commonly planted in mono-cropping systems while yam is commonly planted within mixed crop farming systems.

4.1.9 FOOD BALANCE SHEET

Food balance sheet is a useful measure of food supply systems at macro and as well as micro levels (Table 9). Using the HIES 2006 households' consumption diaries, the food balance sheet for Tonga and its regions were calculated. Based on the food balance sheet, there is sufficient calorie availability at both national and regional levels. However, it must be noted that not everyone is

Table 9. Kilocalorie per capita/day

Island Groups	Kcal/capita/day	% Imported
Tonga	3813	35
Tongatapu	4021	40
Vava'u	4424	44
Hapa'ai	3987	43
'Eua	3768	38
Niuas	3124	36

Source: Data from HIES 2009

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able to access all the available food. The analysis also indicated contribution of imported food to the households in the five different regions of Tonga. Interestingly, the level of imported food dependency for the remote islands is quite alarming.

2.2 FOOD ACCESS

2.2.1 FOOD EXPENDITURE

In total, Tongans consume over \$T 300 million on products and services for the country as a whole. Of this amount, food consumption expenditure accounts approximately 51% (\$T168, 444,000) of total consumption expenditure group with Tongatapu having the highest expenditure followed by Vava'u and Niuas having the lowest (Table 10). Relative to total food expenditure, Niuas has the highest expenditure reflecting household's vulnerability to price spikes given the increasing reliance on purchased foods.

Table10. Total Annual Consumption Expenditure by Island Groups

Expenditures	Tonga		Tongatapu		Vavau		Hapai		Eua		Niuas	
	\$ '000	%	\$ '000	%	\$ '000	%	\$ '000	%	\$ '000	%	\$ '000	%
Food	168444	51	118636	48	28982	57	9485	56	7411	54	3929	65
Alcohol & Tobacco	12327	4	8459	3	2345	5	665	4	379	3	479	8
Clothing & Footwear	7886	2	6258	3	1200	2	135	1	179	1	115	2
Housing & Utilities	33653	10	26501	11	4407	9	1489	9	1112	8	144	2
Household Furnishings & Equip.	14679	4	10476	4	2213	4	631	4	1054	8	305	5
Medical & Health	1504	0	1261	1	170	0	16	0	55	0	2	0
Transport	36481	11	28261	12	5288	10	1608	10	967	7	356	6
Communication	13147	4	10580	4	932	2	935	6	543	4	157	3
Recreation	5493	2	3936	2	991	2	154	1	353	3	59	1
Education	6069	2	4640	2	769	2	346	2	280	2	33	1
Restaurants & Hotels	5884	2	4933	2	697	1	115	1	121	1	18	0
Miscellaneous Good and Services	14795	4	11677	5	1931	4	508	3	447	3	192	3
Remittances - Received in kind	12665	4	9610	4	1311	3	707	4	767	6	270	4
Total	333027	100	245228	100	51236	100	16794	100	13668	100	6059	100

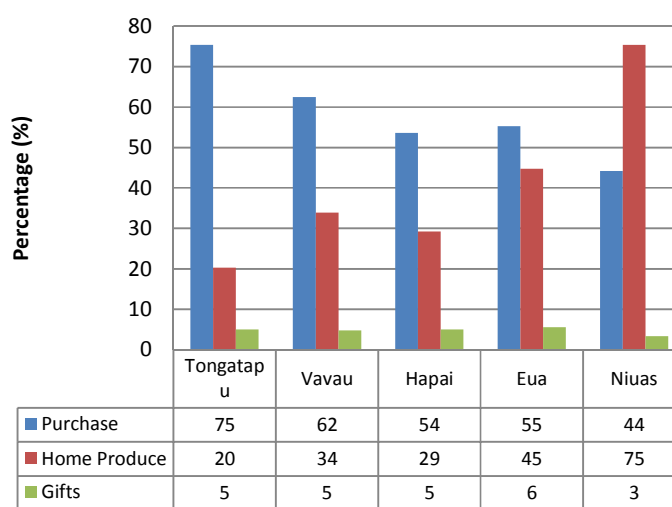
Source: Tonga HIES, 2009

Figure 6 shows food distribution between purchases made by households, gifts received and home produce consumed for each of the five regions. Households in Tongatapu and Vava'u have the highest expenditure on purchased food. Niuas households has the lowest expenditure on purchased food items mainly due to reliance on home production. Despite their remoteness with limited transportation, over 40% of food consumed are purchased. The analysis shows increasing reliance on imported foods and supermarkets for food supplies in all five regions. In addition, a significant proportion of the goods and services traded are through this non-cash economy i.e. gifts to friends and relatives, in-kind contributions, gifts for church activities and bartering (Figure 6).

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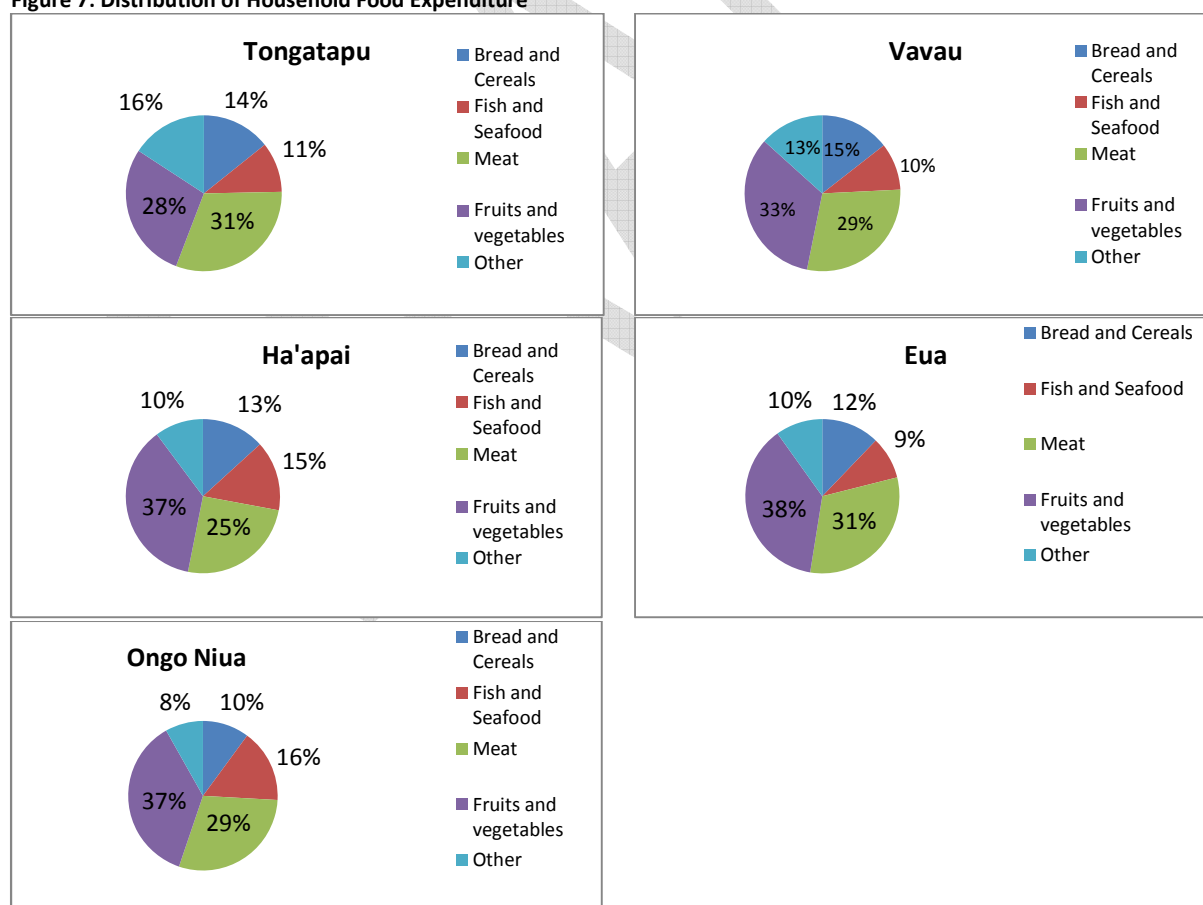
Figure 7 shows distribution of food expenditure across households in Tonga. Meat accounts for just over 30 per cent of food expenditure for Tongans, with vegetables coming in second with just over 24 per cent of food expenditure. The next biggest was the bread and cereals group which contributed a little over 14 per cent. All up, these three groups contributed nearly 70 per cent of the overall food expenditure for households across Tonga. Again, these results further indicate the increasing importance of imported for to the diet of Tongan households.

Figure 6. Districition of Households Food Purchase, Home Produce and Gifts



Source: HIES, 2009

Figure 7: Distribution of Household Food Expenditure



Source: Tonga HIES, 2009

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Figure 7 also shows the annual Tongan household and per capita expenditure in a 2001 and in 2009. Expenditure on food accounted for over 40% of total annual cash outgoings. The patterns of food expenditure were similar throughout the island groups, however people residing in the Ha'apai group and 'Eua appeared to show a higher proportion of consumption of own food items (non-cash expenditure).

The total annual national cash expenditure on food was \$81.8 million Pa'anga which increased to 94.8 in 2009 Appendix 4. The major food items that Tongans spent most of their cash income on include mutton flaps, chicken pieces, fish, bread, vegetables (primarily root crops) and canned meat. This shows that Tongan's diet now rely on imported food which are highly fatty such as as mutton flaps and processed foods that high in sugar and salt, contributing to the increasing incidence of non-communicable diseases in Tonga.

2.2.2 INCOME

Some of the major determinants of household food access are the level of unemployment and the structure of income distribution. Over 30% of the youth population is unemployed. The Tonga 2009 HIES analysis shows that the main contributor to the average monthly income is from the public services. Income earned from subsistence activities represent only about 19% nationally (Table 11). Eua and Ha'apai have the lowest average income. Remittances represent 21% of average households' income. An average household in Tonga receives 1,657 pa'anga from household income per month. Income from remittances has declined over the past 5 years (Figure 8).

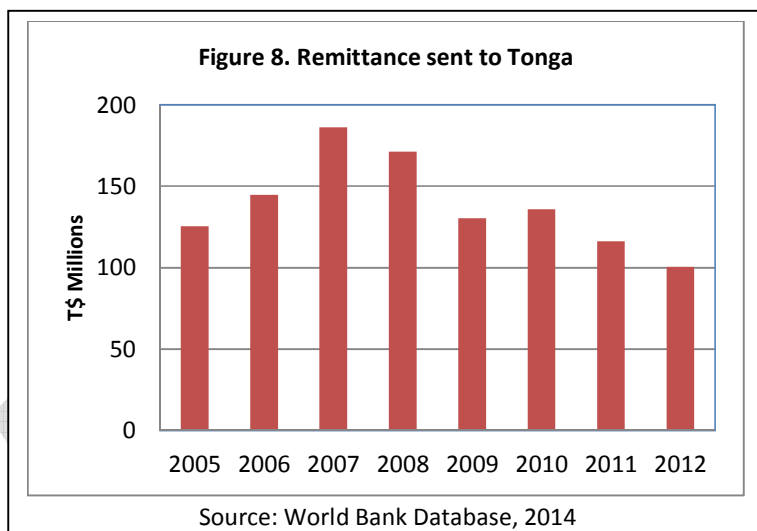


Table 11. Household Income Sources

Income Source	Tonga		Tongatapu		Vavua		Hapai		Eua		Niuas	
	Value ('000)	%	Value ('000)	%	Value ('000)	%	Value ('000)	%	Value ('000)	%	Value ('000)	%
<i>Household Income From Employment</i>												
Wage and Salary-Current Job	672	41	801	46	452	29	255	19	297	23	576	35
Wage and Salary - Previous Job	25	2	31	2	5	0	9	1	33	3	19	1
Wage and Salary - Casual Jobs	24	1	18	1	43	3	39	3	20	2	35	2
Business Income	65	4	80	5	38	2	37	3	10	1	4	0
Subsistence Income	311	19	224	13	495	32	611	46	450	35	303	18
Home Produced Consumed	174	11	138	8	251	16	224	17	235	18	452	27
Property Income	24	1	28	2	17	0	3	0	22	2	20	1
Transfer Income	0	0	0	0	1	1	0	0	0	0	0	0
Welfare, NFP & Child Support	14	1	15	1	20	0	0	0	10	1	0	0
Remittances	347	21	413	24	221	1	136	10	217	17	237	14
Total Household Income	1,656	100	1,748	100	1,542	100	1,314	100	1,294	100	1,646	100

Source: Tonga HIES, 2009

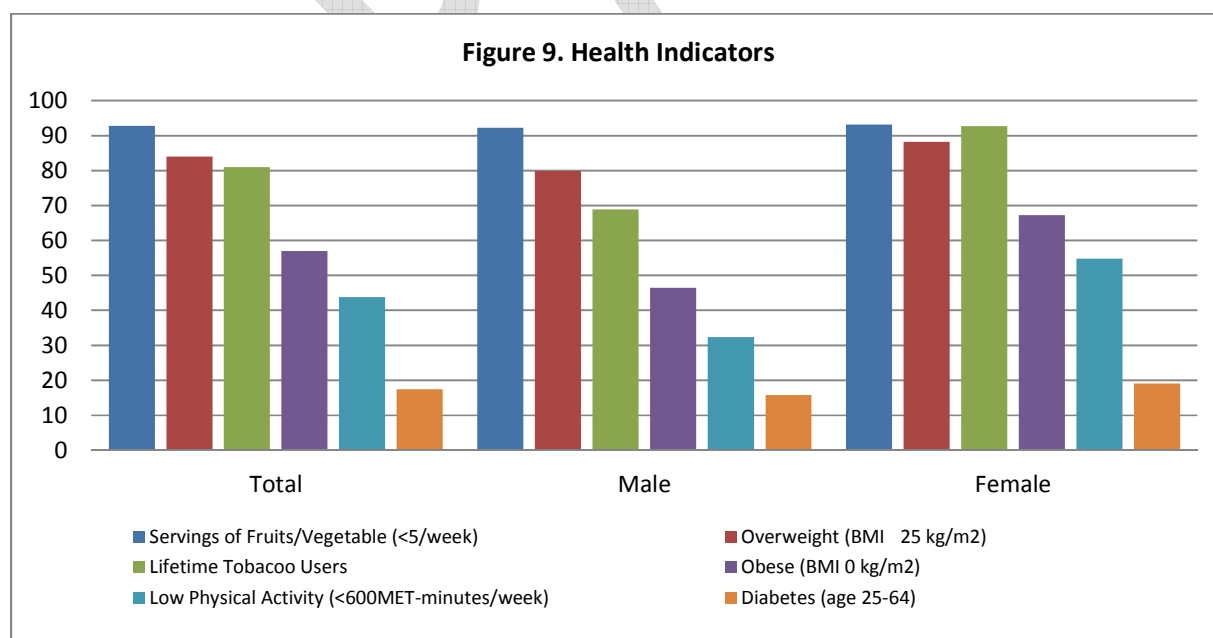
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Tonga's 2001 Household Income and Expenditure Survey indicated that approximately 5 per cent of Tongan households received an income below the Food Poverty Line of TOP 703 per head per year and some 23 per cent received an income below the Basic Needs Poverty Line of TOP 1466 per head per year. In 2009, percentage of households' income below the FPL increased to 11% and 25% below Basic Need Poverty line indicating increasing hardship. These figures essentially mean that a substantial proportion of Tongan families face periodic difficulties in meeting the cost of living for food and other essential expenditure, such as access to transport and education, especially as there has been a decline in remittances which has impacted on hardship amongst Tongan families.

2.2.3 ACCESS TO LAND

All land in Tonga belongs to the Crown. Under the terms of the Land Act (of 1882, but subsequently amended), every Tongan male, aged 16 years or more, is entitled to a town allotment (for dwelling) and tax (bush) allotment of approximately 8¼ acres (3.3 hectares) in size. The 2011 population census reported approximately 30,421 Tongan males aged 16 years or older. This equates to approximately 100,389 hectares of land require to fulfill the land Act while only 59,130 hectares is suitable for agriculture development. There are some provisions made for females however, in actual practice, the claiming of land is almost exclusively the authority of male Tongans.

Population increase, coupled with internal as virtually all of the useful agricultural land has already been allocated and much of the remaining government land consists of lakes, marsh or mangrove swamps, cliffs, small islands with little or no water, and volcanic islands with little access (Halavatau and Halavatau, 2001). At the household level, only 41% or 6,447 households indicated owned tax allotment (Table 4).



Source: Tonga STEPS Report, 2004

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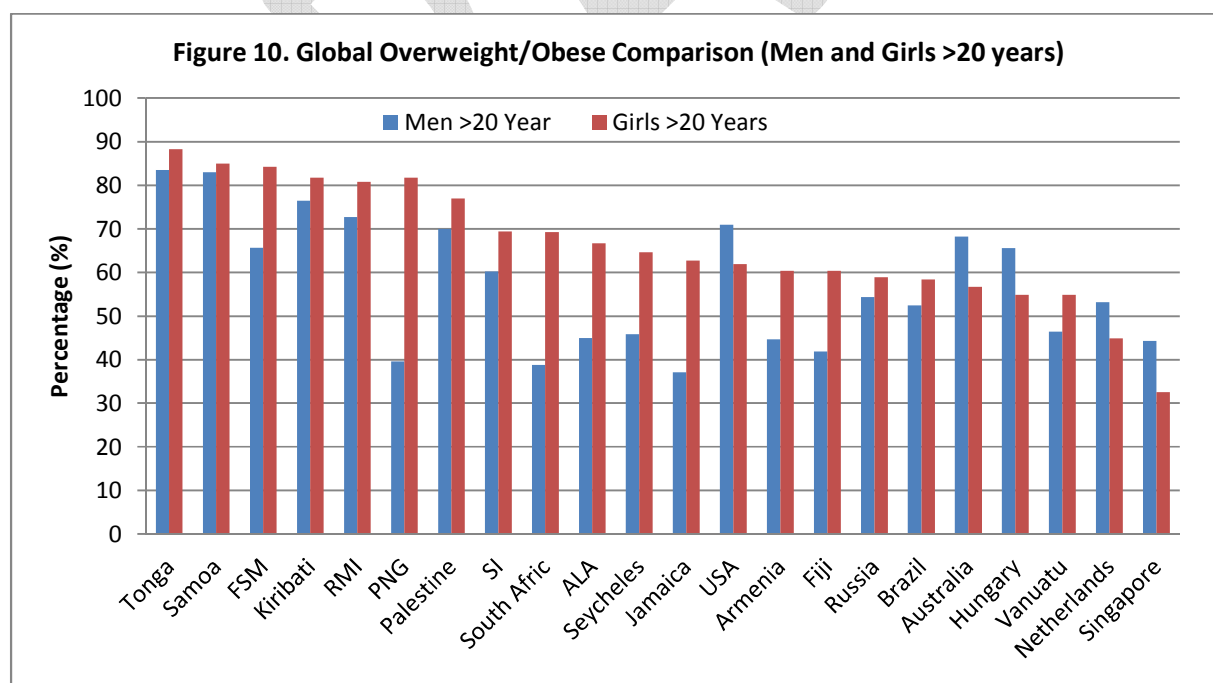
The proportion of households owning tax allotment in Tongatapu (36.2%) was much lower than the other four main islands for the reason that most of the lands in this island were used for commercial purposes. ‘Eua reported the biggest proportion (56.2%) of households owning tax allotments followed by Vava’u (50.2%). Ha’apai and Niuas had almost the same proportion of 48.4% and 48.2%, respectively (Tonga Agriculture Census, 2002). Clearly, a shortage of land exists, and on a massive scale in almost all island divisions.

2.3 FOOD UTILISATION

The HIES (2009) found that the highest household expenditure is on meat and bread with mutton being the commonly purchased meat among the meat groups (Figure 9). In addition, consumption of fruits and vegetables are quite low (less than 5 times/week).

The consequence of this consumption pattern is reflected in the health of the Tongan population. According to the latest STEPs Survey in 2004, the overall prevalence of diabetes in Tonga is estimated at 15.1 percent, which is double the prevalence rate in 1973 (Tonga STEPs Survey Report, 2004). In addition, the overweight/obesity is high among both male and females. The population living with risk factors (Tobacco users and low physical activity) is also quite high.

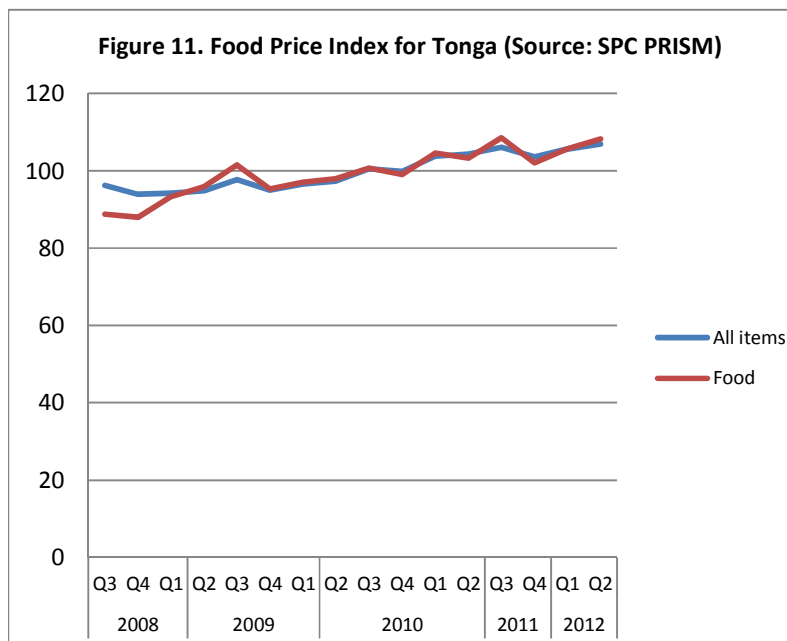
A most recent published study by Lancet Journal across 188 countries shows that Tonga, Samoa, Kiribati, Marshall Islands, and Federated States of Micronesia were among the ten most overweight countries in the world (Figure). Approximately 88.3% of Tongan women and 83.5% of Tongan men under the age of 20 are overweight and obese (Figure 10).



Source: Marie, Ng et. al., 2013

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It was also reported that NCDs were the leading cause of morbidity; accounted for four of the five leading causes of mortality, 10 percent of hospital admissions and 20 percent of government spending in the health sector. Additionally, NCDs are identified as a dominant cause of adult mortality (premature deaths), registering 28.6 to 36.3 percent for males and 20.9 to 27.7 percent for females from 2005 to 2009. These rates are roughly three to four times higher than those in neighboring developing countries (Tonga STEPS Survey Report, 2004).



Source: SPC PRISM

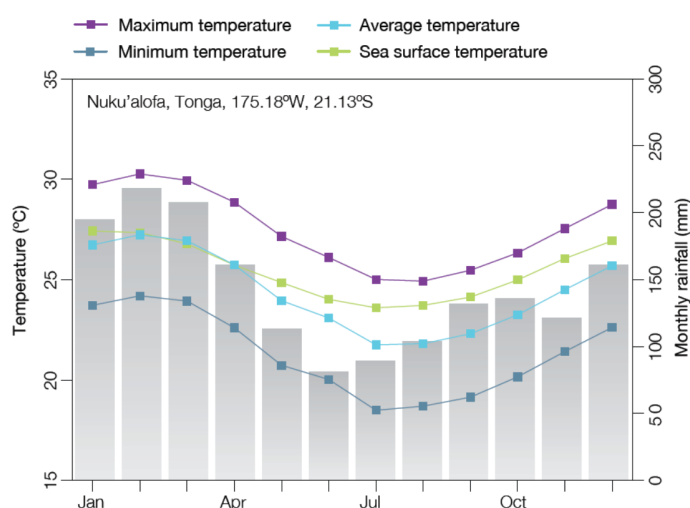
2.4 FOOD STABILITY

2.4.1 VULNERABILITY TO GLOBAL FOOD AND COMMODITY PRICES

Tonga is highly vulnerable to global food and commodity price volatilities especially with the increasing reliance on imported food. As shown in Figure 11, most commodity prices nearly doubled over the past years. The problem is exacerbated with limited transportation between islands making the outer-islands remote communities more vulnerable to food price volatilities.

Increased production of local nutritious foods and strengthening local markets are important to protect the population against food price increases. Additionally, use of local

Figure 12. Seasonal rainfall and temperature at Nuku'alofa



Source: Climate Science Partners, 2011

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nutritious plants should be encouraged through education, outreach and effective communication. Improved road and domestic shipping services along with better market houses and post-harvest storage facilities are also essential requirements for boosting local food production, marketing and consumption.

2.4.2 VULNERABILITY TO CLIMATE CHANGE

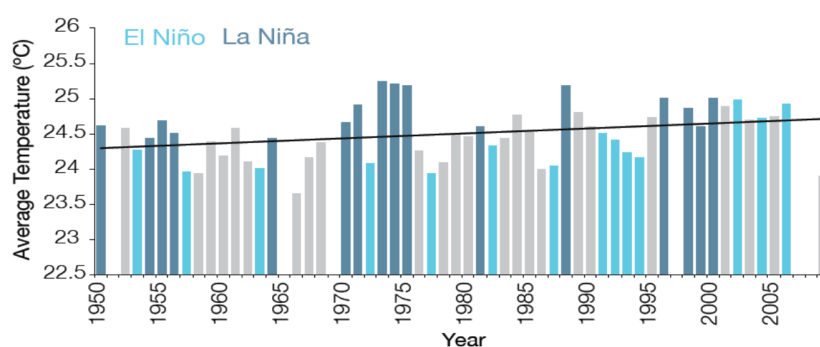
Tonga has generally cooler climate than the rest of the Pacific with mean high temperature of 27 degrees Celsius and mean low of 15 degrees Celsius. Tonga has two distinct seasons – a warm wet season from November to April and a cooler dry season from May to October (Figure 13). Almost two thirds of the annual rainfall comes during the wet season (Pacific Climate Science Partners, 2011).

Tonga's climate varies considerably from year to year due to the El Niño- Southern Oscillation. In Nuku'alofa and Lupepau'u, El Niño events tend to bring cooler dry seasons and drier wet seasons than normal, while La Niña events usually bring wetter than normal conditions (Pacific Climate Science Partners, 2011). Available climate data showed that Tonga's climate has changed over the past years.

TEMPERATURES

Annual and seasonal maximum and minimum temperatures have increased in Nuku'alofa since 1950 (Figure 12 & 13) at a rate of 0.10°C per decade which is

Figure 13. Annual average temperature for Nuku'alofa. Light blue bars indicate El Niño years, dark bars indicate La Niña years and the grey bars indicate neutral years.



Source: Climate Science Partners. 2011

consistent with the global pattern of warming. Projections for all emissions scenarios indicate that the annual average air temperature and sea surface temperature will increase in the future in Tonga (Table 12). By 2030, under a high emissions scenario, this increase in temperature is projected to be in the range of 0.3–1.1°C (Pacific Climate Partners, 2011). Increases in average temperatures will result in a rise in the number of hot days and warm nights and a decline in cooler weather (Pacific Climate Science Partners, 2011).

Table 12. Climate Projections for Tonga

Projection Scenarios	2030	2055	2090
Temperature (°C)			
Low Emission Scenario	0.2-1.0	0.5 – 1.5	0.8-2.0
Medium Emission Scenario	0.2-1.2	0.7-1.9	1.3-2.9
High Emission scenario	0.3-1.1	1.0-1.8	1.9-3.3
Sea Level Rise (mm)			
Low Emission Scenario	5-16	10-27	16 – 47
Medium Emission Scenario	4-16	10-31	20-59
High Emission scenario	3-17	9-31	21- 62

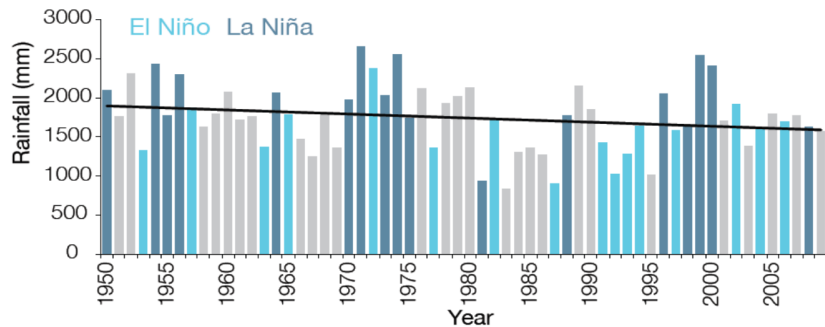
Source: TMS, 2011

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RAINFALL

Although there has been substantial variation in rainfall from year to year, data since 1950 show a clear decreasing trend in the annual and wet season rainfall at Nuku'alofa (Figure 14). Model projections show extreme rainfall days are likely to occur more often with more extreme rainfall days expected.

Figure 14. Annual rainfall for Nuku'alofa. Light blue bars indicate El Niño years, dark blue bars indicate La Niña years and the grey bars indicate neutral years.



Source: Pacific Climate Science Partners, 2011

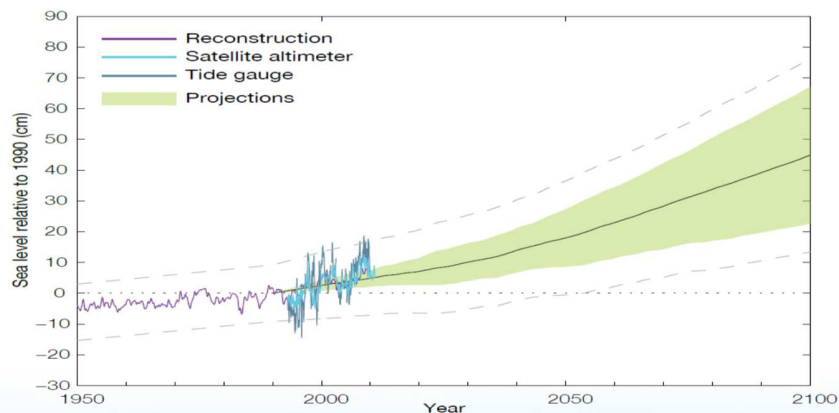
OCEAN ACIDIFICATION

Data show that since the 18th century the level of ocean acidification has been slowly increasing in Tonga's waters. Under all three emissions scenarios (low, medium and high) the acidity level of sea waters in the Tonga region will continue to increase over the 21st century, with the greatest change under the high emissions scenario. This will impose significant impact on reef ecosystems and fish availability which many of the populations depend on for food security and livelihoods.

SEA LEVEL RISE

Satellite data indicate the sea level has risen near Tonga by about 6 mm per year since 1993 which is larger than the global average of 2.8–3.6 mm per year. Projections shows that sea level is expected to continue to rise in Tonga (Table 12 and Figure 15). By 2030, under a high emissions scenario, this rise in sea level is projected to be in the range of 3-17 cm. The sea-level rise combined with natural year-to-year changes will increase the impact of storm surges and coastal flooding.

Figure 15. Observed and projected relative sea-level change near Tonga.



Source: Pacific Climate Science Partners, 2011

CYCLONES

On global scale, the projections indicated that there is likely to be a decrease in the

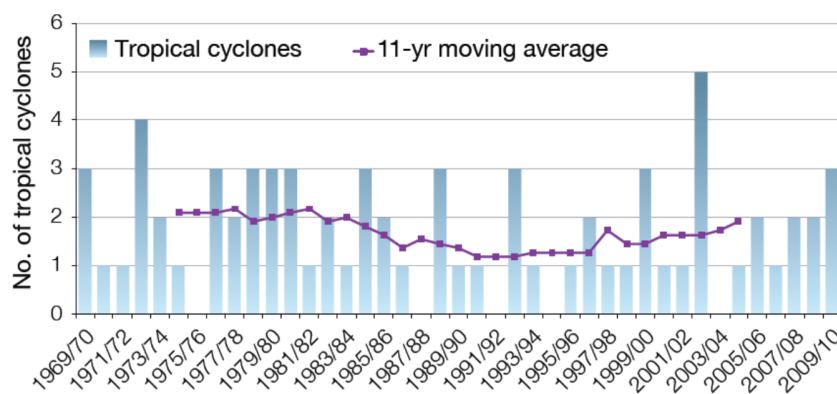
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number of tropical of cyclones by the end of the 21st Century. But there is likely to be an increase in the average maximum wind speed of cyclones by 2% and 11% and an increase in rainfall intensity of about 20% within 100km of the cyclone centre. These projections shows Tonga as a small island state is extremely vulnerable to climate

change. In the 41-year period between 1969 and 2010, 71 tropical cyclones passed within 400 km of Nuku'alofa, an average of one to two cyclones per season (Figure 16).

Records from cyclone Vaianu, with a gale force storm (34 to 47 knots) that tracked from the northern to the southern islands of Tonga in February 2006, reported that over 70% of the banana and breadfruit crop was wiped out. In addition, the effects of cyclone Ofa, which struck Western Samoa in February 1990 caused severe damage to root crops, e.g. taro, yam and cassava, vegetables, kava, and fruit trees (banana, breadfruit, papaya, mango, avocado, Vi, cocoa). Trees with high canopies suffered almost 100% damage and significant loss.

Figure 16. Number of tropical storms passing within 400km of Nukualofa. Eleven year moving average in purple.



Source: Pacific Climate Science Partners, 2011

2.5 STRUCTURAL CONTEXTS AND GOVERNANCE FOR FOOD SECURITY

2.5.1 FOOD SECURITY INSTITUTIONS AND PROGRAMS

The authority for food security in Tonga is spread out among a several ministries, each with its own objectives and policy preferences, and distinct functions; this makes the system of governance highly fragmented, with objectives that may often overlap and contradict one another.

The Ministry of Agriculture and Food, Forestry and Fisheries (MAFF)

Majority of MAFF mandates involve many aspect of food security. The Quarantine and Quality Management Division of MAFF has the primary responsible for effective quarantine and quality food control through food imports in form of plants and animal products. In addition, a section under its Corporate Service Division also handles food safety matters under the Codex Alimentarius. This Section was previously placed at Divisional level but then merged under the Corporate Service Division due to financial and technical constraints. In addition, the Fisheries Division of MAFF is the regulatory agency for fish and seafood for export while the regulation and enforcement of fish for domestic consumption is the responsibility of the MOH inspectors.

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The Extension and Women Division and Crop Research Divisions are responsible for effective delivery and dissemination of appropriate scientific knowledge, information and technologies for commercial production and development aimed toward improving food security and agricultural export programs. Under the export expansion program, establishes loans to the agriculture and fisheries sector, notably for the cultivation of squash and root crops for export. For the food security program, the Divisions support district agricultural committees, women in development and nutrition groups both at village and district levels. The livestock programs focuses on activities related to improving livestock production for food and income generation while the Forestry Division supports commercial forestry including agroforestry operations and conservation management of forest and trees resources.

Ministry of Health

Nutrition is being promoted by both the Public Health within the Ministry of Health (MOH) and MAFFF. The goal of government in the area of food and nutrition is to achieve a satisfactory level of nutrition among the people of Tonga. A National Food and Nutrition Policy and a National Plan of Action for Nutrition, had been developed to provide an integrated approach to nutrition related activities of all government and non-government organizations. The plan is coordinated by a National Food and Nutrition Committee, which also advises Government on nutrition-related matters. In addition, The MOH has primary responsibility for food hygiene and safety matters. However, the Food Act 2012 vested all powers in relation to food safety and quality in the National Food Authority (the Minister of Agriculture, Food, Forestry and Fisheries).

Ministry of Commerce, Tourism and Labour

The Ministry of Commerce, Tourism and Labor (MCTL), is responsible for enforcing fair trade practices and licensing of food business; the latter also a responsibility of the MOH. The Ministry of Labour, Commerce and Industries also has responsibilities in the areas of food standards and quality assurance for processed food products. It also coordinates with the Ministry of Health the mechanism to recall food products, which pose risks to public health.

2.5.1 FOOD SECURITY RELATED POLICIES AND LEGISLATIONS

Although food security is increasingly recognized as an important policy issue, there is currently no whole-of-government approach or specific legislation to address food security in Tonga. In addition, there is no specific provision in Tonga's Constitution that guarantees right of its population to food security. However, the Tonga's National Strategic Planning Framework (NSPF) with its vision "To create a society in which all Tongans enjoy higher living standards and a better quality of life through good governance, equitable and environmentally sustainable private sector-led economic growth, improved education and health standards, and cultural development", emphasized good governance as the key to encouraging growth in private sector activity, improving agricultural productivity, further developing tourism, and improving the country's communications and transportation systems. The NSPF has been designed so that this national vision will be realized by facilitating community development, supporting the private sector, continuing constitutional reform, maintaining and developing infrastructure, and

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improving technical education and health, as well as by integrating considerations regarding environmental sustainability and climate change in to all development activities.

In addition, several legislations have been enacted that address the different aspects of food security either directly or indirectly with varying degrees of regulatory to give effect to these Acts (Appendix 3). For instance, the Public Health Act No. 19 of 2008 contains certain provisions authorizing the Minister for Health to define requirements, e.g. for food, motor vehicles (emission standards), and septic tanks. However, these provisions have so far not been used to establish any specific standards or technical regulations. Similarly, Consumer Protection Act No. 15 of 2000 authorizes the Minister of Commerce, Tourism and Labour to prescribe "approved standards" for any good (Article 10). Moreover, Section 12(2) of Act No. 26 of 2009, which amends the Consumer Protection Act, stipulates that "if a good is or contains a living modified organism the approved standards applied to it shall comply with any standards or conditions set by the National Biosafety Committee". Nevertheless, no such standards have been promulgated to date. Imports of food, and labelling of food and beverages, are regulated by the Public Health Act of 1992.

A major public health concern is the consumption of fatty meat, such as mutton flaps or turkey tails. In response, the Government recently made adjustments to tariffs and excise duties on certain animal fats, sweetened soft drinks, alcoholic beverages, tobacco products, to encourage healthier diets and reduction of NCDs in Tonga.

Clearly, most of these legislations legislation have demonstrated an intention to focus more on issues related to food safety and quality control of exports and imports rather than taking a broader, coordinated approach to food security. In addition, programs related to food security are spread out across ministries and programs even within ministries. As such there is a need for greater coordination amongst programs for shared responsibility and resources to avoid any future overlaps between programs. The consultations revealed that restructuring of some ministries maybe necessary to achieve food security outcomes. An opportunity exists with the Food Bill 2012 currently passed second reading in Parliament. The Bill envisaged establishing structural setting for food which sets the foundation for progressing food security in Tonga.

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3. TFAFS VISION, GOALS, OBJECTIVES AND STRATEGIES

3.1 TFAFS VISION

“All people in Tonga, at all times, have physical and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life”

3.2 GOALS

In order to improve food security in Tonga, the following goals will be pursued over the five year (2015 – 2020) implementation period:

- ✓ Increased Availability of Sufficient and Safe Food;
- ✓ Enhanced Access to Sufficient and Safe Food;
- ✓ Improved Health and Nutrition in Tonga;
- ✓ Enhanced Stability of Food Supply Systems;

3.3 OBJECTIVES

To achieve TFAFS goals, the following objectives will be pursued over the implementation period:

1. Improved Leadership and cooperation;
2. Increased production and productivity of agricultural (include fisheries and forestry) systems;
3. Strengthened livelihood and income generating opportunities;
4. Reduced Non-Communicable Diseases;
5. Enhanced sectors resilience to climate change and natural disasters.

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3.4 OBJECTIVES AND STRATEGIES

3.4.1 IMPROVED LEADERSHIP AND COOPERATION

STRATEGIES:

✓ STRENGTHEN GOVERNANCE ON FOOD SECURITY

A National Food and Nutrition Committee was previously established within MAFFF but became dysfunctional which consequently absorbed by the National Codex Alimentarius Committee (NCAC) consisted primarily of technical personnel with few members with authority to influence policy directions and weak secretariat function which led to little effective action. Similarly, NCAC had been equally less than active and plans are now in place for the NCAC to be replaced by a National Food Authority. As such, it will be necessary to establish a High Level multi-sectoral Food Security Steering Council representing all relevant Ministries/Sectors, NGOs, Private Sector Representatives (wholesalers, retailers, and food processors), Farmers Organizations and Local Governments to provide advisory role for the framework implementation and ensure a multi-sectoral approach. The Council would need to be with authority to influence policies. As such the representatives would need to be at senior level positions preferably at CEO levels. Under each sector, food security cluster technical committees will be formed with overall responsibility of overseeing implementation of programs alignment. Priority Actions Include:

- Establish a National Food Security Council guided by an approved Terms of Reference;
- Facilitate endorsement of TFASF by Parliament;
- Facilitate establishment of food security technical cluster committees;
- Facilitate Council's regular meetings.
- Oversee development of costed sector implementation plans aligned to TFASF;
- Provide advisory role and monitor TFASF implementation;
- Advocacy for resource mobilization to support framework implementation;
- Evaluate the policies and legislations to assess their impact on food security;

✓ STRENGTHEN PARTNERSHIP ON FOOD SECURITY

There is a strong need to establish better coordinating mechanisms and better integration of activities related to food security in Tonga. Hence, the first step in the implementation of TFASF would involve establishment of a Food Security Secretariat (Secretariat) within MAFFF. The Secretariat would need to be vested with authority to carry out its coordinating role across the relevant ministries and other stakeholders. Previously, the Division of Food within MAFFF was merged as a 'Section' under Corporate Service Division of MAFFF due to limited resources and weak implementation mechanisms. The Food Bill 2012 (passed its second Reading) provides for establishment of Food Authority within MAFF. Hence, the envisaged Food Security Council will eventually form the Food Authority proposed once the Food Bill is

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enacted. To do this, it will be necessary to assess and re-examine and redefine the terms of reference for the Food Section to assess restructuring to elevate it back to Divisional level. Priority Actions include:

- Map food security local agents and stakeholders and initiatives relevant to food security
- Assessment of capacity and core functions of MAFF Divisions (other ministries concerned with food security)
- Establish and mobilize resources to enable functionality of the Food Security Secretariat
- Regularly examine national and community food security situations and provide and publicize projections;
- Secretariat to work with key stakeholders to develop/reform policies that satisfy the interests of all those affected and seek funding and resources to support activities of the food coalition and to sustain improvements to the food supply

✓ DEVELOP SECTOR IMPLEMENTATION PLANS AND REGULATORY FRAMEWORKS

In order to ensure complementary support for food security programs in Tonga, it will be also necessary to review and update or develop sector implementation plans aligned to TFADS priorities. In addition, currently, a number of Legislations have been endorsed at the parliamentary level which reflects the political will and support. However, currently there are weak regulations being promulgated to support the implementation of these Acts. As such, regulatory frameworks would need to be promulgated to give effect to existing Acts. It will be also necessary to review and develop other policy and legislative frameworks to address any other policy gaps. Priority Actions include:

- Recruitment of Legislative Expert
- Review and align and or develop Legislations
- Develop and or update sector policies
- Assessment of sector core functions and identify budget needs
- In consultation with stakeholders, develop sector plans aligned to TFADS
- Facilitate endorsement and support for sector plans

✓ STRENGTHEN FOOD SECURITY INFORMATION SYSTEM

The vulnerability to climate change and price volatilities underlined importance for Tonga to have access to timely, reliable and accurate information on food security related information. In order to effectively monitor the progress of TFADS implementation and food security situation in Tonga, it will be necessary to establish a food security monitoring information system (MIS) for Tonga. Priority actions include:

- Review and strengthen the capacity to collect, store, coordinate, integrate and utilize data for food security, programme implementation, policy and monitoring.
- Identify key indicators including special and specific indicators (vulnerable, poverty, children and women) appropriate for monitoring and evaluation of national food security activities, outputs and policy
- Collect, analyze and publish agriculture, fisheries, forestry production

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- Collect information on domestic market trade, volumes and prices
- Establish MOU between ministries and other responsible agencies responsible for data collection to harmonize data related to food security
- Provide better quality and more timely trade statistics
- Profile and Map vulnerable communities/households
- Advocate for Government led social protection programmes???

3.4.2 INCREASED PRODUCTION AND PRODUCTIVITY OF AGRICULTURAL SYSTEMS

STRATEGIES:

1. STRENGTHEN RESEARCH AND EXTENSION SERVICES

Improving the capacity of research and extension services is critical as key service providers for the farming community. Resources and capacity of rural advisory service providers should be strengthened in order to respond to the farming community advisory needs effectively. In addition, re-orienting some of the research priorities to the farmers need would be necessary to provide an effective pluralistic research and extension services. Priority actions include:

- Review research and extension provision across the nation to develop an appropriate and affordable extension model that addresses food security and stakeholders needs
- Develop rural advisory (research and extension) code of conduct
- Promote integrated extension and research approaches (through MOUs)
- Promote and adopt participatory rural advisory approaches
- Mobilize resources for capacity building and operational needs

2. ESTABLISH/STRENGTHEN CAPACITY OF PRODUCER ORGANISATIONS

In order for farmers to consistently supply different high-value local food commodities to local and export markets, it is advisable to organize farmers/fisherman into producer groups and cooperatives so they can jointly supply both the quantity and quality requirements for the local and exports markets. Priority actions include:

- Promote access to finance and small finance schemes
- Introduction of agriculture incentive schemes for priority crops/livestock
- Establish farmer field schools in each district
- Promote soil improvement technologies through on farm trials

3. CONSERVE AND PROMOTE GENETIC DIVERSITY

In the face of threats posed by climate change on biodiversity and ecosystems along with narrow based genetic resource selection by farmers lead to loss of indigenous genetic resources. As such, conservation and promotion of genetic resource conservation should be strengthened. Priority actions include:

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- Evaluate traditional crop diversity
- Test improved genetic material (crop, tree and livestock) for adoption into traditional and semi-commercial farming systems
- Promote conservation of indigenous crop and livestock species/breeds
- Establishment of in-situ and ex-situ genetic resource conservation and genebanks

4. INCREASE AVAILABILITY OF OFF-SEASON CROPS

Market studies have revealed low supply or sometimes lack of locally grown vegetables during the period from November to April of each year. This is contributing to continuous importation of vegetables that can be produced locally. MAFFF together with vegetable producers need to explore alternative production technologies to strengthen availability of local vegetables during this period of off season. Priority actions include:

- Conduct trials to identify suitable off-season vegetables
- Target production during off-season
- Introduction of suitable vegetable and fruits suitable for off season
- Promotion of soil improvement technologies

5. STRENGTHEN LIVESTOCK PRODUCTION

Livestock contributes significantly to the diet and livelihood of the vast majority of the population. Currently, however, husbandry practices remain poor. Improving livestock genetic resources and conservation of hardy local breeds should be promoted. Priority actions include:

- Conduct feasibility study on potential local feed supplements and feed preparations
- Provision of improved small livestock species
- Establish livestock breeding centres
- Strengthen training TOT for PARAVET
- Conservation of local indigenous livestock breeds
- Develop livestock waste management guidelines
- Provide training on livestock husbandry practices
- Conduct rigorous disease surveillance

6. PROMOTE AGROFORESTRY

Agroforestry is a resilient farming system to withstand the challenges posed by climate change. Reviving the traditional agroforestry systems will benefit the expected challenges posed by climate change. Priority actions include:

- Documentation of traditional knowledge on agroforestry species
- Promote agroforestry mixed farming within existing farming systems
- Train farmers in sustainable natural resource management practices

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- Establish demonstration sites for agroforestry systems
- Control invasive species
- Promote fruit Tree production
- Capacity building of communities
- Promotion of improved agroforestry crop and tree species

7. PROMOTE AQUACULTURE PRODUCTION

Priority actions include:

- Establishment of aquaculture hatchery centers in each island group
- Introduction of brooding stocks
- Establish aquaculture pilot farms
- Aquaculture trainings conducted Strengthened livelihood and income generating opportunities

3.4.3 STRENGTHEN LIVELIHOOD AND INCOME GENERATING OPPORTUNITIES

STRATEGIES:

Over 60% of the population depends largely on agriculture, fisheries and forestry for food security and income. The decline in squash exports provided a good lesson for the need to diversify export commodities. However, the government needs to create enabling environment (infrastructure, conducive policies, market information etc.) for farmers as well as the private sector to strengthen production of tradeable commodities in the local and overseas market.

1. STRENGTHEN MARKET ACCESS

Priority Actions include:

- Establish producer and buyer forums
- Facilitate development of agreement and guarantee process between producers and buyers
- Explore opportunities to promote local cuisine with restaurants and hotels
- Facilitate re-orientation of production targeting the tourism sector
- Facilitate export market access
- Develop export market pathways
- In cooperation with producers and tourism sector strategically re-orient the production operations of small-scale farmers to meet needs of hotel/restaurant sector taking into account the variables impacting on hotel/ restaurant demand.
- In cooperation with tourism industry associations (visitors' bureaus etc) explore opportunity for promoting local foods in restaurant and hotel kitchen menus.

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2. DIVERSIFY AGRICULTURAL EXPORTS

Priority Actions include:

- Conduct research on potential additional export commodities
- Promote production/processing of additional commodities for export
- Strengthen research on yield improvement technologies (soil, pest and diseases, etc.)
- Enhance market access through effective partnerships

3. PROMOTE IMPORT SUBSTITUTION

Substantial recipe ingredients offered by hotels and restaurants in Tonga are imported which can be substituted by local produce. In addition, limited capacity to improve quality and the presentation of local cuisine limits the use and promotion of local produce in Tonga. Priority actions include:

- Increase incentives for innovation within local markets not just for exports Identify import substitution commodities
- Conduct awareness and training on import substitutions
- Identify potential food processing (flour, noodle, etc.) commodities
- Enhance market access through effective partnerships

4. STRENGTHEN PEST AND DISEASE SURVEILLANCE

- Quarantine, Extension and Research to collaborate on pests surveillance
- Research on biological control and integrated pest/disease management to reduce use of pesticide
- Mapping of disease
- Regularly update pests and disease database
- Awareness materials provided

5. STRENGTHEN VALUE ADDED AND FOOD PROCESSING

Value addition and food processing can strengthen import substitution. Staple crops such as cassava, taro, breadfruit, yam can be processed into high value added products. The government will need to explore with the private sector promotion of value added products from local staples. Priority actions include:

- Identify appropriate potential products for processing and value addition.
- Facilitate technical support for market and cost benefit analysis prior to advocating development of new value added products.
- Facilitate technical support for appropriate processing technology and practices recognizing economies of scale, utility provision and costs, product quality and safety standards.
- Consider duty concessions and fiscal incentives for capital investments to support nascent manufacturing enterprises.

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6. IMPROVE QUALITY AND SAFETY OF FOOD SUPPLIES

In order to facilitate and strengthen local and export market of local products it will be necessary to ensure stakeholders meet sanitary and phytosanitary requirements:

- Identify priority commodity supply chains for import substitution and export markets.
- Establish regular dialogue between all stakeholders in the priority supply chains.
- Facilitate and support formation of producer groups, farmers' organizations and associations.
- Assist in identifying and solving specific constraints to supply chain efficiency.
- Review food laws and regulations at national and state level to develop comprehensive and coherent food laws and regulations which are harmonized across the nation.
- Review food analysis needs and elaborate proposal to establish a national food laboratory
- Assist with developing guidelines for product and process standards
- Recruit technical assistance to provide training in food safety, phytosanitary and other market access requirements.
- Implement training programs for food inspectors and private sector enterprises in the food industry.
- Assist with developing guidelines for product and process standards

7. IMPROVE RURAL INFRASTRUCTURE

Priority actions include:

- Advocate for Government subsidy
- Improve market access facilities for farmers
- Rural roads
- Transportation and Shipping

8. PROMOTE TIMBER AND HIGH VALUE TREE SPECIES

Priority actions include:

- Strengthen production of sandalwood within farming systems
- Promote coconut rehabilitation
- Strengthen nursery propagation and distribution

9. OCEANIC FISHERIES RESOURCE MANAGEMENT

Priority actions include:

- Conduct assessment of oceanic fish stocks
- Develop effective monitoring scheme for inspection of foreign fish catches
- Promote production and marketing of fisheries products

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3.4.4 REDUCED NON-COMMUNICABLE DISEASES

KEY STRATEGIES:

1. DEVELOP A ROBUST “GO LOCAL” CAMPAIGN FOR TONGA

Consumption of low quality and poor diet of households are the leading cause of NCD problems around the Pacific islands. With Tonga rank the most overweight country in the world, there is an urgent need to address this problem. Priority actions include:

- Review “Go Local” Programs in other parts of the region and tailor relevant interventions to Tonga situation
- Develop “Go Local” awareness materials
- Conduct education and awareness with schools
- Organize National “Go Local Events” (Fun Run/Walk, Parade, National Planting Day, etc.)
- Advocate for policies to support imported food and quality and standard setting on food (Samoa case example)

2. PROMOTE HOUSEHOLD HEALTH AND NUTRITION

Priority actions include:

- ✓ Identify high nutritive value crops and promote the production and utilisation
- ✓ Strengthen awareness and education on nutrition and healthy food choices
- ✓ Provide cooking demonstration to school and
- ✓ Develop school dietary guidelines for households and food vendors and advocate guidelines
- ✓ Document local food recipes and traditional knowledge on food preparation and preservation techniques
- ✓ Promote nutrition and physical activity (with focus on farming as important physical activities) to schools and government employees
- ✓ Analyse nutritive value of local foods and document

3. CONSUMER EMPOWERMENT

Priority Actions include:

- Greater inclusion of NGOs in development of strategy for food security.
- Greater representation of relevant producer and business representatives in the development of strategy for food security.
- Need to ensure community a perspective are represented in strategy development policies and is strongly grounded in community needs.
- Need to foster and develop champions of food security and possible roles in coordinating the activities among various food security related committees existing.

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- Advocate for fair price control enforcement

3.4.5 ENHANCED SECTORS RESILIENCE TO CLIMATE CHANGE AND NATURAL DISASTERS

KEY STRATEGIES:

1. PROMOTE SUSTAINABLE FARMING PRACTICES

- Develop organic agriculture program guidelines
- Regulate farming systems
- Promote farming (soil, pest and disease management) technologies
- Replanting of degraded areas with fruit trees, legumes and timber species
- Awareness on best farming practices
- Improving fallow period and reduce soil tillage

1. EVALUATE RESILIENT CROP VARIETIES

- Documentation of climatic resilient crop varieties
- Conduct research on resilient crop varieties
- Establish resilient crop diversity genebanks within communities

2. ENHANCE REHABILITATION OF DEGRADED LANDS

Forest resources provide important source of food and livelihood opportunities (such as mats, tapa, timber, etc.) for vast majority of the rural population. With increasing rates of deforestation and land conversion in some areas in Tonga, there is high need to promote reforestation and conservation of existing forest resources. Priority actions include:

- Assessment of degraded lands
- Establish genebanks for forest tree species
- Develop and engage communities in the reforestation (focus on using agroforestry species and high value forest trees)

3. STRENGTHEN WATERSHED MANAGEMENT AREAS

- Work with communities to develop watershed management plans
- Facilitate development of community forest resource management plans
- Community awareness

4. STRENGTHEN FISHERIES RESOURCE MANAGEMENT

- Develop participatory community resource management plans
- Trainings conducted with communities

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- Promote conservation of indigenous and traditional high value trees
- Enforcement of marine protected areas

5. PROMOTE TIMBER AND HIGH VALUE TREE SPECIES

Priority actions include:

- Strengthen production of sandalwood
- Strengthen production of tapa and mat tree species

6. STRENGTHEN KNOWLEDGE ON CLIMATE CHANGE

- Establish partnership between MAFFFF and Tonga Meteorological Services (TMS)
- Provide training on climate forecasts and data application on cropping and rural advisory
- Establish partnership and support for NGO activities working in the area of food security

7. CAPACITY BUILDING OF SECTOR SERVICE PROVIDERS

- Scholarships promoted for Primary sectors
- Training of trainers

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4. TFAFS IMPLEMENTATION ARRANGEMENTS

4.1 ADMINISTRATION AND COORDINATION

Implementation of TFAFS will require bringing together a spectrum of stakeholders operating at different levels of the government to work in concerted and most effective approach to ensure shared responsibility and efficient allocation of resources. To achieve this, there will be a need to establish a Tonga Food Security Council (TFSC) to provide overall oversight of an integrated cross sectoral approach to food security in Tonga. TFSC members will need to be from senior management level, preferably Chief Executive Officer Level with the authority to provide programs direction and influence policy decisions. TFSC will need to operate at a preemptive and continuous level to ensure consistency among policies and programs that affect food security. To do this, a Terms of Reference (ToR) and regular meeting of TFAFS will need to be formalized. Within each Ministry, a Cluster Technical Working Groups (CTWG) will be established to provide technical advisory role to programs related to food security under each respective ministry's mandates.

Currently, there is no dedicated secretariat or coordination unit solely focused on food security in Tonga. However, given the magnitude of task required to coordinate programs related to food security, TFAFS envisaged establishing a fully resourced Food Security Coordination Unit (FSCU) within MAFFF to be charged with food security secretariat role. The FSCU will facilitate and coordinate activities across the multiple stakeholders and keep under continuous review and assessment of TFAFS achievements. This process will involve ongoing M&E (using Appendix 1) through effective food security information assessment and consultation with relevant ministries on progress of activities.

4.2 IMPLEMENTATION AND RESOURCE MOBILIZATION

In order to ensure proper alignment of programs across (and within) ministries, each line ministry will be required to develop and or update ministry/sector plans by mainstreaming the food security strategies identified in TFAFS into their respective implementation plans. These plans shall pick up the planning process from strategy intervention level (as outlined in Appendix 2) and be broken down into medium term plans detailing strategic activities, activity delivery timeframe, responsibility for carrying out each activity and the intended users of the activity outcomes. The plans will need to be translated into a fully costed operational plan which will then form the basis for budget formulation to leverage funding from both the government and as well as from donors to support TFAFS implementation.

At the Ministry level, implementation of these plans will follow integrated approach through engagement of sector stakeholders to ensure ownership of activities at all levels. This would require a clear assessment of core functions of each ministry to streamline programs and where necessary, identify activities that need streamlining and those that can be transferred or contracted out to NGOs and CBOs. Community based organizations and NGOs have proven successful and effective in reaching communities for promoting food security in a number of Pacific Islands. With that, TFAFS envisaged engagement of all stakeholders including NGOs, representatives of the private sector, farmers groups

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and community based organizations should be supported to incorporate their aspirations and voices into the planning and implementation process building on lessons learnt from other PICs.

4.3 MONITORING AND EVALUATION

In order to measure implementation is achieving the desired outcomes of TFAFS, an M&E system needs to be formalized by establishing a management information system (MIS) within the FSCU to track achieving the desired outcomes of TFAFS (indicators identified in Annex 1). The Tonga Division of Statistics is vested with authority for data collection and publishing however most of the identified indicators need to be collected on regular basis. As such, the first step will involve identifying data gaps and programs responsible for these data gaps.

Once these data sources are identified, the FSCU will need to collate and regularly update the MIS. To do this, it will be necessary to develop memorandum of understanding between FSCU and key stakeholders involved in collection of data relevant to food security so information on food security can be regularly feed into the MIS managed by FSCU. If feasible, databases should be harmonized to ensure food security information is updated regularly.

The FSCU will carry out consultations with each ministry/division on progress of activity implementation and report against the identified indicators. Such process will allow appropriate adjustments to the framework as implementation unfolds. This will allow sectors and sector stakeholders the opportunity to reflect on what has and what has not worked and feed these lessons into future planning. A review of framework implementation shall be completed on annual basis.

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APPENDIX 1. MONITORING AND EVALUATION MATRIX

Development Outcome	Indicators	Baseline	Targets	Assumptions/Risks
➤ Improved Leadership and cooperation among sectors and stakeholders	<ul style="list-style-type: none"> ➤ Public spending on agriculture (including development partner funds) as a percentage of GDP. ➤ Framework endorsed by Cabinet ➤ Sector workplans developed and costed ➤ Legislations promulgated ➤ Improved agriculture data on primary sectors and food security ➤ Agriculture and fisheries sector GDP growth by 2% 	<ul style="list-style-type: none"> ➤ >1% allocation to Agricultural Marketing Fund ➤ Weak Coordination and strategic planning 	<ul style="list-style-type: none"> ➤ % increased in government spending on agriculture/food security ➤ Framework endorsed by parliament ➤ Sector workplans developed or updated ➤ Improved Leadership and coordination among stakeholders 	<ul style="list-style-type: none"> ➤ Strong Commitment from Government ➤ Active participation by Stakeholders
➤ Increased production and productivity of agricultural systems	<ul style="list-style-type: none"> ➤ % increase in acreage in cropping ➤ Yield/acreage ➤ Increased in livestock numbers/species ➤ Financial returns of selected farming systems ➤ Number of farming technologies adopted ➤ Number of genebanks established ➤ Number of aquaculture farms increased ➤ Number of conservation areas established ➤ Contribution of fish to household diets increased ➤ Area covered with Agroforestry 	<ul style="list-style-type: none"> ➤ Declining productivity of soil ➤ Declining livestock production ➤ Slow increase in area cropped ➤ Declining exports 	<ul style="list-style-type: none"> ➤ % increase in volume/value of exports ➤ Agriculture value added contribution to GDP ➤ Contribution of fisheries to household income 	<ul style="list-style-type: none"> ➤ Socio-economic remain unchanged ➤ Active participation by Stakeholders
➤ Strengthened livelihood and income generating opportunities	<ul style="list-style-type: none"> ➤ Number of agricultural processing businesses operating and sales/turnover ➤ Number and volumes of local agriculture produce marketed to the hospitality industry ➤ Export volumes and prices of locally produced agriculture products ➤ Number of locally processed/value added agriculture products traded on domestic and overseas markets ➤ Value of forestry export increased 	<ul style="list-style-type: none"> ➤ Low income levels ➤ Increasing poverty rates ➤ Increasing youth unemployment 	<ul style="list-style-type: none"> ➤ Number of exporters increased ➤ Increased farm incomes ➤ Domestic market volumes and prices for locally produced agriculture products 	<ul style="list-style-type: none"> ➤ Socio-economic remain unchanged

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<ul style="list-style-type: none"> ➤ Reduced Non-Communicable Diseases 	<ul style="list-style-type: none"> ➤ Nutritional health indicators (e.g. Vitamin A deficiency) improved ➤ Prevalence of underweight children under five years ➤ Diet diversity improved 	<ul style="list-style-type: none"> ➤ High prevalence of overweight and obesity among the population especially the youth ➤ High consumption of low quality imported food 	<ul style="list-style-type: none"> ➤ Reduced consumption of low quality imported food ➤ % reduced in NCD rates for youth 	<ul style="list-style-type: none"> ➤ Socio-economic remain unchanged
<ul style="list-style-type: none"> ➤ Enhanced sectors resilience to climate change and natural disasters 	<ul style="list-style-type: none"> ➤ Land area under environmentally sound farming systems ➤ Land area forested ➤ Incidence of foreign pest, disease and invasive species incursions reduced ➤ Acreage reforested 	<ul style="list-style-type: none"> ➤ High vulnerability of agriculture systems ➤ Unsustainable agriculture practices ➤ Decreasing productivity of farmlands 	<ul style="list-style-type: none"> ➤ Resilient crop varieties identified ➤ Climate smart agriculture promoted ➤ Resilient farming systems developed 	<ul style="list-style-type: none"> ➤ Active participation by Stakeholders ➤ Strong support from partners

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APPENDIX 2. STRATEGIC ACTION PLAN MATRIX

Framework Goals				
<ul style="list-style-type: none"> ✓ <i>Increase Availability of Sufficient and Safe Food;</i> ✓ <i>Enhance Access to Sufficient and Safe Food;</i> ✓ <i>Improve Health and Nutrition in Tonga;</i> ✓ <i>Ensure Stability of Food Supply Systems.</i> 				
Strategies	Priority Actions	Immediate and Long Term	Responsibility	Partner/ Technical Support
Objective 1. Improved leadership and cooperation				
1.1 Strengthen governance on food security	<ul style="list-style-type: none"> ✓ Establish a National Food Security Council guided by an approved Terms of Reference; ✓ Facilitate endorsement of TFAFS by Parliament; ✓ Facilitate establishment of food security technical cluster committees; ✓ Facilitate Council's regular meetings. ✓ Oversee development of costed sector implementation plans aligned to TFAFS; ✓ Provide advisory role and monitor TFAFS implementation; ✓ Advocacy for resource mobilization to support framework implementation; ✓ Evaluate the policies and legislations to assess their impact on food security; 	✓ Immediate	<ul style="list-style-type: none"> ✓ FSCU ✓ MAFFF 	
1.2 Strengthen partnership on food security	<ul style="list-style-type: none"> ✓ Establish and mobilize resources to enable functionality of the Food Security Secretariat ✓ Map food security local agents and stakeholders and initiatives relevant to food security ✓ Assessment of capacity and core functions of MAFFF Divisions (other ministries concerned with food security) ✓ Establish and mobilize resources to enable functionality of the Food Security Secretariat ✓ Regularly examine national and community food security situations and provide and publicize projections; ✓ Secretariat to work with key stakeholders to develop/reform policies that satisfy the interests of all those affected and seek funding and resources to support activities of the food coalition and to sustain improvements to the food supply 	✓ Immediate	✓ MAFFF	
1.3 Mainstreaming of food security into policy and legislative frameworks	<ul style="list-style-type: none"> ✓ Recruitment of Legislative Expert ✓ Review and align and or develop Legislations ✓ Develop and or update sector policies 	✓ Immediate	✓ All Sectors	<ul style="list-style-type: none"> ✓ SPC ✓ FAO

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	<ul style="list-style-type: none"> ✓ Assessment of sector core functions and identify budget needs ✓ In consultation with stakeholders, develop sector plans aligned to TFAFS ✓ Facilitate endorsement and support for sector plans 			
1.4 Strengthen Food Security Information System	<ul style="list-style-type: none"> ✓ Review and strengthen the capacity to collect, store, coordinate, integrate and utilize data for food security, programme implementation, policy and monitoring. ✓ Identify key indicators including special and specific indicators (vulnerable, poverty, children and women) appropriate for monitoring and evaluation of national food security activities, outputs and policy ✓ Collect, analyze and publish agriculture, fisheries, forestry production ✓ Collect information on domestic market trade, volumes and prices ✓ Timely surveys required as well as active dissemination of information, ✓ Establish MOU between ministries and other responsible agencies responsible for data collection to harmonize data related to food security ✓ Provide better quality and more timely trade statistics 	✓ Long Term	<ul style="list-style-type: none"> ✓ CSD within MAFFF ✓ Statistics and Met Services 	✓ SPC
Objective 2. Increased production and productivity of agricultural systems				
3.1 Strengthen Research and Extension Services	<ul style="list-style-type: none"> ✓ Review research and extension provision across the nation to develop an appropriate and affordable extension model that addresses food security and stakeholders needs ✓ Develop rural advisory (research and extension) code of conduct ✓ Promote integrated extension and research approaches (through MOUs) ✓ Promote and adopt participatory rural advisory approaches ✓ Mobilize resources for capacity building and operational needs 	✓ Long Term	<ul style="list-style-type: none"> ✓ Research and Extension of MAFFF 	✓ SPC
3.2 Strengthen capacity of producer organizations	<ul style="list-style-type: none"> ✓ Promote access to finance and small finance schemes ✓ Introduction of agriculture incentive schemes for priority crops/livestock ✓ Establish public-private-partnership agreements and forums ✓ Conduct farmer trainings ✓ Establish farmer field schools in each district ✓ Promote soil improvement technologies through on farm trials 	✓ Long Term	<ul style="list-style-type: none"> ✓ Research and Extension of MAFFF ✓ Farmers Groups 	
3.3 Conserve and promote genetic diversity	<ul style="list-style-type: none"> ✓ Establish traditional crop diversity genebanks ✓ Establish and evaluated genetic material (crop, tree and livestock) for adoption into traditional and semi-commercial farming systems ✓ Promote conservation of indigenous crop and livestock species/breeds ✓ Establishment of in-situ and ex-situ genetic resource conservation genebanks 	✓ Long Term	<ul style="list-style-type: none"> ✓ Research and Extension of MAFFF 	✓ SPC
3.4 Increase availability of off-season crops	<ul style="list-style-type: none"> ✓ Conduct trials to identify suitable off-season vegetables ✓ Introduction of suitable varieties for off season ✓ Promote soil improvement technologies 	✓ Long Term	<ul style="list-style-type: none"> ✓ Research and Extension of MAFFF 	✓ SPC

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3.5 Increase Livestock Production	<ul style="list-style-type: none"> ✓ Conduct feasibility study on potential local feed supplements ✓ Provision of improved livestock breeds ✓ Establish livestock breeding centers ✓ Strengthen training TOT for PARAVET ✓ Conservation of local indigenous livestock breeds ✓ Provide training on livestock husbandry practices ✓ Develop livestock waste management guidelines ✓ Conduct rigorous disease surveillance 	✓ Long Term	✓ Livestock Division of MAFFF	✓ SPC ✓ FAO ✓ IFAD
3.6 Promote agroforestry	<ul style="list-style-type: none"> ✓ Documentation of traditional knowledge on agroforestry and other land-use practices ✓ Promote agroforestry mixed farming within existing farming systems ✓ Train farmers in sustainable natural resource management practices ✓ Establish demonstration sites for agroforestry systems ✓ Establish nursery within selected Districts for genetic multiplication and distribution ✓ Control invasive species ✓ Promote fruit tree production ✓ Capacity building and training of communities ✓ Promotion of improved agroforestry crop and tree species 	✓ Long Term	✓ Forestry Division of MAFFF	✓ SPC
3.7 Promote Aquaculture production	<ul style="list-style-type: none"> ✓ Establishment of aquaculture hatchery centers in each island group ✓ Introduction of brooding stocks ✓ Establish aquaculture pilot farms ✓ Aquaculture trainings conducted 	✓ Long Term	✓ Fisheries Division within MAFFF	✓ SPC
Objective 3. Strengthened livelihood and income generating opportunities				
3.1 Strengthen Market Access	<ul style="list-style-type: none"> ✓ Establish producer and buyer forums ✓ Facilitate development of agreement and guarantee process between producers and buyers ✓ Explore opportunities to promote local cuisine with restaurants and hotels ✓ Facilitate re-orientation of production targeting the tourism sector ✓ Facilitate export market access ✓ Develop export market pathways ✓ Promote rural income generating opportunities ✓ In cooperation with producers and tourism sector strategically re-orient the production operations of small-scale farmers to meet needs of hotel/restaurant sector taking into account the variables impacting on hotel/ restaurant demand. ✓ In cooperation with tourism industry associations (visitors' bureaus etc) explore opportunity for promoting local foods in restaurant and hotel kitchen menus. 	✓ Ongoing	✓ MAFFF	✓ SPC
3.2 Diversify agricultural	<ul style="list-style-type: none"> ✓ Conduct research on potential additional export commodities 	✓ Long Term	✓ Research and	✓ SPC

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<i>exports</i>	<ul style="list-style-type: none"> ✓ Promote production/processing of additional commodities for export ✓ Strengthen research on yield improvement technologies (soil, pest and diseases, etc.) ✓ Enhance market access through effective partnerships 		Extension of MAFFF	
3.3 Promote Import Substitution	<ul style="list-style-type: none"> ✓ Increase incentives for innovation within local markets not just for exports Identify import substitution commodities ✓ Conduct awareness and training on import substitutions ✓ Identify potential food processing (flour, noodle, etc.) commodities ✓ Enhance market access through effective partnerships 	✓	<ul style="list-style-type: none"> ✓ Research and Extension ✓ Farmers Groups 	
3.4 Strengthen pest and disease surveillance	<ul style="list-style-type: none"> ✓ Quarantine, Extension and Research to collaborate on pests surveillance ✓ Research on biological control and integrated pest/disease management to reduce use of pesticide ✓ Mapping of disease ✓ Regularly update pests and disease database ✓ Awareness materials provided 	✓	✓	✓
3.5 Strengthen value added and food processing	<ul style="list-style-type: none"> ✓ Identify priority commodity supply chains for import substitution and export markets. ✓ Establish regular dialogue between all stakeholders in the priority supply chains. ✓ Assist in identifying and solving specific constraints to supply chain efficiency. 	✓	<ul style="list-style-type: none"> ✓ MAFFF ✓ MCLT 	✓
3.6 Improve quality, safety and consistency of supply	<ul style="list-style-type: none"> ✓ Identify priority commodity supply chains for import substitution and export markets. ✓ Establish regular dialogue between all stakeholders in the priority supply chains. ✓ Facilitate and support formation of producer groups, farmers' organizations and associations. ✓ Assist in identifying and solving specific constraints to supply chain efficiency. ✓ Review food laws and regulations at national and state level to develop comprehensive and coherent food laws and regulations which are harmonized across the nation. ✓ Review food analysis needs and elaborate proposal to establish a national food laboratory ✓ Assist with developing guidelines for product and process standards ✓ Recruit technical assistance to provide training in food safety, phytosanitary and other market access requirements. ✓ Implement training programs for food inspectors and private sector enterprises in the food industry. ✓ Assist with developing guidelines for product and process standards 	✓	✓ MAFFF	✓
3.7 Improve rural infrastructure	<ul style="list-style-type: none"> ✓ Advocate for Government subsidy ✓ Improve market access facilities for farmers 	✓	✓ FSC	✓ Bilateral Partners

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	<ul style="list-style-type: none"> ✓ Rural roads ✓ Transportation and Shipping 			
3.8 Promote timber and high value tree species	<ul style="list-style-type: none"> ✓ Strengthen production of sandalwood within farming systems ✓ Promote coconut rehabilitation ✓ Strengthen nursery propagation and distribution 	✓	✓ Forestry Division of MAFFF	
3.9 Oceanic Fisheries Resource Management	<ul style="list-style-type: none"> ✓ Conduct assessment of oceanic fish stocks ✓ Develop effective monitoring scheme for inspection of foreign fish catches ✓ Promote production and marketing of fisheries products 	✓	✓ Fisheries Division within MAFFF	✓ FFA
Objective 4. Reduced Non-Communicable Diseases				
4.1 Develop a robust "Go Local" Campaign Program	<ul style="list-style-type: none"> ✓ Review "Go Local" Programs in other parts of the region and tailor relevant interventions to Tonga situation ✓ Develop "Go Local" awareness materials ✓ Conduct education and awareness with schools ✓ Organize National "Go Local Events" (Fun Run/Walk, Parade, National Planting Day, etc.) ✓ Advocate for policies to support imported food and quality and standard setting on food (Samoa case example) 	✓ Ongoing	<ul style="list-style-type: none"> ✓ Ministry of Health ✓ MAFFF ✓ NGO??? 	<ul style="list-style-type: none"> ✓ SPC ✓ FAO ✓ WHO ✓ IFAD ✓ ACIAR
4.2 Promote Household Health and Nutrition	<ul style="list-style-type: none"> ✓ Identify high nutritive value crops and promote the production and utilization ✓ Strengthen awareness and education on nutrition and healthy food choices ✓ Provide cooking demonstration to schools and communities ✓ Develop school dietary guidelines for households and food vendors and advocate guidelines ✓ Document local food recipes and traditional knowledge on food preparation and preservation techniques ✓ Promote nutrition and physical activity (with focus on farming as important physical activities) ✓ Analyze nutritive value of local foods and document 	✓ Ongoing	<ul style="list-style-type: none"> ✓ Ministry of Health ✓ Women and Community Development Service within MAFFF ✓ NGO?? 	✓ SPC/FAO
4.3 Consumer Empowerment	<ul style="list-style-type: none"> ✓ Need to strengthen the implementation of the Consumer Act including both processes for consumer complaints and addressing breaches of safety. ✓ Greater inclusion of NGOs in development of strategy for food security. ✓ Greater representation of relevant producer and business representatives in the development of strategy for food security. ✓ Need to ensure community a perspective are represented in strategy development policies and is strongly grounded in community needs. ✓ Need to foster and develop champions of food security and possible roles in coordinating the activities among various food security related committees existing. ✓ Advocate for fair price control enforcement 	✓ Ongoing	<ul style="list-style-type: none"> ✓ Ministry of Health ✓ MAFFF ✓ NGO??? 	
Objective 5. Enhanced sectors resilience to climate change and natural disasters				

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5.1 Promote sustainable agriculture practices	<ul style="list-style-type: none"> ✓ Develop organic agriculture program guidelines ✓ Regulate farming systems ✓ Promote farming (soil, pest and disease management) technologies ✓ Replanting of degraded areas with fruit trees, legumes and timber species ✓ Awareness on best farming practices ✓ Improving fallow period and reduce soil tillage 	✓ Long term	<ul style="list-style-type: none"> ✓ Research and Extension Divisions of MAFFF 	<ul style="list-style-type: none"> ✓ POETCO M ✓ GIZ ✓ IFAD ✓ SPREP ✓ ACIAR
5.2 Evaluate resilient crop varieties	<ul style="list-style-type: none"> ✓ Documentation of climatic resilient crop varieties ✓ Conduct research on resilient crop varieties ✓ Establish resilient crop diversity genebanks within communities 	✓ Long term	<ul style="list-style-type: none"> ✓ Research Division of MAFFF 	<ul style="list-style-type: none"> ✓ SPC
5.3 Enhance rehabilitation of degraded lands	<ul style="list-style-type: none"> ✓ Assessment of degraded lands ✓ Establish genebanks for forest tree species ✓ Develop and engage communities in the reforestation (focus on using agroforestry species and high value forest trees) 	✓ Long term	<ul style="list-style-type: none"> ✓ Forestry Division of MAFFF 	
5.4 Strengthen watershed management	<ul style="list-style-type: none"> ✓ Work with communities to develop watershed management plans ✓ Facilitate development of community forest resource management plans ✓ Community awareness 	✓ Long term	<ul style="list-style-type: none"> ✓ Forestry Division of MAFFF 	
5.5 Strengthen fisheries resources management	<ul style="list-style-type: none"> ✓ Develop participatory community resource management plans ✓ Trainings conducted with communities ✓ Promote conservation of indigenous and traditional high value trees 	✓ Long term	<ul style="list-style-type: none"> ✓ Fisheries Division within MAFFF 	<ul style="list-style-type: none"> ✓ SPC
5.6 Strengthen knowledge on climate change	<ul style="list-style-type: none"> ✓ Establish partnership between MAFFFF and Tonga Meteorological Services (TMS) ✓ Provide training on climate forecasts and data application on cropping and rural advisory 	✓ Long term	<ul style="list-style-type: none"> ✓ MAFFF and TMS 	
5.7 Empower vulnerable groups and communities	<ul style="list-style-type: none"> ✓ Identify/map and profile vulnerable communities/households ✓ Establish partnership and support for NGO activities working in the area of food security ✓ Advocate for Government led social protection programmes??? 	✓ Immediate	<ul style="list-style-type: none"> ✓ MAFFF ✓ NGOs 	
6. Capacity Building	<ul style="list-style-type: none"> ✓ Scholarships promoted for Primary sectors ✓ Training of trainers 	✓ Long term	<ul style="list-style-type: none"> ✓ All Sectors 	<ul style="list-style-type: none"> ✓ AusAid ✓ SPC ✓ Others

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APPENDIX 3. TONGA FOOD SECURITY RELATED LEGISLATIVE FRAMEWORKS

Act/Bill	Powers	Regulations and Implementation Status	Related Policies/Strategies	Executing Agency
Food Act 2012	To regulate the manufacture, sale, import and export of food for commercial purposes, to guarantee food safety and fitness for human consumption, promote fair trade practices in food and to provide for related matters	Recently passed in Parliament in August 2013 and yet to have Regulations	MAFFF Draft Strategy Livestock Policy Livestock Policy? Forestry? Fisheries?	MAFFF
Agricultural Commodities Export Act 2002	Regulates the export of agricultural commodities	Fruit Export (Buttercup Squash) Regulations 1993 Fruit Export (Vanilla) Regulations 1993 No other specific Regulations		MAFFF
Plant Quarantine (Amendment) Act 1995	Regulates the importation and exportation of plants and plant materials into and out of Tonga	Plant Quarantine (Diseases of Plants) Regulations. Quarantine Regulations 1942		MAFFF
Pesticides Act 1992	Regulate the manufacture, register, sale, distribute, use and disposal of pesticides in Tonga.	No specific regulations apart from those within the Act. Pesticides Regulation 2006 submitted in 2006 yet to be processed from the Crown with revision on mainly the Fees schedule for registration of new pesticides and businesses		MAFFF
Rhinoceros Beetle Act (Cap. 131)	Power to prohibit the importation from any prohibited place of plants, trees, shrub or vegetables or articles manufactured including foods or the importation of rhinoceros beetles.	None		MAFFF
Animal Diseases Act, 1978; (Amendment) Act 2002	Regulates the importation of animals and control of animal diseases in Tonga. Establish quarantine grounds and ports where animals could be landed	Provides for the Minister to Promulgate Regulations to give effect to the Act relating to prevent animal disease – No specific regulations apart from those within the Act which focused on regulating importation of animals		MAFFF
Fisheries Management Act, 2002	Regulates the Conservation, Management and Sustainable utilization and Development of Fisheries Resources. Provides that management plans be developed, establishment of Fisheries Management Advisory Committee, declare area for special management area, declare coastal communities for management community based management and regulate areas under	Draft Fisheries (Conservation and Management; Local Fishing; Processing, Marketing and Export; High Seas, Foreign and Test Fishing, Vessel Monitoring System) Regulations;		MAFFF

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	special management.			
Aquaculture Management Act, 2003 (Amended 2005)	Regulates the Management and Development of Aquaculture	Draft Aquaculture Regulations		MAFFF
Markets Act 1988	Regulates the establishment and regulation of markets and establishment of Market Authority within each island group	No Specific Regulations although the Act provides for regulations be promulgated		MAFFF
Marine Pollution Prevention Project 2002	Regulate the prevention of and response to marine pollution and the dumping of wastes and other matters and to give effect to international pollution conventions	Provides for the Minister to promulgate regulations to give full effect of the Act – No regulations promulgated		MAFFF
Forests Act 1961	Regulate the setting aside of areas as forest areas or reserved areas and the control and regulate such areas and of forests produce	Provides for Minister to promulgate regulations to give effect to the Act – No regulations promulgated		MAFFF
Public Health (Amendment) Act 2012; (Amendment) Act 2008; (Amendment) Act 1992.	Regulates Public health Services and Matters in Tonga	Amendment Act 2012 not yet enforced. No Regulations for Amendments 2008 or 1992. All Public Health Acts using Public Health (Bakeries and Bread Vendors) Regulations, 1940; Public Health (Restaurants and Food Stores) Regulations 1940 and the Public Health (Meat) Regulations, 1967.		MOH
Business Licenses Act, 2002	Issuance of business licenses for food activities seen as businesses	Draft Business Licenses Regulations		MCTL
Consumer Protection Act 2000	Protection of consumers and establishment of fair trade practices in all goods and services including food.	The Act provides for authority to regulate standard settings, price control and to some extend on quality. No regulations have been promulgated.		MCTL
Water Resources Act 2012	The management, protection and conservation of the water resources of the Kingdom			MLCCNR
Land Act 1927 (Revised 1988)	Regulates	The Act provides that the King (with the consent of Privy Council) with the authority to regulate matters relating to land		MLCCNR

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APPENDIX 4. AVERAGE ANNUAL HOUSEHOLD AND PER CAPITA EXPENDITURE, PERCENTAGE DISTRIBUTION OF EXPENDITURE WITHIN EXPENDITURE GROUPS, AND TOTAL ANNUAL NATIONAL CASH EXPENDITURE ON GROUPS OF ITEMS

Food	Average annual cash expenditure				Percentage distribution (within group) - %		Total annual national cash expenditure (T\$ million)	
	Household (T\$)		Per capita (T\$)		2001	2009	2001	2009
	2001	2009	2001	2009				
Fresh fruits	202		37		4.1		3.4	
Dried fruit			3.1		0.1		0.1	
Canned, bottled and frozen fruits	22		4		0.5		0.4	
Fresh vegetables	447		81		9.1		7.5	
Canned, bottled vegetables	13		2		0.3		0.2	
Frozen vegetables	5		1		0.1		0.1	
Dried vegetables and processed vegetable	2		0		0.0		0.0	
Beef (fresh, chilled, frozen)	350		63		7.1		5.8	
Mutton (fresh, chilled, frozen)	627	72	114	12.2	12.8	74.	10.4	
Lamb, hogget (fresh, chilled, frozen)	5		1		0.1		0.1	
Pork (fresh, chilled, frozen)	48		9		1.0		0.8	
Fresh, chilled and frozen meat n.e.s.	6		1		0.1		0.1	
Prepared meat and small packs	86		16		1.7		1.4	
Canned meat	295		54		6.0		4.9	
Cooked meat	14		2		0.3		0.2	
Chicken (fresh, frozen)	350	205	63	34.7	7.1	97.4	5.8	12.2
Other poultry (fresh, frozen)	5		1		0.1		0.1	
Cooked poultry	10		2		0.3		0.2	
Fresh and frozen fish	344		62		7.0		5.7	
Shellfish and crustaceans	37		7		0.8		0.6	
Canned and bottled fish	130		24		2.6		2.1	
Prepared fish n.e.s.	1		0		0.0		0.0	
Egg	54		10		1.1		0.9	
Milk, cream, yoghurt	124		23		2.5		2.1	
Butter, cheese	138		25		2.8		2.3	
Vegetable oils and fats	56		10		1.1		0.9	
Bread	490		89		10.0		8.1	
Cakes, buns, pastries (not take-away)	76		14		1.5		1.3	
Flour, flour-based mixes	108		20		2.2		1.8	
Breakfast cereals	6		1		0.1		0.1	
Cereal pudding bases	0		0		0		0	
Cereals	20		4		0.4		0.3	
Pasta	86		16		1.7		1.4	
Cereal products n.e.s.	6		1		0.1		0.1	
Sugar	164		30		3.3		2.7	
Syrups, dessert sauces	4		1		0.1		0.1	
Honey, jam, spreads	16		3		0.3		0.3	
Beverages	71		13		1.4		1.2	
Cordial, soft drinks	189		34		3.8		3.2	
Confectionery	148		27		3.0		2.5	
Condiments, herbs, spices	31		6		0.6		0.5	
Sauces, gravies, essences, sweeteners	30		5		0.6		0.5	
Dessert powders and crystals	0		0		0		0	
Prepared soups, meals and desserts	6		1		0.1		0.1	
Canned foodstuffs n.e.s.	6		1		0.1		0.1	
Other food stuffs	69		12		1.4		1.1	
Bulk groceries n.o.d.	23		4		0.5		0.4	
Food consumed in eating places	137		25		2.8		2.3	
Take-away foods	100		18		2.0		1.7	
Total for Food	4914		892		100.0		81.8	

Source : Household Income and Expenditure Survey 2000/01, Statistics Department

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APPENDIX 5. REFERENCES

1. Asia-Pacific Network for Global Change Research (2010). Impact of Climate on Food Security and Biosecurity of Crop Production Systems in Small Pacific Nations. Asia-Pacific Network for Global Research, Victoria, Australia.
2. FAO (2010). Agro-Based Processing Opportunities for Tonga. Sub-Regional Office of FAO. Retrieved on 21 September 2014 from: <http://www.fao.org/docrep/015/an421e/an421e00.pdf>
3. Halavatau, S.M and Halavatau, N.V (2001). Food Security Strategies for the Kingdom of Tonga. The CGPRT Centre.
4. Government of Tonga (2010). 2nd National Millenium Development Goals Report. Nuku'alofa, The Kingdom of Tonga
5. The Government of Tonga (2010). Review of Tonga National Biodiversity Strategy and Action Plan - Fourth Report, The Kingdom of Tonga
6. Pacific Climate Science Partners (2013). Observed Climate and Future Climate Change in Tonga. Retrieved on 7 October 2014 from: http://www.pacificclimatechangescience.org/wp-content/uploads/2013/06/13c_PCCSP_Poster_Tonga.pdf
7. Pacific Climate Change Science Program: <http://www.pacificclimatechangescience.org/wp-content/uploads/2013/09/Tonga.pdf> Tonga Meteorological Service, Australian Bureau of Meteorology, Commonwealth Scientific and Industrial Research Organisation (CSIRO), Pacific- Australia Climate Change Science and Adaptation Planning Program (2011). Tonga's Current Climate. Retrieved on 7 October 2014 from: http://www.pacificclimatechangescience.org/wp-content/uploads/2013/06/10_PSSCP_Tonga_8pp.pdf
8. The Government of Tonga (2011). Tonga Population Census, 2011. The Kingdom of Tonga
9. The Government of Tonga (2007). Tonga Population Census, 2006. The Kingdom of Tonga
10. The Government of Tonga (2009). 2009 Household Income and Expenditure Survey. The Kingdom of Tonga
11. The Government of Tonga (2001). Household Income and Expenditure Survey, 2001. The Kingdom of Tonga
12. The Government of Tonga. Tonga Trade Reports 2008 – 2011. The Kingdom of Tonga
13. The Government of Tonga. 2001 Tonga Agriculture Census. The Kingdom of Tonga
14. The Government of Tonga and the United Nations System in the Pacific Islands (2013). MDG Acceleration Framework for Tonga, Reducing the Incidence of Non Communicable Diseases in Tonga.
15. The Government of Tonga (2012). Food Act 2012. The Kingdom of Tonga.
16. The Government of Tonga (2002). Agricultural Commodities Export Act 2002. The Kingdom of Tonga
17. The Government of Tonga (1995). Plant Quarantine (Amendment) Act 1995. The Kingdom of Tonga.
18. The Government of Tonga (1992). Pesticides Act 1992. The Kingdom of Tonga.
19. The Government of Tonga (1992). Rhinoceros Beetle Act (Cap. 131). The Kingdom of Tonga
20. The Government of Tonga (2002). Animal Diseases Act, 1978; (Amendment) Act 2002. The Kingdom of Tonga
21. The Government of Tonga (2002). Fisheries Management Act, 2002. The Kingdom of Tonga
22. The Government of Tonga (2005). Aquaculture Management Act, 2003 (Amended 2005). The Kingdom of Tonga

TONGA FRAMEWORK FOR ACTION ON FOOD SECURITY

23. The Government of Tonga (2002). Marine Pollution Prevention Project 2002. The kingdom of Tonga
24. The Government of Tonga (1961). Forests Act 1961. The Kingdom of Tonga
25. The Government of Tonga (2008). Public Health (Amendment) Act 2012; (Amendment) Act 2008; (Amendment) Act 1992. The Kingdom of Tonga
26. The Government of Tonga (2002). Business Licenses Act, 2002. The Kingdom of Tonga.
27. The Government of Tonga (2000). Consumer Protection Act 2000. The Kingdom of Tonga
28. The Government of Tonga (2012). Water Resources Act 2012. The Kingdom of Tonga
29. The Government of Tonga (1998). Land Act 1927 (Revised 1988). The Kingdom of Tonga
30. The Government of Tonga (1988). Markets Act 1988. The Kingdom of Tonga
31. Tonga Ministry of Finance and National Planning (2010). National Strategic Planning Framework (2010-2015). Nuku'alofa, Tonga.
32. WHO (2004). Tonga STEPS Survey Report. Retrieved

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