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# **Building the Evidence Base on the Agricultural Nutrition Nexus: Samoa**

Series: Agriculture and nutrition





# Building the Evidence Base on the Agricultural Nutrition Nexus: Samoa

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National University of Samoa





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## List of acronyms

ACP	African, Caribbean and Pacific group of states
AG	Office of the Attorney General
APTC	Australia Pacific Technical College
BFHI	Baby-friendly Hospital Initiative
BMI	Body Mass Index
CoC	Chamber of Commerce
CTA	Technical Centre for Agricultural and Rural Cooperation
DFAT	Department of Foreign Affairs and Trade (of Australia; formerly AusAID)
ECE	Early Childhood Education Centre
FAKTS	Faalapotopotoga Atinae o Komiti Tumama o Samoa
FAO	Food and Agriculture Organization of the United Nations
FNP	Food and Nutrition Policy
FNS	Food and Nutrition Security
GDP	Gross Domestic Product
GIS	Geographic Information System
GoS	Government of Samoa
GP	General Practitioner
GPO	General Price Order
HACCP	Hazard Analysis Critical Control Point
ICCRAHSS	Integrating Climate Change Risks into Agriculture and Health Sectors of Samoa
ILO	International Labour Organization
MAF	Ministry of Agriculture and Fisheries
MCIL	Ministry of Commerce, Industry and Labour
MESC	Ministry of Education, Sports and Culture
METI	Matuaileoo Environment Trust Incorporated
MFAT	Ministry of Foreign Affairs and Trade (for New Zealand)

MfR	Ministry for Revenue
MNRE	Ministry of Natural Resources and Environment
MOF	Ministry of Finance
MOH	Ministry of Health
MT2	Malietoa Tanumafili II Hospital in <i>Savai'i</i>
MWCSD	Ministry of Women, Community and Social Development
NCD	Non-Communicable Disease
NCECE	National Council of Early Childhood Education
NGO	Non-Governmental Organisation
NHS	National Health Services
NUS	National University of Samoa
NZAP	New Zealand Aid Programme
OUM	Oceania University of Medicine (now NUS Medical School)
PSC	Public Service Commission of Samoa
SACEP	Samoa Agriculture Competitiveness Enhancement Project
SAME	Samoa Association of Manufacturers and Exporters
SBS	Samoa Bureau of Statistics
SCRM	Sector Coordination, Resourcing and Monitoring
SFA	Samoa Farmers Association
SFHA	Samoa Family Health Association
SNYC	Samoa National Youth Council
SPAGHL	Samoa Parliamentary Advocacy Group for Healthy Living
SPC	Secretariat of the Pacific Community
SRC	Samoa Red Cross
SROS	Scientific Research Organisation of Samoa
STA	Samoa Tourism Authority
SUNGO	Samoa Umbrella for Non-Governmental Organisations Incorporated
SWA	Samoa Water Authority



TA	Technical Assistance
TTMH	Tupua Tamasese Meaole Hospital
UN	United Nations
UNDP	United Nations Development Programme
UNICEF	United Nations Children's Fund
USP	University of the South Pacific
WHO	World Health Organization
WIBDI	Women in Business Development Incorporated

## Acknowledgements

This study was carried out by the National University of Samoa as part of CTA's programme on enhancing links between agriculture and nutrition. It was further updated within the context of the CTA/IFAD/ PIPSO Project on "Promoting Nutritious Food Systems in the Pacific Islands".

### About the project

The project "Leveraging the Development of Local Food Crops and Fisheries Value Chains for Improved Nutrition and Sustainable Food Systems in the Pacific Islands with a focus on Fiji, Kiribati, Marshall Islands, Samoa, Solomon Islands, Tonga, and Vanuatu" is co-funded by the International Fund for Agricultural Development (IFAD) and the Technical Centre for Agricultural and Rural Cooperation (CTA) and is implemented in partnership with the Pacific Islands Private Sector Organisation (PIPSO). The goal is to strengthen the capacity of the Pacific Island governments, farmer and private sector organisations, and sub-regional institutions to develop strategies and programs – as well as mobilise financing – that can increase poor rural people's access to nutritious and healthy food. CTA has overall responsibility for the implementation of the project.



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### Note

All currency amounts are in Samoan Tālā (TAS) unless otherwise stated.

## Executive summary

Food and nutrition security (FNS) is high on the global policy agenda and is of special significance for the African, Caribbean and the Pacific (ACP) region. Several pathways have been identified for achieving the desired FNS outcomes. The Technical Centre for Agricultural and Rural Cooperation (CTA) has prioritised strengthening the linkages between nutrition and agriculture as one of the three key areas for 2015 and beyond in Africa, the Caribbean and the Pacific. It has also committed, with other leading international agencies, to a joint framework of action on “Agriculture and nutrition: a common future” which includes improving “the knowledge and evidence base to maximise the impact of food and agricultural systems on nutrition” as one of the three strategic priorities.

At the regional level, Pacific leaders have prioritised the *Food Secure Pacific* programme which was endorsed at the 39th Pacific Islands Forum, Niue, 19-20 August 2008. In November 2008, organisations convened the *Food Secure Pacific Working Group* to progress the food security agenda in the Pacific.

A Samoa rapid country scan was undertaken between July and October 2015 using a thematic framework which was built around four areas: (i) Political and Economic context, (ii) Policy and Governance, (iii) Climate and Environment and (iv) Culture, Gender and Equity. It provided an excellent opportunity for the stakeholders to agree on the identified policies and programmes currently addressing food and nutrition security. It also focussed on identifying potential gaps in terms of implementing these programmes and potential entry points where CTA could assist with strengthening the agriculture nutrition nexus in Samoa.

Emphasis was placed on identifying existing nutrition capacity in Samoa as well as the main nutritional challenges faced. The rapid scan also looked at initiatives that have been tried (and the organisations involved) to improve the nutrient intake of at-risk populations. Significant development funding has been put into food and nutrition programmes by development partners including the World Health Organization (WHO), the United Nations Food and Agriculture Organization (FAO), Australia’s Department of Foreign Affairs and Trade (DFAT), the United Nations Development Programme (UNDP), the International Labour Organization (ILO) and the United Nations Children’s Fund (UNICEF).

The overarching policy document guiding food and nutrition development in Samoa is the *National Food and Nutrition Policy (FNP) 2013–2018*. The main objectives of this plan are to improve food availability, access and utilisation and stability of food systems. The main institutions in the public sector involved in nutrition are the MOH, the National Health Services (NHS), the Ministry of Agriculture and Fisheries (MAF) and the Ministry of Women, Community and Social Development (MWCSD). The Nutrition Section of the Ministry of Health (MOH) is leading the implementation of the FNP Action Plan and the MOH has the capacity to run media campaigns on health and nutrition. Non-Governmental organisations (NGOs) include Faalapotopotoga Atinae o Komiti Tumama o Samoa (FAKTS), the Samoa Farmers Association (SFA), Women in Business Development Incorporated (WIBDI), the Matuaileoo Environment Trust Incorporated, the Samoa Red Cross (SRC) and the newly established Samoa National Youth Council (SNYC). Their diverse programmes include nutrition promotion in schools and pre-schools, educating farmers about fruit and vegetables, and helping farmers gain fair trade and organic certification and build supply chains to the

local hospitality industry. Many of the organisations are also involved in community garden initiatives.

With respect to the **Political and Economic Context**, the stagnant performance of the agricultural sector (below 10% GDP), the declining inshore fisheries, the lack of appropriate metrics to gauge sector performance, as well as the very high and increasing level of overweight Samoans and the general lack of awareness and utilisation of locally available green leafy vegetables, provide a potential entry point for CTA's assistance. The use of sector is also an issue. These include:

- Strengthening the WIBDI Farm to Table Programme which is supplying organic fruit and vegetable baskets to restaurants and hotels, and encouraging chefs and families to utilise more home-grown ingredients. This could be done through the National University of Samoa (NUS) and the Australia Pacific Technical College (APTC) hospitality programmes.
- Facilitating capacity building exercises and exchange programmes for nutritionists and farmers to share ideas and findings on best tools and practices with ACP colleagues.
- Assisting with the production of booklets in Samoan to promote vegetable use and consumption. Fiji has developed excellent resource materials in English that could be translated into Samoan. Nutritious green leafy vegetables, rich in vitamins and minerals such as Kangkong, taro leaves, radishes, bok choy and okra, and which grow well in Samoa, could be added.

Severe wasting among children 0-59 months (4%), moderate to severe stunting (5%) in the same age group, high incidence of anaemia in children under 2 and pregnant women, inaccurate detection of the number of people being underweight and the severity of malnutrition represent a good entry point for CTA's assistance under **Policy and Governance**. CTA could:

- Build on successful programmes such as those implemented by FAKTS, the biggest and longest serving women's organisation in Samoa.
- Promote the expansion of the School Nutrition programme to include the whole family, as children imitate what their parents do. Specific target groups would be Early Childhood Education (ECE) Centres which are currently not covered. Encourage ECE organisations, through the National Council of Early Childhood Education (NCECE), to consider including nutrition education in their training for pre-school teachers.
- Strengthen the capacity of METI, WIBDI, SFA, SRC, Samoa Association of Manufacturers and Exporters (SAME), Chamber of Commerce (CoC) and university research programmes to scale-up farmer training programmes.
- Assist with promoting an integrated approach within NUS through demonstrated linkages between theory (research via the Food Security Postgraduate course at the Faculty of Science or the Horticulture programme at the Faculty of Applied Sciences on the varieties of fruits and vegetables available locally that have high nutritional value) and practice – including the adaptation of irrigation systems and tunnel houses via the engineering/plumbing programme (at the Faculty of Applied Sciences), and promotion of sound postharvest measures through accredited Hazard Analysis Critical Control Point (HACCP) trainers and improved nutrition and food handling via the Hospitality, Food and Beverage programme (at the Faculty of Business and Entrepreneurship) or the Food Technology programme (at the Faculty of Education).

- Support postharvest initiatives or research to extend the shelf-life of local fruits and vegetables, reduce their price and expand access to markets all year round.

With respect to ***Climate and Environment***, a potential entry point for CTA is to provide technical assistance that builds on the findings of Integrating Climate Change Risks into Agriculture and Health Sectors of Samoa (ICCRAHSS) by combining geographical, biological and medical data on the incidence of climate-related diseases to upgrade existing nutrition surveillance systems and provide more timely and accurate data for informing health and nutrition interventions. Climate risk maps could be produced as well as distribution maps of districts with cases of communicable diseases such as diarrhoea, typhoid, influenza and dengue fever. There is also an ongoing need for developing applications and conducting training for health and agriculture professionals in data collection and analysis as well as the use of Geographic Information System (GIS).

A potential entry point in the area of ***Culture, Gender and Equity*** could be to adapt the successful “Go Local” approach used in the Federated States of Micronesia for Samoa. A potential partner could be FAKTS which has representatives in all Samoan villages and has a strong working relationship with MWCSO. The Talomua and Taiala programme also offers good examples that can be up-scaled. CTA can also assist with improving agricultural-nutrition awareness through the proposed National Nutrition Programme aimed at the re-establishment of district nurses with emphasis on early non-communicable disease (NCD) prevention and nutrition programmes in communities. A regular food festival could also create a platform to link agriculture, health and nutrition and encourage people to eat healthy locally grown foods prepared in new ways. Such an initiative could potentially be co-funded by the French *Fonds de coopération économique, sociale et culturelle pour le Pacifique* (Pacific Fund) and be used to promote exchanges and integration of culinary habits of other Polynesian nations.

The findings and potential entry points identified in the report were officially endorsed by stakeholders at a National Validation Workshop held on 23 October 2015 and the 2<sup>nd</sup> Pacific Agribusiness Forum, Apia, Samoa which was held from 29 August – 1 September 2016 and at which the CTA/IFAD/PIPSO project “Promoting Nutritious Food Systems in the Pacific was launched”.

## Introduction

Agricultural development has historically been focussed on increasing production, assuming that increased supply would lead to lower prices and therefore to increased food consumption. More recently, the focus has moved toward improving the linkage between agriculture and nutrition. The term “nutrition-agriculture linkages” describes the set of relationships that shows the mutual dependence of nutrition, health and agriculture. Changes in nutrition or health status are expected to affect agricultural production; conversely changes in the agricultural sector can have significant effects on individual health and nutritional status (Chung, 2012).

Traditionally, governments and development partners tended to separate agriculture, nutrition and health in different sectors. This segregation makes it difficult to initiate programmes and policies that fully integrate the goals of those diverse sectors. However, policymakers and development practitioners have recently taken a number of steps to advance the integration of agriculture and nutrition programming. To continue to do so, it is important to understand the complexity of the production-consumption-nutrition loop (Chung, 2012).

The Technical Centre for Agricultural and Rural Cooperation (CTA) has prioritised strengthening the linkages between nutrition and agriculture as one of the three key areas for 2015 and beyond in ACP countries. It has also committed in 2014 to a joint European Commission/Food and Agriculture Organization/CTA/World Bank Group (EC/FAO/CTA/WBG) framework of action on “Agriculture and nutrition: a common future”. This framework includes improving “the knowledge and evidence base to maximise the impact of food and agricultural systems on nutrition” as one of the three strategic priorities.

At the regional level, Pacific Leaders have prioritised the *Food Secure Pacific Programme* which was endorsed at the 39th Pacific Islands Forum, Niue, 19-20 August 2008. In November 2008, organisations convened the *Food Secure Pacific Working Group* to progress the food security agenda in the Pacific. The *Food Secure Pacific Working Group* is comprised of the following agencies:

- the United Nations Food and Agriculture Organization (FAO);
- the Global Health Institute (GHI);
- the Pacific Island Forum Secretariat (PIFS);
- the Secretariat of the Pacific Community (SPC);
- the United Nations Children’s Fund (UNICEF); and
- the World Health Organization (WHO).

Building on this regional framework of action, Samoa has accorded the highest priority to food and nutrition security. Recent national policies relating to strengthening the agriculture and nutrition nexus in Samoa includes the update of the multi-sectoral national *Food and Nutrition Policy (FNP) 2012-2017* which builds on review findings from the first national Food and Nutrition Policy for Samoa 1995 and consultations with health sector partners. The newly updated 2013-2018 FNP has been developed to be in line with current policies of the Government of Samoa (GoS) and global models such as the *Samoa National Plan of Action for Nutrition 2002-2007*, *Samoa National Plan of Action for Infant and Young Child Feeding*

2006-2010, *Global Strategy for Infant and Young Child Feeding* (WHO), *Global Strategy on Diet, Physical Activity and Health* (WHO) and relevant United Nations *Millennium Development Goals* (MDG).

The rapid scan commissioned by CTA through the National University of Samoa (NUS) has further examined these existing regional and national policies, programmes and capacities for Samoa to provide an evidence-based assessment for stakeholders to guide future food and nutrition security interventions.

The findings and potential entry points were officially endorsed by stakeholders at the National Validation Workshop held on 23 October 2015 and the 2<sup>nd</sup> Pacific Agribusiness Forum, which was held in Apia, Samoa from 29 August – 01 September 2016.

## Analytical framework

### Objective of rapid country scan

As per the Terms of reference in **Annex A**, the main objective of the review undertaken by KVA Consult/MLS Consultancy consortium in consultation with NUS was to:

- undertake a rapid scan of related policies and programmes/interventions including the identification of major actors and target groups, in-country competencies in nutrition linked to the food and nutrition security situation, as well as the agriculture-nutrition nexus to learn lessons for formulating guidelines for improving FNS outcomes and strengthening the nexus; and
- document and share the lessons learned with policymakers, researchers, farmers and other stakeholders.

### Methodology and approach

The methods for data collection used include document reviews and individual consultations. To ensure a comprehensive coverage of issues pertaining to agriculture-nutrition linkages a thematic framework was used to collate the findings from the desk review. The framework consisted of four areas: (i) Political and Economic, (ii) Policy and Governance, (iii) Climate and Environment and (iv) Culture, Gender and Equity. These were documented in the review matrix (see **Annex B**: Rapid scan matrix). The consultation process was undertaken between 8-25 September 2015 with a total of 46 stakeholders (see **Annex C**: List of stakeholders interviewed). A summary of these consultations was captured in file notes that were verified by the participants following each meeting (refer to separate **Compilation of Consultation File Notes**). The findings from both the desk review and consultations have been synthesised in the relevant sections of this report.

The list of questions (**Annex D**: Consultation questions) was customised for each of the target groups consulted. The questions were accompanied by the information sheet provided in **Annex E**: Briefing note, to improve the likelihood that target groups would be able to respond to the questions effectively. The list of reference materials covered in the desk review is detailed in the References. The summary of discussions and endorsement of report findings and potential entry points is outlined in **Annex F**: National validation workshop summary.

For the purposes of this rapid scan only the policies and programmes developed within the last 10 years were analysed for historical trends as well as future interventions. The statistical analysis was based on official statistics from the Samoa Bureau of Statistics, which is the main source used in development and/or monitoring of other national policies and programmes.

## Review limitations

The critical limitations of the review included the following:

- Time limitations on data collection;
- Inadequacy (amount of details/raw data) of available information; and
- Unavailability of government counterparts for consultations.

## Rapid scan findings

### Political and economic context

The Independent State of Samoa is a small island nation located in the South West Pacific which has a small, open economy driven by agriculture, fisheries and tourism (Samoa Bureau of Statistics, 2008). Samoa is comprised of two large volcanic islands (Upolu and Savai'i) and several smaller islands with a total land area of approximately 2,935 km<sup>2</sup> (**Figure 1**). It has an exclusive economic zone of 120,000 km<sup>2</sup>. Only around 12% of Samoa's total population is engaged in formal paid employment (FAO, 2012) and 25% are engaged in agriculture and forestry as their main economic activity (SPC, 2017)<sup>1</sup>. Like most Pacific Island countries, the subsistence economy is still the backbone of local food production, consumption and income earning for rural areas (Samoa Bureau of Statistics, 2011). Subsistence agriculture and fishing are integral to Samoan livelihoods and more than two-thirds of households are engaged in these core activities (Samoa Bureau of Statistics, 2008). The 2009 agriculture census showed that only about 3% of rural households produce "mainly for sale" and only 9% receive more than three-quarters of their income from agriculture (Samoa Bureau of Statistics, 1999; Samoa Bureau of Statistics, 2009).

The median age in Samoa is 20.5 years, making it a relatively young population. The number of persons living with disabilities is 2% of the total population (Samoa Bureau of Statistics, 2011). In 2011, the population of Samoa was 187,820, with approximately 20% of the overall population living in the capital; Apia Urban Area (**Figure 1**) (Samoa Bureau of Statistics, 2011). Life expectancy is 70 for males and 77 for females.

According to the 2008 *Household Income and Expenditure Survey Tabulation Report*, the average household income for Samoa was Samoan Tālā (SAT) \$694/week with the highest in the Apia Urban Area of SAT\$807/week and lowest in the Rest of Upolu region of SAT\$600/week. The average household expenditure was SAT\$840/week with the highest in the Apia Urban Area of SAT\$989/week and lowest in the Rest of Upolu region of SAT\$708/week. However, these statistics should be treated with caution as there are huge

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<sup>1</sup> Pacific Community (SPC). Samoa Agriculture National Development Indicators.

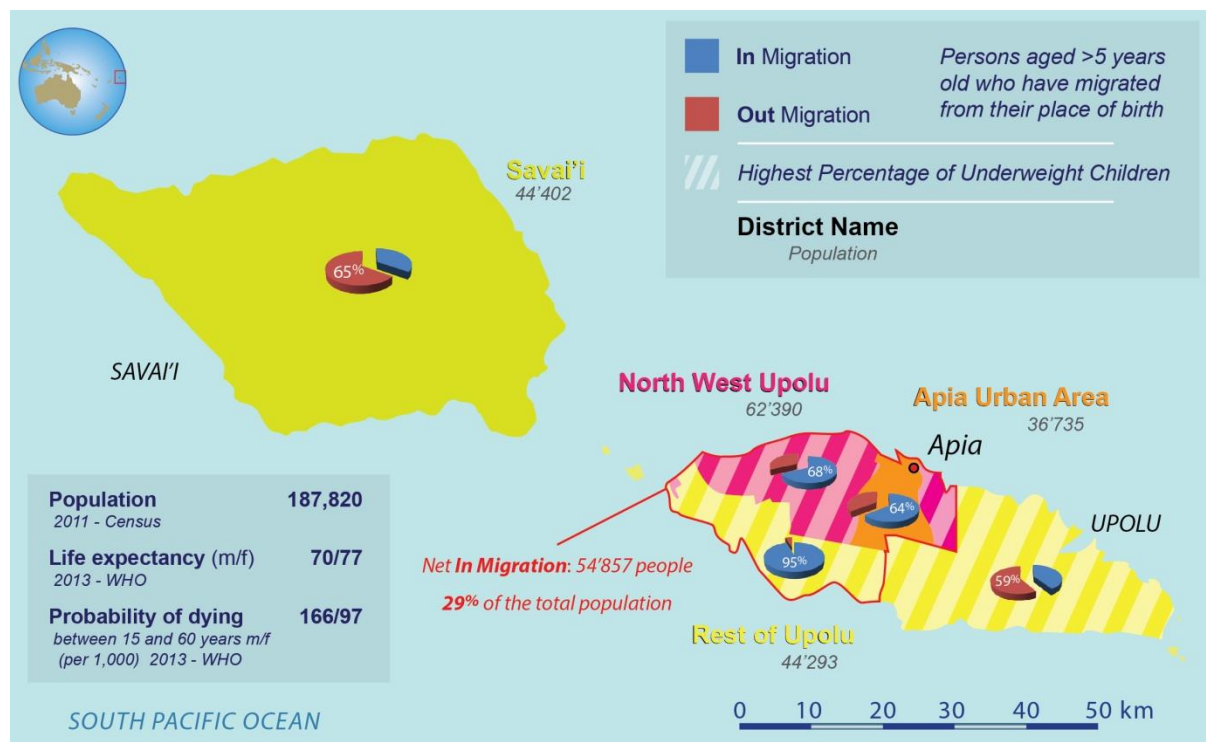
[http://pafpnet.spc.int/attachments/article/721/Samoa.NMDI\\_Final\\_pdf](http://pafpnet.spc.int/attachments/article/721/Samoa.NMDI_Final_pdf) accessed 08.02.2017



disparities in income within the population and only income data related to formal employment can be captured accurately.

Countrywide, food is the biggest household expenditure (37%), followed by social contributions (23.5%) including money given as gifts, contributions/donations to church and village and communication with relatives. Special events, such as *saofa'i* (the solemn ceremony which marks the formal bestowal of a title on a new chief-*matai*), *maliu* (funerals) and *faaipoipoga* (weddings) are the next biggest expenditure category (8%) (Samoa Bureau of Statistics, 2008).

Current diets, especially in urban areas, tend to include meagre quantities of fruit and vegetables (Lyons & Taylor, 2014). About 35% of the Samoan population has virtually no fruit in its diet (MOH, 2010) despite locally produced fruit and leafy vegetables such as *esi* (papaya), banana (green and ripe), pineapple, mangoes and *laupele* (Pacific spinach) being relatively widespread (Lyons & Taylor, 2014). The main green vegetable currently being consumed in Samoa is taro leaves cooked with coconut cream to make *palusami*, a Samoan delicacy (Whistler, 2000).



**Figure 1:** District map of Samoa

(modified from Samoa Bureau of Statistics, 2011)

Studies in various countries have indicated that daily consumption of less than 200g of vegetables significantly affects both child weight and child mortality. The region is abundant with highly nutritious leafy vegetables. It has been shown that traditional leafy vegetables are superior to English and Chinese cabbage in providing “good” nutrition, especially protein, vitamin A, iron and calcium (Bailey, 1992). Taro (*Colocasia esculenta*) leaves have been described as a rich source in vitamin A when cooked, the best leaves to eat being the first four produced. Cassava (*Manihot esculenta*) leaves are high in vitamin A, iron and zinc and

can be easily grown in home gardens. A plot of around 10 square metres can produce 1-2 kg of young leaves per week, enough pro-vitamin A weekly for a family of six (Lyons & Taylor, 2014). Recipes for other common leafy vegetables can be found in readily accessible books such as the *Pacific Island Cookbook* (Agricultural Development in the American Pacific).

Looking at crop nutritional values and resilience to climate change, a plant such as Kangkong (*Ipomoea aquatica*) has strong potential as a food crop in Samoa. It grows widely on both main islands and is already consumed regularly by households of Chinese descent. It is a highly nutritious green leaf vegetable, rich in vitamin A, vitamin C, magnesium and iron. There are two variants, one that grows in wet areas and another that grows where it is dry, making it very climate resilient. Other vegetables such as radish (*Raphanus sativus*), bok choy (*Brassica rapa*) and okra (*Abelmoschus esculentus*) also grow well in Samoa.

Subsistence farming of traditional crops (taro, bananas, cocoa and cassava) and livestock (cattle, pigs and poultry) continues to be promoted in Samoa, to sustain production for national food security. During the 1990s, the agriculture and fisheries sectors contributed around 20% of gross domestic product (GDP), but by 2012 the sectors' contributions had declined to just 9.7% of GDP, with agriculture contributing 4.5% and fisheries 5.2% (Samoa Bureau of Statistics, 2013). Despite recent government initiatives encouraging people to go back to the land and giving them easier access to planting materials of traditional crops and livestock, the Samoan agricultural sector's contribution to GDP has remained stagnant at around 10-11% over the past 5 years.

In 1999 Samoa's major food crops were listed as coconuts (used for drinking, cooking, feeding animals and manufacturing), cocoa, bananas, taro and *taamu* (giant taro). In 2011, root crop production dominated the food crops sub-sector, with relatively small quantities of vegetables and fruit being grown. Coconuts, cocoa, kava and coffee were the main tree crops, while the minor tree crops included oranges, avocados, breadfruit, lemons, limes, mangoes and papayas (MCIL, 2012).

Between 1999 and 2009 the total number of chickens, which have traditionally been raised for domestic consumption, dropped by 29% and the number of pigs, which have always been important for ceremonial occasions and domestic consumption, dropped by 9%. The number of goats (which has never been a particularly popular livestock option in Samoa) dropped by 92%, from 2,000 to 168, during the same period. Only the number of cattle increased from 28,000 heads to 42,219 between 1999 and 2009.

The 2009 agriculture census showed a 24% decline in the proportion of households engaged in fishing (between 1999 and 2009). The inshore coastal fishery of Samoa plays a vital role in village economies and provides a good source of protein to the population. However, there has been a noticeable decline in inshore fish stocks which has been linked to the use of destructive, albeit efficient, fishing methods and over-fishing. The loss of habitat and increased commercial harvesting of inshore fisheries to provide fresh or processed fish for sale and for *fa'aoso* (food gifts given to a travelling party) has exacerbated the problem. Land reclamation and road construction have destroyed some fish nursery areas and in other villages inadequate land management has led to river bank erosion and subsequent siltation of lagoons.

Despite these trends, the agriculture sector (including fisheries and food manufacturing) remains Samoa's largest employer, utilising 39% of the workforce, the majority of whom are involved at a subsistence level (Samoa Bureau of Statistics, 2011). As demand continues to grow for more variety and quality of food for sale, imports of goods from overseas have increased. Samoa has become considerably more dependent on food imports over recent years. The proportion of food imports increased from 24% to 30% between 2005 and 2009 (MAF, 2011) and represents 56% of total household food expenditure (SPC, 2014a; SPC, 2005). The increasing reliance on food imports has also heightened Samoa's vulnerability to international food and fuel price fluctuations, which caused a steep rise in food prices in two recent periods, in 2007-08 and again in 2011 (SPC, 2014a), notably of rice and flour products (Samoa Bureau of Statistics, 2008). Despite collaborative efforts between the agriculture and tourism sectors to promote the use, of locally grown produce, meat and fish by the local hospitality industry, data show that the importation of fruit, vegetables and spices almost doubled over a seven-year period (MAF, 2011) and the importation of chicken rose from 4.1 to 7.5 t per year between 2000 and 2009.

Several factors have been identified to explain the ever-increasing reliance on imported food, including the effects of climate change, a decrease in agriculture engagement and migration (MAF, 2011). Imported foods now compete directly with domestic foods that often have higher production costs and are less convenient to store and prepare (SPC, 2008; SPC, 2014a). The imported foods are often high in sugar and salt and low in nutritional value, but they are affordable (rice, wheat), appealing to the Samoan palate (lamb flaps, turkey tails) and convenient (ready-to-eat). The impacts these foods are having across the Pacific on public health and FNS are profound.

In the development and lifelong health of an individual, the period of gestation (pregnancy) and the first 24 months of life (infancy) are very crucial. Evidence shows that children born with low birth weights have higher mortality rates and cognitive deficits. Equally important is the need to control high birth weights because babies with high birth weight are more likely to suffer from childhood obesity and possibly NCDs in later life (MOH, 2008; SPC, 2008; SPC, 2011). Exclusive breastfeeding for the first 6 months of life is associated with decreased risk of diarrhoea, respiratory tract infection and other communicable diseases in infants, and chronic health problems such as obesity in later life (Mackerras & Kierman, 2002b).

WHO and UNICEF launched the Baby-friendly Hospital Initiative (BFHI) in 1992, to strengthen maternity practices to support breastfeeding. The foundations of the BFHI are the *Ten Steps to Successful Breastfeeding* designed to protect, promote and support breastfeeding. The percentage of children consistently breastfed in Samoa has increased by 19% between 2009 and 2014. Although initiation rates of exclusive breastfeeding are high (94%), the exclusive breastfeeding rate at 4-5 months of age is low (only 55%) (Samoa Bureau of Statistics & MOH, 2014). The percentage of last-born children who started breastfeeding within the first day of birth has increased slightly to 98% and the proportion of last-born children who received pre-lacteal feeds has decreased from 12% to just 5% over the same period (Samoa Bureau of Statistics & MOH, 2014).

According to the 2014 *Samoa Demographic and Health Survey*, 4% of children 0-59 months are moderately or severely wasted, which is defined as the percentage of children in that age group whose weight-for-height is below minus two standard deviations from the median

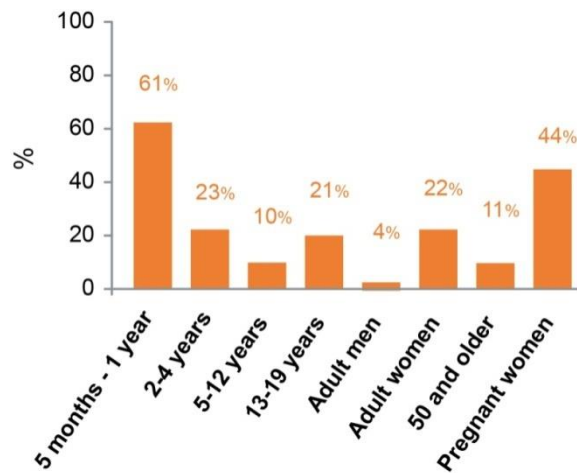
of the WHO Child Growth Standards. By comparison, only 2.3% of children would fall in that category in well-nourished populations. There is a strong correlation between underweight mothers, low birth weight and children with moderate or severe wasting.

Moderate or severe stunting (chronic under-nutrition between 0-59 months) is present in 5% of Samoan children. A higher percentage of children with moderate or severe stunting come from families in the lowest wealth quintile. Weight-for-age status also shows that a higher percentage of underweight children live in the rural areas of North West Upolu and Rest of Upolu (Samoa Bureau of Statistics, 2008). The Western half of Upolu had the highest number of in-migrants compared to other districts. This could suggest that by being physically isolated from family or village, in-migrant population would receive less community support and be more likely to fall into the undernourished category. However, further analysis is needed to confirm whether a correlation between migration and under-nutrition exist.

The above data confirmed the findings of an audit on the number of under-nourished cases admitted to the paediatric ward of the Tupua Tamasese Meaole Hospital (TTMH). The audit revealed that 182 malnourished children were admitted from August 2006 to June 2010, 96% of whom were less than 2 years old (with the peak being between 12 and 18 months old) (Samoa Bureau of Statistics, 2010a). However, the percentage of people considered underweight and the severity of malnutrition cases are not considered to be accurately reported in Samoa.

There is concern about an increasing number of those in the poorest households who are not receiving adequate nutrition. The proportion of the population falling below the Basic Need Poverty Line rose from 23% in 2002 to 27% in 2008 (GoS, 2010). The health sector has acknowledged that under-nutrition has become a real problem in Samoa. The Australian Department of Foreign Affairs and Trade (DFAT) has assisted the Ministry of Health (MOH) with a gap analysis on nutrition and nutrition services. This analysis highlighted a need to enhance capacity building and human resources to assist district hospitals, particularly by training those providing services targeting women and children under 5 years old.

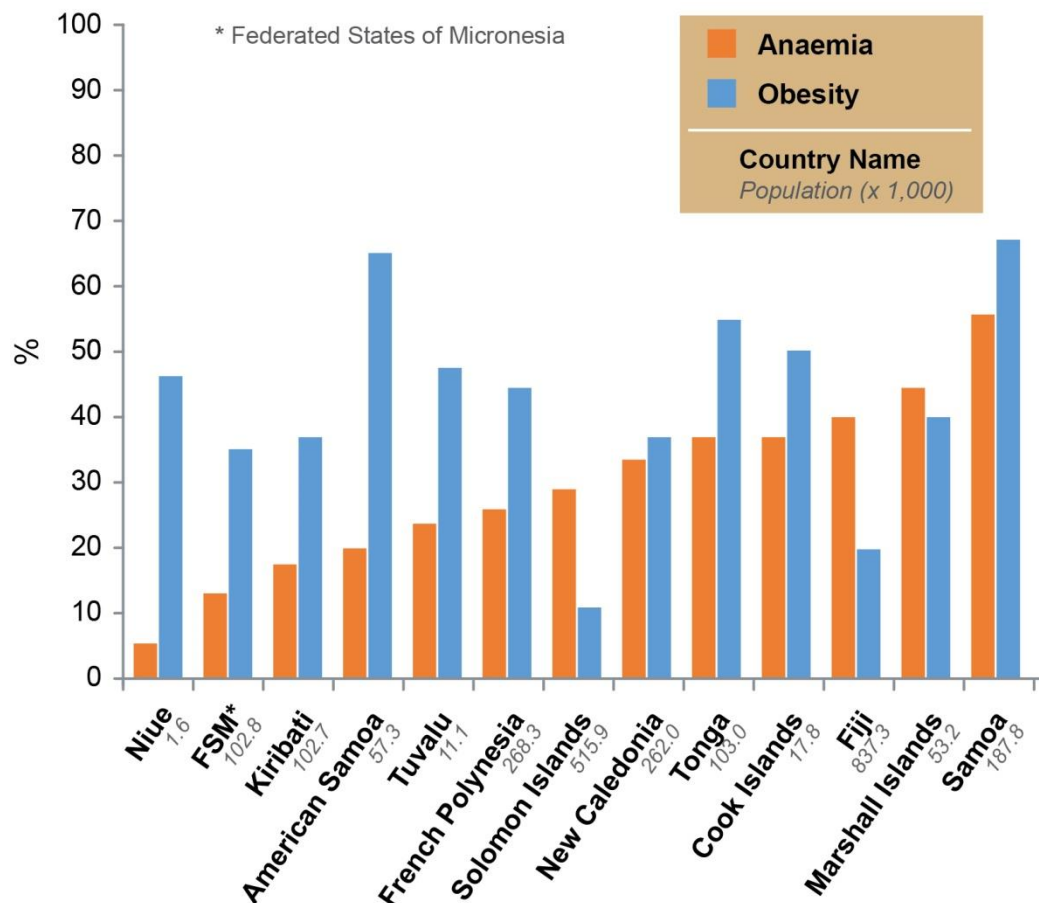
The incidence of anaemia is also significant for public health; with children 0-2 years and pregnant women reported as the most vulnerable groups (**Figure 2**). Of the malnutrition cases reported in 2006-2010, 51% were reported to have anaemia. Anaemia impairs the cognitive development of children, increases the risk of women dying during childbirth and reduces physical and mental productivity in teenagers and adults. Evidence-based interventions are required to address the anaemia problem (including in women; **Figure 3**) and a health promotion approach would be a valuable component of a prevention programme (Mackerras & Kierman, 2002a). While recent surveys have collected information about breastfeeding, complementary feeding practices, micro-nutrient intake among children under 3 years old, and food and micro-nutrient intake among adults, there is a gap in information about dietary intake among children 3-15 years old. In addition to efforts to improve infant and young child feeding, strategies for reducing malnutrition include policies on food fortification, micro-nutrient supplementation, health education and promotion of healthy eating (MOH, 2013a).



**Figure 2:** Anaemia in different population groups in Samoa

(groups over 5% are considered as a risk group by public health authorities (MOH, 2008))

Increasing levels of food and nutrition-related diseases impact negatively on health (MAF, 2011). The development of overweight and obese children is of great concern, given the health risks associated with this and the likelihood of developing unhealthy lifestyles which persist into adulthood [25]. The Global School Health Survey conducted in 2010 across the country showed that 43% of boys and 59% of girls between 13 and 15 years old were overweight, of which 16% and 22% respectively were obese. These levels are very high compared to other countries in the region (Samoa Bureau of Statistics, 2010a). The Samoan obesity rate grew from 26% in 1978 to 68% in 2007 and is now among the highest rates in the world (MOH, 2013b). According to the *Samoa Step Report 2014*, the overall Body Mass Index (BMI) mean for the Samoan population aged between 18 and 64 years old was 32.1 kg/m<sup>2</sup> (people with a BMI above 30.0 kg/m<sup>2</sup> are considered obese), and only 15% of the population in that age group was considered to have a normal BMI. Women of all age groups had a significantly higher BMI mean than men (MOH, 2014).



**Figure 3:** Incidence (%) of female anaemia and obesity in the Pacific Islands

(modified from SPC, 2014a)

Non-communicable diseases (NCDs) are the leading cause of death in Samoa, accounting for 70% of all deaths. Cardiovascular disease (including heart attacks, strokes and coronary heart disease) is the principal cause of death. The diabetes rate (23%), the hypertension rate (21%) and the prevalence of cardiovascular disease risk factors related to metabolic syndrome reached epidemic levels (Samoa Bureau of Statistics, 2010a). At least one quarter of NCD-related deaths in Samoa are premature (under the age of 60). Noticeable NCD contributing factors identified were changes in dietary patterns and food supply, reduction in physical activity and increase in sedentary behaviour in adults. People in Apia were more likely to be inactive (28%) than people in rural areas (15%). Women were more likely to be inactive (27%) than men (15%). Lack of regular health checks which would allow earlier intervention to prevent NCDs was also identified as a potential contributing factor. For example, according to the *NCD STEPS Survey* carried out in 2002, it was estimated that only 35% of the population had had their blood sugar level and 44.9% their blood pressure, monitored within the twelve-month period preceding the survey. Males and younger people were less likely to have checks (MOH, 2010). WHO has identified salt reduction as one of the “best buys” for reducing the burden of NCDs (MOH 2013c; MOH, 2014).

The Government of Samoa (GoS) has made significant progress in creating a level playing field in the domestic market to protect Samoan consumers and businesses from unfair practices. Consumers and traders are increasingly aware of their legislative obligations

through the various awareness programmes, particularly carried out during the annual celebrations for World Consumer Rights Day (WCRD) held on 15 March each year. A major accomplishment in recent years was the increased involvement of Samoa in international and regional Codex forums which has contributed to improving the capacity of the Ministry of Commerce, Industry and Labour (MCIL) and other line ministries to develop national food standards (MCIL, 2012). A major initiative is the development of standards and regulations for labelling and the enforcement of English labelling for all imported goods in an effort to limit levels of fat, sugar and salt in food (MOH, 2010). This needs to be complemented by a public-sector awareness-raising campaign and a capacity building programme for the governmental agencies responsible for administering the new regulations (MOF, 2012).

## Policy and governance arrangements

The link between agriculture, nutrition and health is mainly conveyed through policies aiming to address issues threatening food and nutrition security. The main objectives of which are defined along four main axes namely:

- **Availability of food.** To promote the sustainable domestic production of safe, affordable, nutritious, good quality Pacific food commodities/products and facilitate food imports.
- **Access to food.** To ensure access (grown or purchased) by Pacific Island individuals to sufficient, nutritious affordable food at all times through agricultural development, focussing on smallholders and creating employment and income generation from food production.
- **Food utilisation.** To improve the ability of individuals to utilise food, maintaining its nutritional quality and making it available to consumers. Policy actions will be to: (i) improve food preparation and preservation; (ii) establish proper food standards; (iii) improve public health; (iv) provide safe drinking water; (v) improve sanitation; and (vi) increase hygiene and nutrition education.

**Stability of food systems.** To improve the food and nutrition resilience of the region to natural and socio-economic shocks, as well as climate change, by establishing a system of disaster preparedness and response, including early warning systems and a set of measures to ensure stability of food supplies (FAO, 2006; FAO, 2012; SPC, 2014a; SPC, 2014b).

The flower below (**Figure 4**) provides a conceptual model of food security in the Pacific.



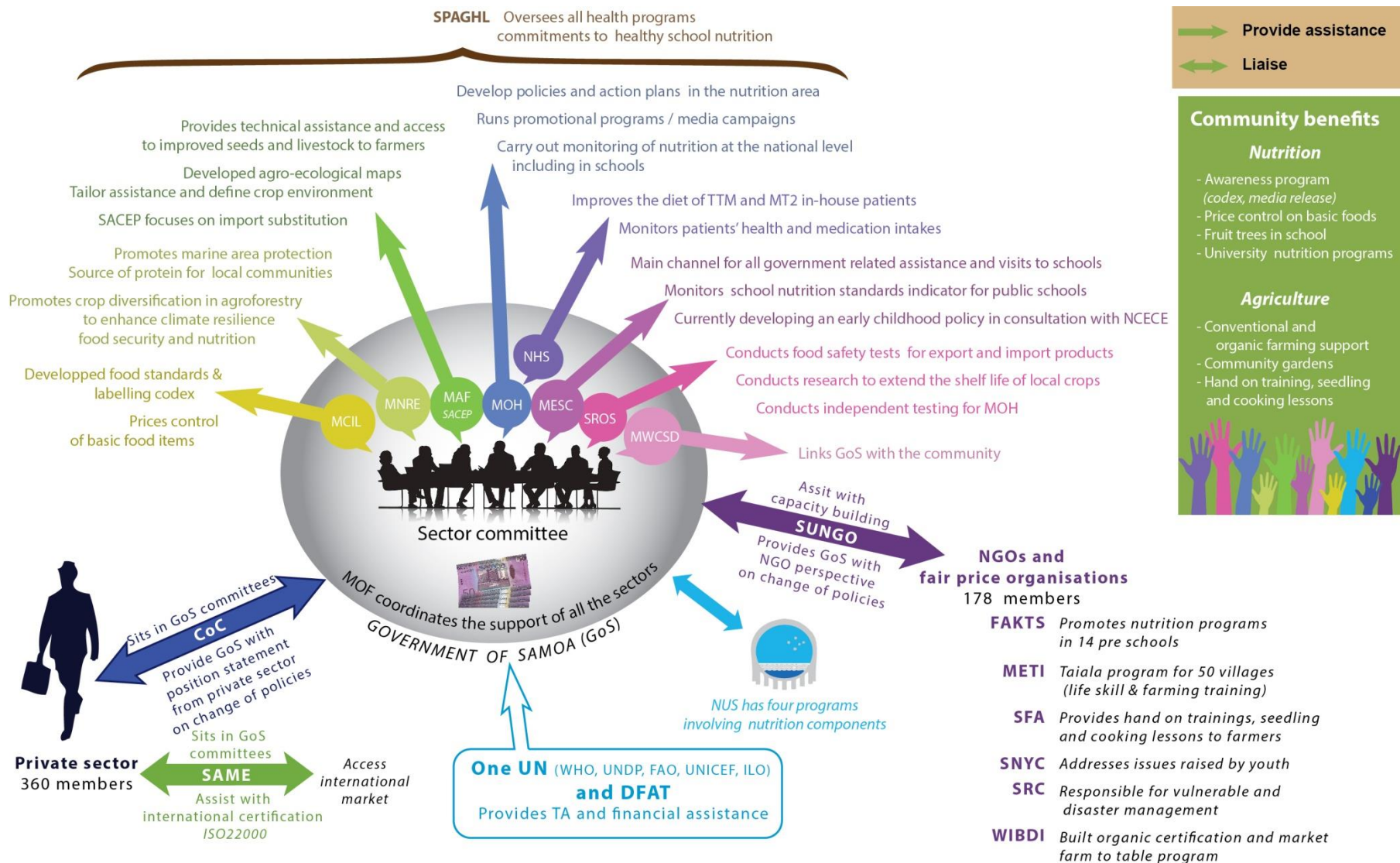
**Figure 4:** Conceptual model of food security in the Pacific

(modified from SPC, 2011)

The overarching policy document guiding food and nutrition development in Samoa is the 2013-2018 Food and Nutrition Policy (FNP). Three programme areas have been identified together with 19 goals, 75 strategies, 86 indicators to address issues pertaining to food, nutrition, access, affordability and safety.

The coordination model of the GoS is based on sector committees. Each sector mandate is defined in its sector plan to help identify synergies between sectors. The Ministry of Finance (MOF) coordinates the support of all the sectors assisting them with their issues and challenges (**Figure 5**). Significant development funding has been put into food and nutrition programmes by development partners including WHO, FAO, Australia’s DFAT, the New Zealand Ministry of Foreign Affairs and Trade (MFAT), the United Nations Development Programme (UNDP), the International Labour Organization (ILO) and UNICEF (FAO, 2012; Samoa Bureau of Statistics, 2008; Samoa Bureau of Statistics & MOH, 2014).





**Figure 5:** Institutional chart describing organisations working on food, nutrition security and agriculture/nutrition linkages

The Nutrition Unit of the MOH is leading the implementation of the 2013-2018 FNP (MOH, 2013; MOH, 2015a; MOH, 2015b). Current activities led by the nutrition section include auditing the implementation of nutrition standards in pre-schools, piloting draft nutrition standards in schools, auditing the implementation of the BFHI in the two main maternity hospitals in Samoa: Malietoa Tanumafili II Hospital (MT2) and TTMH, conducting healthy eating and breastfeeding training programmes for health staff, pre-school trainee teachers and other stakeholders and promoting the importation of foods fortified with essential nutrients to improve the micro-nutrient status of the population (MOH, 2013; MOH, 2015a). In addition, the National Health Services (NHS) focuses on improving the diet of TTMH and MT2 in-patients as well as monitoring patients' health and medication intakes. MOH also works directly with communities providing technical assistance (TA) to the Ministry of Women, Community and Social Development (MWCSO). MWCSO is mandated to link government initiatives with the community and is involved in a project under the Sector Wide Approach (SWAp) which aims at developing subsistence farming that takes nutrition into consideration.

The Ministry of Education, Sports and Culture (MESC) is the main channel for all government related assistance and visits to government funded schools, although authority to decline or accept school visits or programmes has been delegated to school principals. The School Operations Division within MESC is responsible for monitoring the School Nutrition Indicator as stipulated in the MESC Minimum Service Standards (MSS) for Samoan Government Schools (MOF, 2010; MOH, 2010). Monitoring occurs once or twice a year when MESC staff members spot check canteens and food sold and conduct interviews. They concentrate on schools that have been identified as potentially at risk by the Samoa Parliamentary Advocacy Group for Healthy Living (SPAGHL) and MOH. MOH has the right to close a school if nutrition and sanitation standards are not met. MESC is currently developing an Early Childhood Policy in consultation with the National Council of Early Childhood Education (NCECE) to ensure governmental support is provided to this important segment of the system.

SPAGHL oversees all health programmes. It is at the forefront in promoting and fostering a national approach to healthy living and healthy lifestyles. The activities carried out by SPAGHL include support in providing policy direction for national campaigns such as monitoring visits to schools for healthy school canteens, sanitation and hygiene (MOH, 2008). Public schools have nutrition programmes for children and a healthy lunch policy, forbidding food such as chips and sweets as well as forbidding people from selling unhealthy food at the gate of the school.

The Scientific Research Organisation of Samoa (SROS) conducts testing of samples collected by MOH, at an independent laboratory. The main mandate of SROS is to undertake scientific and technical research and develop technologies that provide benefits to Samoa's industry and economy, thereby adding value to local resources and services (MCIL, 2012). Recently, SROS has been involved with the University of Queensland and the University of Newcastle in studying the shelf-life of papaya and breadfruit. SROS also supports NUS by hosting two to four students annually for work experience placements.

NUS has four programmes which have agriculture or nutrition courses: (i) the Faculty of Education's food and textile technology courses and agriculture courses for trainee teachers intending to teach these areas of the secondary school curriculum; (ii) the School of Nursing

nutrition components embedded in various Bachelor of Nursing courses; (iii) the Faculty of Science's course on food security in the Postgraduate Diploma in Science (PGDipSci) programme which began in February 2015; and (iv) the Faculty of Applied Science's Certificate in Tropical Horticulture programme.

The main aim of the Ministry of Agriculture and Fisheries (MAF) is to support all farmers by providing them with TA and access to improved seeds and livestock. The main focus of the Samoa Agriculture Competitiveness Export Programme (SACEP) is producing locally-grown fruit and vegetables to replace some of those currently imported. The targeted fruit and vegetable crops are potatoes, carrots, tomatoes, onions and capsicums which are crops that have the highest production potential per land area unit using simple technology. There is a good working relationship between MAF and MOH, which have a Memorandum of Understanding (MoU) as part of SACEP. Under SACEP MAF launched its agriculture-nutrition awareness initiative, with MOH assisting MAF in the media campaign which includes television advertisements and newspaper articles. MAF has also signed Memorandums of Agreement (MoAs) with several agencies that have programmes that complement SACEP initiatives. These include MWSCD which runs the women and youth involvement in community vegetable gardens, Women in Business Development Incorporated (WIBDI) which focuses on organic crop production and MOH which has a number of nutrition programmes. Linkages are being further strengthened between MAF, MOH and MWSCD.

The Ministry of Natural Resources and Environment (MNRE) main focal areas are: (i) environmental sustainability; and (ii) climate change resilience, especially of the ocean which has traditionally been a good source of protein for the local community. MNRE is promoting the establishment of marine protected areas where villages would only be permitted to fish during special occasions. However, follow-up research will be needed in the future to re-assess the ecological status of those areas to monitor the effectiveness of the protection. On the agro-forestry side, MNRE promotes crop diversification to reduce the risk arising from climate change and major pest or disease outbreaks.

Access to market is a major issue for the farming community. The MCIL focuses on farming programmes that open up commercial opportunities for farmers by creating a supportive environment for the private sector. The main links between MCIL and FNP are breastfeeding initiatives and work done on fair trading and Codex food standards and labelling. The Codex Committee includes MOH, MNRE, MAF, MFAT, the Chamber of Commerce (CoC), the Samoa Association of Manufacturers and Exporters (SAME), SROS, and the Samoa Water Authority (SWA). The Chair is the Chief Executive Officer (CEO) of MCIL and the secretariat is provided by the Assistant Chief Executive Officer (ACEO) for Fair Trading and Codex Division. The aim of the committee is to develop national food standards. MCIL has control over the prices of basic food items such as sugar, salt, rice and flour through the General Price Order (GPO). Other food items such as liquid milk, milk powder, butter, noodles, tinned fish, corned beef and frozen foods are also covered by the GPO. The Prices Board meets quarterly to review GPO prices.

CoC has 360 members, is represented in many GoS committees and is mandated to consult with the private sector on policy changes. CoC provides the government with an official position statement from the private sector after consultation with its members. CoC partners with FAO on agribusiness projects to promote demand driven supply. The programme

includes three components: (i) formalising agreements between farmers and receivers to provide certainty around market access; (ii) providing microfinance which can be used as collateral in contracts for small farmers; and (iii) providing training in agribusiness good practice on food safety issues.

SAME has been advocating the International Organization for Standardization (ISO) and Hazard Analysis Critical Control Point (HACCP) for certification for its members over the last 5 years to facilitate access to international markets. SAME also sits on many GoS committees focussed on export.

The Samoa Umbrella for Non-Governmental Organisations Incorporated's (SUNGO) mandate is to help build the capacity of its members. SUNGO sits on several advisory and steering committees and provides the government with a common position on policy changes or issues that are important to its members. SUNGO represents 178 Non-Governmental Organisation (NGOs) and fair price organisations. Members particularly relevant to agriculture and nutrition include Faalapotopota Atinae o Komiti Tumama o Samoa (FAKTS), the Samoa Farmers Association (SFA), WIBDI, the Matuaileoo Environment Trust Incorporated (METI), the Samoa Red Cross (SRC) and the newly established Samoa National Youth Council (SNYC).

FAKTS is the biggest and longest serving grassroots women's organisation in Samoa. FAKTS receives support from MWCSD and works within communities on both Upolu and Savai'i in promoting nutrition programmes in schools, with particular emphasis on pre-schools (currently covering 14 pre-schools in Samoa) (MOH, 200).

SFA was initially created by MAF and used to have a stronger relationship with the ministry than it currently does. SFA's main role is to provide hands-on training and seedlings to farmers, TA covering the planting to pre-harvest period, as well as lessons on how to prepare and cook unfamiliar vegetables they are being encouraged to grow. SFA also supports youth gardens, especially with organic farming.

WIBDI aims to add value to agriculture by helping farmers get fair trade and organic certification. So far Samoa has 41,000 ha of organic land. WIBDI works to provide market opportunities for small farmers at the household level. WIBDI also assisted MFAT with the development of Robert Oliver's cookbook entitled *Me'a Kai: The Food and Flavours of the South Pacific*. This book was awarded 'Best Cookbook' at the Gourmand Cookbook Awards in 2011. Robert Oliver helped WIBDI to link farmers' production with what chefs at top restaurants needed. WIBDI received support from UNDP for its Farm to Table programme which links organic farmers to restaurants and hotels. An MOH nutritionist helped with the development of gardens to provide organic food to hotels and restaurants. Currently, 19 hotels and cafés work with farmers.

METI is an environmental NGO which aims to build capacity of grassroots communities to empower them to live in harmony with their environment. With funding from the United States Agency for International Development (USAID) METI implements an integrated approach involving 50 villages which targets the 80% of young people who drop out of school before completing Year 13. This *Taiala* (guide) approach built on a pilot study that has run since 2010. A life skill training component is followed by the farming content, which focuses on building the soil to promote carbon fixation. On completion of the course, the

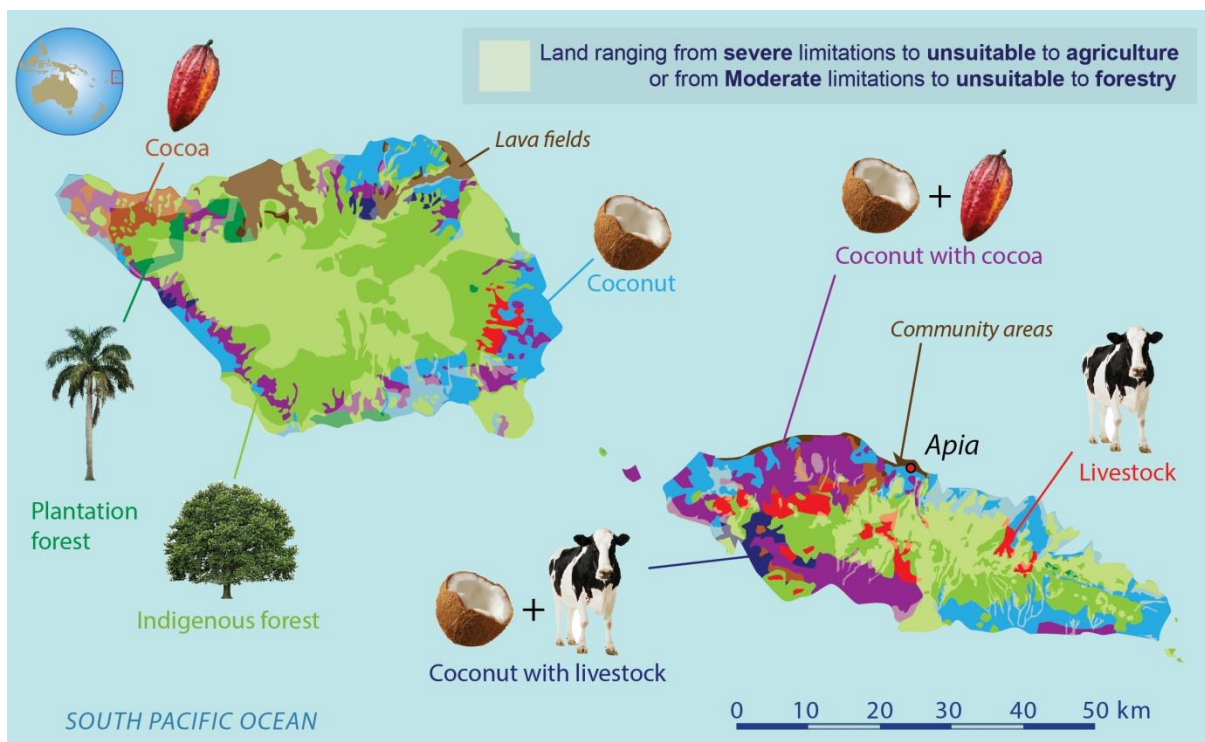
participants become a *Taiala* life skill coach, a qualification certified by the Samoa Qualifications Authority (SQA). METI has also assisted with the setup of a farm cooperative with the kitchen gardens programme to assist with food security and generate income.

SRC mainly focuses on disaster relief and carries out projects on water and sanitation for the community, working closely with the community. SRC is the first organisation to witness and address malnutrition following natural disasters.

SNYC is a new NGO which was established following the end of MWSCD’s Towards a Legacy of Achievement, Versatility, Opportunity Through Partnership and Unity (TALAVOU) programme. *Talavou* also means youth in Samoan. SNYC has 80 representatives and targets unemployed 18-35-year olds. It aims to address issues raised by its members, with three priority areas: i) unemployment, ii) alcohol abuse and iii) sexual and reproductive health. Nutrition has not been raised as a priority so far.

## Climate and environment

Forests and woodlands occupy almost 47% of Samoa’s total land area. Permanent crops occupy 24% of the total land area and another 19% is also suitable for agriculture (**Figure 6**) (Chand, 2002).



**Figure 6:** Map of Samoa detailing agriculture and its limitations

(modified from Ward & Ashcroft, 1998)

Samoa is exposed to a number of natural hazards, including tropical cyclones, floods, earthquakes, tsunamis, volcanic eruptions and drought. In recent years, the Samoan economy and labour market have suffered from the global economic crisis in 2008, the

tsunami of 2009 and Cyclone Evan in late 2012 (ILO, 2006). According to the World Bank, of countries exposed to three or more hazards, Samoa is ranked 30th.

A community-based vulnerability analysis carried out by SPC in six Pacific countries (Fiji, Kiribati, Samoa, Solomon Islands, Tonga and Vanuatu) has shown that farming of some traditional crops and animals is changing. An increase in pests and disease combined with reduced soil fertility are among the factors having a negative impact on agricultural production (FAO, 2008). Other factors include poor farming practices, poor water quality (SPC, 2014b), changes in rainfall (as about 70% of the Pacific's agricultural area is heavily dependent on seasonal rainfall), alterations to average and peak temperatures, and loss of genetic resources and agro-biodiversity (FAO, 2008).

MAF has recently developed more accurate agro-ecological maps based on soil types and the amount of precipitation, to allow the ministry to tailor their assistance to farmers. The maps identify favourable environments for different crops, locations where irrigation or tunnel housing (because of heavy rain) might be needed as well as areas of rocky soil not suitable for cultivation by machinery.

The Integrating Climate Change Risks into Agriculture and Health Sectors of Samoa (ICCRAHSS) project established a baseline for Geographic Information System (GIS) data, reviewed existing related information and systems, conducted an inventory of data sets and assessed hardware, software and human resource needs to allow NHS to improve data management of climate related diseases (ICCRAHSS, 2009).

The Samoan economy remains vulnerable due to its remoteness, income volatility, limited economic diversity, susceptibility to natural disasters, environmental damage and limited institutional capacity. It still relies heavily on development assistance and private remittances from overseas (ILO, 2006). The adaptive capacities of many Pacific communities to the impact of climate change are very low in terms of financial, natural, human and physical capitals (SPC, 2014a). Limited adaptive capacities are affected by the relatively rare opportunities to access funding for implementation of initiatives compared with opportunities for receiving technical assistance. For example, it is very difficult for an NGO in Samoa to get funding to buy a vehicle which might be essential in their mandate to help grassroots communities, or for a school to buy cooking or food storage appliances to support nutrition education courses.

## **Culture, gender and equity**

A study entitled *Knowledge, Attitudes, Beliefs and Practices Related to the Consumption of Fruit and Vegetables in Samoa* carried out by FAO (2004), identified factors influencing food choices made at the household level. Focus group discussions and in-depth interviews investigated the knowledge, beliefs and habits of Samoans with respect to choosing food. Food availability, accessibility, cultural obligations and family income were the main external factors that influenced their decisions. Fruit and vegetables were considered more expensive than other foods. The internal factors influencing decisions (individual choice) included taste with overall preference for meat, salt and sugar. Ease of access and preparation were also factors. It is easier, for example, to cook noodles than vegetables which require harvesting and preparation. Other interviewees mentioned a lack of knowledge about how to use/cook vegetables and about the health benefits or dangers of certain foods (Lyons & Taylor, 2014).



The study found there was generally a poor understanding by aid donors of Pacific issues, diversity and nutrition needs and highlighted the complexity of food practices and the importance of internal factors.

It should also be noted that the singular promotion of home gardens or locally produced and marketed nutrient dense foods does not necessarily translate into better nutritional behaviour. A study carried out by the Island Food Community of Pohnpei (IFCP), an NGO based in Pohnpei in the Federated States of Micronesia, showed that the great diversity of foods locally available (381 food items documented) were underused despite the population having serious health concerns such as obesity, diabetes, and vitamin A deficiency (Lyons & Taylor, 2014). To address these problems local food production and consumption were promoted using a variety of approaches including education, training, agriculture and social marketing following a “Go Local” message. Specific activities included community meetings, school activities, agriculture workshops, cooking classes, charcoal oven development, weight loss and planting competitions, poster campaigns and advertising in the mass media. An evaluation of the approach was conducted, and the results indicated increased pro-vitamin A carotenoid intake (110%), increased frequency of consumption of local bananas (53%), giant swamp taro (475%) and local vegetables (130%), and increased dietary diversity with local food (Englberger *et al.*, 2005).

Data on expenditure patterns for the poorest households shows that in the Apia Urban Area imported food accounts for over half of the money spent on food, compared to one-quarter in Savai’i (**Table 1**). This suggests a higher degree of food security in Savai’i and hints at the pressure that food price increases put on households in Apia which are more reliant on imported food. It also displays the difference in household food production patterns between the urban and rural areas (Samoa Bureau of Statistics, 2010b).

**Table 1:** Top dozen items in % of food expenditure in lowest income households (lowest three deciles) in an urban (Apia) and rural area (Savai’i).

Apia Urban Area		Savai’i	
% of food expenditure		% of food expenditure	
Chicken parts	12.2	Taro	11.2
Taro	10.9	Breadfruit	10.8
Rice	8.6	Chicken parts	7.5
Banana (Palagi)	5.5	Fish	5.3
Breadfruit	5.3	Coconut (Popo)	5.0
Mutton flaps	5.0	Cocoa (local koko)	4.4
Bread	3.9	Sugar	4.1
Sugar	3.8	Giant taro (Taamu-Toga)	3.7
Fish	3.0	Banana (Palagi)	3.6
Banana (others)	2.2	Eleni/tinned fish in T/sauce (Soifua)	3.5
Eleni (tinned fish)	2.0	Banana (others)	3.4
Ramen/Saimin	1.9	Rice	3.0

Community participation in health promotion has been supported through village exercise and nutritional improvement programmes carried out in collaboration with MWCSO. Health promotion and prevention programmes for NCDs were successfully rolled out in the communities utilising sports (rugby) role models (MOF, 2012). The Talomua programme, which has been described as a Samoan version of a stimulus package, aims to promote better use of each village's own agricultural resources. This programme is an excellent example of village authorities taking effective leadership in promoting planting and harvesting of traditional crops to meet the community's needs, as well as generating sufficient surplus for possible agro-processing industries for export and import substitution. This is not a new idea as traditionally village chiefs would require the untitled men from each family to plant crops and would set quantitative targets for new plantings, to ensure their village would always be self-sufficient in food supplies (MAF, 2011).

Committees of market managers, vendors and patrons have been mobilised in both of Apia's two main food markets to promote 'healthy markets'. This initiative has been supported by personnel from the Environmental Health Division of MOH which undertakes periodic needs assessments for the identification of issues, practices and behaviours which have the potential to change the health and well-being of the communities working at, or using, the markets. Initiatives have led to market communities taking responsibility for food safety and environmental sanitation.

Even though agriculture plays a central role in social cohesion in Samoa (Samoa Bureau of Statistics 1999; Samoa Bureau of Statistics, 2009) less than 10% of females are involved in labour intensive activities in subsistence and commercial agriculture and fisheries (3% in subsistence agriculture and 6% in commercial agriculture). This suggests that there is potential for increased participation of women in the future development of the sector (MAF, 2011). However, the data should be interpreted with caution as the agricultural sector is the biggest source of informal employment in Samoa and it is difficult to verify the accuracy of the above percentages. To remedy this lack of information, FAO is planning to carry out an analysis on the situation of gender and agriculture.

## **Conclusion**

The overarching policy document guiding food and nutrition development in Samoa is the 2013-2018 FNP. The main objectives of this policy are to improve availability of food, access to food, food utilisation and stability of food systems. The Nutrition Section of MOH is leading the implementation of the 2013-2018 FNP Action Plan. MOH has expertise and the capacity to run media campaigns on health and nutrition. Significant development funding has been provided for food and nutrition programmes by development partners including WHO, FAO, DFAT, UNDP, ILO and UNICEF.

The main institutions involved in nutrition are MOH, NHS, MAF and MWCSO in the public sector. NGOs include FAKTS, METI, SFA and WIBDI. Most of the above organisations are involved in various agriculture and nutrition initiatives including school nutrition, capacity development and nutrition awareness campaigns, linking farmers to markets and community gardens. NUS also has undergraduate and graduate programmes in four faculties or schools which involve a nutrition or agriculture component.



A general lack of awareness about and consumption and utilisation of locally available green leafy vegetables and fruits, the stagnant performance of the agricultural sector (below 10% GDP), declining inshore fisheries, and the very high and increasing level of overweight and obese Samoans provide potential entry points for CTA's interventions in strengthening the link between agriculture and nutrition. The use of appropriate metrics to gauge the performance of the agriculture sector is also an issue. It was noted that FAO, SPC, MAF and SBS are investigating alternative performance indicators that can be collected through the 2016 Agriculture Census for updating the Agriculture Sector Plan 2011-2015. A new plan has since been put in place (<http://pafpnet.spc.int/policy-bank/countries/samoa>)

Severe wasting among children 0-59 months (4%), moderate to severe stunting (5%) in the same age group, high incidence of anaemia in children under 2 and pregnant women, inaccurate detection of the number of people being underweight and the severity of malnutrition is currently being addressed under the proposed DFAT-funded National Nutrition Programme, with support from the government.

## **Potential entry points for strengthening the agriculture-nutrition nexus**

The potential entry points for strengthening the agriculture-nutrition nexus in Samoa are in:

- Building coherence and adopting a more holistic approach to addressing nutrition challenges through agricultural programmes and achieving consensus on indicators to be used to track progress in nutrition and agricultural performance. Ongoing initiatives try to monitor progress against international indicators.
- Increase the engagement of the private sector given the high involvement of NGOs and the need for additional funding to support Government interventions on agriculture and nutrition.
- Supporting actions that increase the purchasing power of the poor, especially rural communities who are facing higher prices but not higher income. Focus on strengthening the capacity of small-scale producers through improvement of low cost food production systems with a nutritional focus.
- Improving nutrition knowledge and awareness of the value of nutrition dense local foods and sensitise households to assist them in making better food choices.

For the ***Political and Economic*** thematic area, some potential entry points include:

- Strengthening the WIBDI Farm to Table programme which is supplying organic fruit and vegetable baskets to restaurants and hotels. This could be done through NUS and the Australia Pacific Technical College (APTC) hospitality programmes.
- Promoting capacity building exercises and exchange programmes for nutritionists and farmers from ACP countries to share ideas and findings on best practices.
- Assisting with developing booklets and other communication material in Samoan regarding vegetable use and cooking to promote greater consumption of locally (and home) grown foods. Fiji has developed excellent resource materials in English that could be translated into Samoan. Additional information on kang kong, taro leaves, radishes, bok choy and okra (which grow well in Samoa) could be added, with translation provided by NUS.

Entry points under the **Policy and Governance** thematic area include:

- Building on successful programmes such as those implemented by FAKTS, the biggest and longest serving women’s organisation in Samoa.
- Promoting the expansion of the School Nutrition programme to include the whole family, as children imitate what their parents do. Specific target groups would be the Early Childhood Education (ECE) Centres which are currently not covered. Encourage ECE organisations, through the NCECE, to consider including nutrition education in their training for pre-school teachers.
- Strengthening the capacity of METI, WIBDI, SFA, SRC, SAME, CoC and university research programmes to up-scale farmer training programmes.
- Assisting with the promotion of an integrated approach within NUS through demonstrated linkages between theory (research via the Food Security Postgraduate course at the Faculty of Science or the Horticulture programme at the Faculty of Applied Sciences on the varieties of fruits and vegetables available locally that have high nutritional value) and practice – including the adaptation of irrigation systems and tunnel houses via the engineering/plumbing programme (at the Faculty of Applied Sciences), and promotion of sound postharvest measures through accredited HACCP trainers and improved nutrition and food handling via the Hospitality, Food and Beverage programme (at the Faculty of Business and Entrepreneurship) or the Food Technology programme (at the Faculty of Education).
- Supporting postharvest initiatives or research to improve the shelf-life of local fruits and vegetables to reduce their price by expanding access to markets all year around, and promote the linkage between food, nutritional security and food safety.

On the **Climate and Environment** thematic area, a potential entry point for CTA is to provide TA to build on the findings of ICCRAHSS by combining geographical, biological and medical data and supporting the development of existing nutrition surveillance systems. This would inform health and nutrition interventions and provide capacity to use the information received monthly on the incidence of climate-related diseases. Climate risk maps could be produced as well as distribution maps of districts with cases of communicable diseases such as diarrhoea, typhoid, influenza and dengue fever. There is also an ongoing need for developing applications and conducting training for health and agriculture professionals in the use of GIS tools.

A potential entry point for the **Culture, Gender and Equity** thematic area could be to adapt the successful “Go Local” approach used in Federated States of Micronesia for Samoa. A potential partner could be FAKTS which has representatives in all Samoan villages and has a strong working relationship with MWCSD. The ongoing Talomua and Taiala programme also offers good examples that can be up-scaled. CTA can also assist with improving agricultural-nutrition awareness through the new National Nutrition Programme which will look at re-establishment of district nurses with emphasis on early NCD prevention and nutrition programmes in communities. A regular food festival could also create a platform to link agriculture, health and nutrition, and encourage people to try healthy locally grown foods prepared in new ways. Such an initiative could potentially be co-funded by the French *Fonds de coopération économique, sociale et culturelle pour le Pacifique* (Pacific Fund) and be used to promote exchanges and integration of other Polynesian nations’ culinary habits.

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## **Annexes**

### **Annex A. Terms of reference**

(The Terms of Reference below are a reprint of the original from CTA – nothing has been altered)

#### **Building the Evidence Base on the Agricultural-Nutrition Nexus: Rapid Country Scans for Informing Policy and Practice**

##### **Background**

Food and nutrition security (FNS) is high on the global policy agenda and is of special significance for the African, Caribbean and the Pacific (ACP) region. Several pathways have been identified for achieving the desired FNS outcomes which include; policy harmonisation, political will, multidisciplinary research, technological and social innovation, multi-sectoral cooperation and collaboration, capacity building and development, gender equality, women's empowerment and local/national ownership. However, it is a combination of the various options within a given context (national, regional, international) which will yield tangible results. Multiple disciplines and stakeholders drawn from the public and private sectors, civil society organisations and the wider society must be engaged.

The Technical Centre for Agricultural and Rural Cooperation (CTA) works with a wide range of stakeholders; academic and research institutes, policy related bodies, farmers' organisations, extension and advisory services and youth and women's groups in the generation of context-specific knowledge for informing policy processes as well as in the development and implementation of strategies and programmes in support of the attainment of food and nutrition security (FNS) goals. Since 2013, CTA has identified some key areas of focus for its FNS related work programme.

These include:

- Identifying, documenting and promoting successful interventions such as the uptake and scaling-out of research outputs, social and technological innovations and supportive policies.
- Advocating for greater investments in science and innovation including higher education and extension for increasing productivity, marketing opportunities, and greater consumption and value addition of locally available diverse, nutrient-dense foods and for building resilience of agri-food systems.

More recently, CTA has prioritised strengthening the linkages between nutrition and agriculture as one of the three key areas for 2015 and beyond in ACP countries. It has also committed to a joint EC/FAO/CTA/WBG (2014) framework of action on "Agriculture and nutrition: a common future" which includes improving "the knowledge and evidence base to maximize the impact of food and agricultural systems on nutrition" as one of the three strategic priorities. This commitment is also reflected in the newly elaborated CTA regional business plans (2015).

## Justification

Governments require evidence for decision-making e.g. for increasing public investment as well as for attracting private sector investment in agriculture and ensuring that investments in research, education, health and extension and advisory services benefit society including smallholder farmers. In addition to the under-performance being witnessed in the agricultural sector, coping with malnutrition (both under and over-nutrition) is also a burden for resource-constrained governments. Stunting and micro-nutrient deficiency in children under five and the rising health care costs related to dealing with malnutrition need to be comprehensively addressed.

Small-scale farming will continue to dominate the agricultural landscape in the majority of ACP countries. Hence, efforts aimed at improving the FNS situation require strengthening multi-stakeholder, inter-disciplinary and multi-sectoral involvement, not only in analysing the situation but also examining the various options and ensuring that the answers are reflected in national, regional and international FNS policy processes, programme design and implementation.

CTA has identified some key guiding questions to inform its work:

- What are the priority interventions for improving FNS outcomes in the ACP region?
- What is the link between agri-food systems, food/dietary intake and nutrition outcomes? Where are the gaps and how can/should they be improved? What are the existing models/best practices that benefit smallholder farmers, especially women, and how can they contribute to improving incomes, food/dietary intake and nutrition outcomes?
- What are the good/best practices for building multi-stakeholder, multi-disciplinary, inter-sectoral and inter-ministerial cooperation and partnerships for improving FNS outcomes at national and regional level and for informing global processes?

CTA is specifically interested in collecting more detailed information on the agriculture and food and nutrition situation in selected countries where malnutrition is prevalent, to determine the entry points which provide the greatest opportunity for strengthening the agriculture-nutrition nexus. Good governance, national ownership and women's empowerment are seen as key.

## Approach

CTA has a long history of working with national, regional and international partners, especially those engaged in research, higher education, innovation, policy and knowledge management. As such, CTA will partner with key experts/knowledge institutes (universities and research organisations) and specialised agencies among others, and leverage this partnership to provide answers on how to strengthen the agriculture-nutrition nexus at national level. A rapid scan and analysis of policies, programmes/interventions and existing capacities will guide future investments.

## Objectives

- To undertake a rapid scan of related policies and programmes/interventions, including the identification of major actors and target groups, in-country competencies in nutrition

linked to addressing the food and nutrition security situation as well as the agriculture-nutrition nexus, to learn lessons for formulating guidelines for improving FNS outcomes and strengthening the agriculture-nutrition nexus.

- To document and share lessons learned with policymakers, researchers, farmers and other key stakeholders.

## Tasks

- Develop a methodological framework for undertaking the rapid scan of related policies and programmes linked to food and nutrition security and improving agriculture, food and nutrition outcomes in the target country to provide an overview of the state of FNS, including the most at risk communities, major pockets of malnutrition and related underlying causes, various agricultural/nutrition initiatives, the main actors and target beneficiaries (especially women and young children under five), and their impact (potential or realised) on agricultural productivity, incomes, food, nutrition and health outcomes.
- Undertake a rapid scan using approved methodology.
- Produce a report which details the results of the rapid scan and an assessment of their potential for improving food and nutrition outcomes and strengthening the agriculture/nutrition nexus. The report must meet the approval of CTA.

Some key questions that may be used in developing the methodological framework for undertaking the study include:

- **Targeting:** Are there existing policies and agriculture/nutrition programmes and what are their major goals/objectives as well as incentives for implementation? Are specific groups targeted e.g. women, children? And if yes, are they targeted separately or as part of a group (household, mother and child) and how?
- **Institutional framework:** What is the existing governance structure (e.g. organisations and institutions – national, regional and international – working on FNS and agriculture/nutrition and the linkages that exist between/among them)?
- **Nutrition education/knowledge:** Is there a special nutrition unit and where is it located – in the ministry of health/agriculture/university? Do women have access to these services? Is consideration given to the cultural context of food/dietary intake and nutrition (e.g. what is known about food preferences, prejudices)? Have dietary patterns changed over the years and are the changes monitored/documentated? What is known about women's decision-making power regarding agricultural production, food purchasing and distribution within the home, and income generation?
- **Information and knowledge management:** How are key messages on agriculture and nutrition communicated and by whom?

*n.b.* The study should also seek to identify the opportunities for strengthening women's participation in improving food and nutrition outcomes. This will include identifying:

- The major women's organisations involved in the development and implementation of agriculture and food and nutrition programmes and providing a brief overview of their involvement and;
- Identifying opportunities for increasing their engagement in future programmes/projects aimed at strengthening the agriculture-nutrition nexus.



## **Expected outputs**

- **A methodological framework** for undertaking the rapid scan;
- **A report/evidence paper** on: the major policies and programmes on FNS, agriculture and nutrition, including the major actors and the impact (potential or actual); status of the FNS situation including key facts on the nutritional status of the population and major pockets of malnutrition in the target country (including data on women and children impacted) in key agricultural zones; possible platforms for building consensus on priority intervention areas for linking agriculture and nutrition; and possible entry points for integrating nutrition into agricultural projects to achieve better nutrition outcomes, in particular involving women's groups.

## **Expected outcome**

The methodological framework and report/evidence paper will be endorsed by the wider national community involving scientists, farmers, policymakers and other key stakeholders, and used for influencing future related policies and programmes for strengthening the agriculture-nutrition nexus and the engagement of women.

## Annex B. Rapid scan matrix

Themes	Programme area	Existing strategies	Agencies			Data sources	Data collection methods
			<i>Ministries/State Owned</i>	<i>Private/NGO</i>	<i>Development Agency</i>		
Political & Economic Context	Food Nutrition & Health	1.7. Promote healthy food business practices	MCIL MAF Office of the Attorney General (AG) Samoa Tourism Authority (STA) MOH MFAT NHS SROS MNRE MOF	CoC Small Business Enterprise Centre (SBEC) SAME WIBDI NGOs Food industry	FAO WHO	FNP 2013-2018	Desk review
	Food Availability, Access & Use	2.5. Advocate for food pricing and taxes to promote healthy food availability	MOH MCIL MOF Ministry for Revenue (MfR) MESCS MWCS MNRE STA	CoC	FAO WHO DFAT New Zealand Aid Programme (NZAP) SPAGHL	FNP 2013-2018	Desk review

Policy & Governance	Food Nutrition & Health	1.3. Prevent malnutrition and micro-nutrient deficiencies	MOH NHS MOF MWCSO MESC MNRE-soil SROS AG MCIL MfR	NUS Oceania University of Medicine (OUM) SRC University of the South Pacific (USP) CoC	FAO WHO UNICEF International Council for the Control of Iodine Deficiency Disorders (ICCIDD) DFAT NZAP SPAGHL	FNP 2013- 2018	Desk review
		1.4 Strengthen food and nutrition education	MOH NHS MESC NCECE MOF MAF MCIL MWCSO MOF MfR SROS	CoC NUS Private & religious schools NGOs Universities Academic institutions	FAO WHO UNICEF DFAT NZAP SPAGHL	FNP 2013- 2018	Desk review
		1.5 Strengthen promotion of dental health	MOH NHS MESC AG Samoa Family Health Association (SFHA)	Dental practitioners Private & religious schools CoC NCECE	SPAGHL	FNP 2013- 2018	Desk review

			MWCSD STA MOF				
Food Availability, Access & Use	2.2. Strengthen the promotion of local food production	MOH MAF MCIL MESC MOF MOH NHS MOF MNRE-soil MfR	CoC WIBDI USP SRC NGOs Private & religious schools	FAO WHO DFAT NZAP SPAGHL	FNP 2013- 2018	Desk review	
	2.4. Collaborate with partners to promote the preparation of healthy, safe food in the community	MOH MWCSD MESC NHS SROS MCIL MAF STA	APTC NUS Media CoC SAME USP NCECE	FAO WHO DFAT NZAP SPAGHL	FNP 2013- 2018	Desk review	

		2.6. Strengthen monitoring and evaluation of food security	MAF MOH SROS MCIL MfR MOF STA	CoC USP	FAO WHO	FNP 2013-2018	Desk review
		2.7. Collaborate with sector partners to promote sustainable food	MOH MCIL MOF MESC MWCSO MNRE MAF	WIBDI	FAO WHO DFAT NZAP SPAGHL	FNP 2013-2018	Desk review
	Food Safety	3.3. Prevent and manage food borne disease outbreaks	MOH NHS Disaster Advisory Committee SWA MOF MWCSO MNRE SROS	SRC USP	FAO WHO DFAT NZAP	FNP 2013-2018	Desk review
Climate & Environment	Food Nutrition & Health	1.1. Inform disaster risk management	MOH NHS SFHA MWCSO MESC MCIL Public Service	CoC NUS OUM GPs Association Media	DFAT NZAP WHO SPAGHL UNICEF	FNP 2013-2018	Desk review

			Commission of Samoa (PSC) AG MFAT				
	Food Availability, Access & Use	2.8. Collaborate with sector partners on strategies that reduce the negative effects of food production and use on the environment	MOH MCIL MOF MESC MWCSO MNRE MFAT	NGO partners	FAO WHO DFAT NZAP SPAGHL Pacific region partners UN	FNP 2013-2018	Desk review
	Food Safety	3.2. Promote awareness about food safety issues	MOH MNRE MAF MOF NHS SWA		FAO	FNP 2013-2018	Desk review
		3.4. Monitor and evaluate food safety	NHS MOF MWCSO MNRE-soil, SROS MOH AG MCIL MAF SWA	USP SRC Food industry partners Community	FAO WHO DFAT NZAP	FNP 2013-2018	Desk review

Culture, Gender & Equity	Food Nutrition & Health	1.2. Promote appropriate infant and young child feeding	MOH NHS SFHA MWCSO MESC MCIL PSC AG MFAT	CoC NUS OUM GPs Association Media	DFAT NZAP WHO SPAGHL UNICEF	FNP 2013- 2018	Desk review
		1.6 Promote healthy eating and lifestyles	MOH NHS MOF MWCSO STA MFAT MESC SROS AG	Academic institutions NGOs Media CoC Religious organisations Sports organisations Olympic Committee Schools Gyms NUS OUM National Diabetes Centre SRC	WHO FAO SPAGHL George Institute DFAT NZAP	FNP 2013- 2018	Desk review

	Food Availability, Access & Use	2.1. Improve access to affordable and nutritious food	MOH NHS MAF MCIL MfR MOF MFAT MWCS D MSEC AG Ministry of Works, Transport and Infrastructure (MWTI)	Private & religious schools Academic institutions NGOs	WHO UNICEF DFAT NZAP UNDP SPC Pacific Research Centre for the Prevention of Obesity and Non-Communicable Diseases (C-POND)	FNP 2013-2018	Desk review
		2.3. Strengthen the community's understanding about the nutritional value of food	MOH MAF MNRE MWCS D MESC SROS	WIBDI Academic institutions		FNP 2013-2018	Desk review
	Food Safety	3.1. Protect the community from public health risks	MOH AG MAF MFAT MWCS D MCIL MESC SROS	Media CoC NCECE		FNP 2013-2018	Desk review



## Annex C. List of stakeholders interviewed

No	Date	Title	First name	Surname	Gender	Function	Organisation
1	8 September 2015	Mr.	Roger	Toleafoa	M	Assistant Chief Executive Officer – Fair Trading & Codex	Ministry of Commerce, Industry and Labour
2		Ms.	Sa'u	Taupisi	F	Assistant Chief Executive Officer – Apprenticeships & Employment	Ministry of Commerce, Industry and Labour
3		Ms.	Salote	Meredith	F	Trade Sector Coordinator	Ministry of Commerce, Industry and Labour
4		Ms.	Helen	Uiese	F	Assistant Chief Executive Officer – Industrial Relations Occupational Safety & Health Work Permits	Ministry of Commerce, Industry and Labour
5		Ms.	Christine	Laulu	F	Senior Officer – Industry Development & Investment Promotion	Ministry of Commerce, Industry and Labour
6		Ms.	Beth	Onesemo	F	Chief Executive Officer	Ministry of Women, Community and Social Development
7		Ms.	Frances	Reupena	F	Environment Sector Coordinator	Ministry of Natural Resources and Environment
8		Mr.	Jeffrey	Faitua	M	Senior Marine Officer	Ministry of Natural Resources and Environment
9		Ms.	Ruth	Ueselani	F	Water & Sanitation Sector Coordinator	Ministry of Natural Resources and Environment

No	Date	Title	First name	Surname	Gender	Function	Organisation
10		Mr.	Tolusina	Pouli	M	Assistant Chief Executive Officer – Forestry Division	Ministry of Natural Resources and Environment
11	9 September 2015	Ms.	Noumea	Simi	F	Assistant Chief Executive Officer – Aid&Debt Management Division	Ministry of Finance
12		Ms.	Lizbeth	Cullity	F	United Nations Resident Coordinator & UNDP Representative	United Nations Development Programme
13		Mr.	Shaun	Kennedy	M	National Programme Officer for ILO Vanuatu	International Labour Organization
14		Mr.	Ernesto		M	Intern	United Nations Development Programme
15		Ms.	Georgina	Bonin	F	Assistant Resident Representative – Programmes	United Nations Development Programme
16	10 September 2015	Mr.	Lafaele	Enoka	M	SACEP Project Coordinator/Agriculture Sector Coordinator	Ministry of Agriculture and Fisheries
17		Ms.	Kassandra	Betham	F	Development Programme Manager, Senior Health Programme Manager	Australia's Department for Foreign Affairs and Trade
18	11 September 2015	Ms.	Adele	Keil	F	Principal Sector Coordination, Resourcing and Monitoring (SCRM) Officer	Ministry of Health
19		Ms.	Mareta	Faalafi	F	Principal NCD SCRM Officer	Ministry of Health

No	Date	Title	First name	Surname	Gender	Function	Organisation
20	14 September 2015	Ms.	Quandolita	Reid-Enari	F	Assistant Chief Executive Officer – Strategic Policy, Planning & Research	Ministry of Health
21		Ms.	Gualofa Matalavea	Saaga	F	Assistant Chief Executive Officer – HSCRM Division	Ministry of Health
22		Ms.	Ualesi	Silva	F	Assistant Chief Executive Officer – Health Protection and Enforcement Division	Ministry of Health
23		Ms.	Christina	Ulberg	F	Principal Nutritionist	Ministry of Health
24		Ms.	Rumanusina	Maua	F	Assistant Chief Executive Officer – Health Info Systems & Information Communication Technology	Ministry of Health
25		High Chief	Vaasiliifiti Moelagi	Jackson	F	President	Faasao Savaii Women's Committee/Samoa Red Cross/SUNGO
26		14 September 2015	Ms.	Le'aupepe	Lasa	F	Operations Manager
27	Ms.		Lemalu Emmy	Chan Mow	F	Board Member	Samoa Farmers Association
28	Ms.		Adimaimalaga	Tafuna'i	F	Executive Director	Women in Business Development Incorporated
29	Ms.		Kaisarina	Salesa	F	Programme Coordinator	Samoa National Youth Council
30	Mr.		Tilafono David	Hunter	M	Chief Executive Officer	Scientific Research Organisation of Samoa

No	Date	Title	First name	Surname	Gender	Function	Organisation
31	15 September 2015	Mr.	Taimalie Charlie	Westerlund	M	Entrepreneur	Farmer Joe, Pacific Oil, Krissy Snacks
32		Mr.	Owen	Ah Ching	M	Principal Research & Policy Officer	Ministry of Education, Sports and Culture
33		Ms.	Nimera	Taofia	F	Principal School Improvement Unit	Ministry of Education, Sports and Culture
34		Mr.	Viliamu	Eletise	M	Senior School Improvement Unit	Ministry of Education, Sports and Culture
35		Dr.	Gavin	Wall	M	Sub-regional Coordinator, FAO SAP	Food and Agriculture Organization of the United Nations
36		Ms.	Fiasili	Lam	F	Assistant FAO Representative (Programme), FAO SAP	Food and Agriculture Organization of the United Nations
37	16 September 2015	Ms.	Suafai	Salima- Seuseu	F	Chief Dietitian	National Health Service
38		Mr.	Faleata	Savea	M	Manager for Allied Health Services	National Health Service
39		Mr.	Finken	Misimoa	M	Finance Manager (also Acting General Manager of the National Health Service)	National Health Service
40		Ms.	Ane	Moananu	F	Chief Executive Officer	Chamber of Commerce
41		Mr.	Savave	Sapolu	M	Marketing Officer – Trade	Chamber of Commerce

No	Date	Title	First name	Surname	Gender	Function	Organisation
42	21 September 2015	Dr.	Walter	Vermeulen	M	Executive Director	Matuaileoo Environment Trust Inc
43		Ms.	Faafetai	Alisi	F	Chief Executive Officer	Samoa Umbrella for Non-Governmental Organisation Inc.
44		Mr.	Colin	Stringer	M	Consultant	Samoa Association of Manufacturers & Exporters
45		Ms.	Henrietta	McNeil	F	Volunteer	Samoa Association of Manufacturers & Exporters
46	24 September 2015	Dr.	Yang	Baoping	M	WHO Representative	World Health Organization

## Annex D. Consultation questions

Thematic areas	Specific issues	Specific review questions
<b>Political &amp; economic context</b>	<b>Resource needs/ availability</b>	<ul style="list-style-type: none"> <li>• Does your agency have adequate resources to implement its food and nutrition activities?</li> <li>• Are investments economically sustainable i.e. generating revenue to cover operation and maintenance?</li> <li>• Has consideration been given to any development projects/programmes for the next 5 years?</li> <li>• Who are the development partners involved with food and nutrition programmes in your organisation?</li> <li>• Which of the three core programme areas – (i) Food, Nutrition &amp; Health, (ii) Food Availability, Access and Use and (iii) Food Safety – are the majority of your resources allocated towards?</li> </ul>
<b>Policy &amp; governance</b>	<b>Policies and legislation</b>	<ul style="list-style-type: none"> <li>• Are there existing policies and agriculture/nutrition programmes and what are their major goals/objectives as well as incentives for implementation?</li> <li>• Is there any legislation that needs to be updated and/or amended to achieve progress?</li> <li>• Are specific groups targeted e.g. women, children?</li> <li>• (a) If yes, are they targeted separately or as part of a group (household, mother &amp; child)? How?</li> </ul>
	<b>Alignment of national Food and Nutrition Policy 2013-2018 (FNP) to agency goals/ objectives</b>	<ul style="list-style-type: none"> <li>• Are you aware of the FNP 2013-2018?</li> <li>• (a) If yes, are the vision, goals, objectives aligned with your agency food and nutrition priorities?</li> <li>• What objectives or actions in the FNP should be prioritised?</li> <li>• Are there objectives under existing FNP policies where there has been no progress?</li> <li>• What are the main reasons for lack of progress/failure? What are the constraints affecting achievement?</li> <li>• Do strategies need to be developed or added to?</li> </ul>
	<b>Institutional arrangements and capacity</b>	<ul style="list-style-type: none"> <li>• Do the institutions in the sector have an appropriate structure and adequate capacity to implement food and nutrition activities?</li> <li>• If capacity building/technical support has been provided in the past has it been effective? If not, why not?</li> <li>• Is there a need to develop a comprehensive capacity building plan for FNS policies?</li> <li>• Does the Nutrition Unit within MOH drive the FNP?</li> </ul>

		<p>And do women have access to these services? How?</p> <ul style="list-style-type: none"> <li>• Is there an effective steering committee with appropriate sub-committees?</li> <li>• Is there an effective sector coordination unit in place to drive the process?</li> <li>• Is there an annual or periodical review process established to present achievements? If not, how can external and annual monitoring be improved?</li> </ul>
	<b>Performance measures</b>	<ul style="list-style-type: none"> <li>• Are the performance measures aligned to the objectives of the FNP?</li> <li>• Are there measurable performance indicators, which are being used to monitor progress?</li> <li>• Are new indicators needed?</li> <li>• Do data collection systems need to be improved?</li> <li>• Do performance measures influence resource/budget decisions?</li> <li>• How are messages on agriculture and nutrition communicated and by whom?</li> <li>• Have dietary patterns changed over the years and are the changes monitored/documentated?</li> </ul>
<b>Climate &amp; environment</b>	<b>Resilience and disaster response</b>	<ul style="list-style-type: none"> <li>• Are there existing initiatives addressing resilience and disaster risk reduction in food and nutrition policies? Please state which.</li> <li>• What are possible gaps not being addressed in relation disaster risk reduction and improved resilience for food and nutrition?</li> </ul>
<b>Culture, gender &amp; equity</b>	<b>Sector stakeholder analysis</b>	<ul style="list-style-type: none"> <li>• Are all interested and relevant stakeholders engaged in food and nutrition strategies?</li> <li>• Are NGOs, associations, clients or customer representatives, and private sector organisations considered?</li> <li>• Is there enough information/feedback from primary clients or customers in the FNP?</li> </ul>
	<b>Cultural implications</b>	<ul style="list-style-type: none"> <li>• Is consideration given to the cultural context of food/dietary intake and nutrition? (e.g. what is known about food preferences, prejudices etc?)</li> </ul>
	<b>Gender &amp; youth</b>	<ul style="list-style-type: none"> <li>• Has the FNP given proper attention to cross-cutting factors or issues such as: giving adequate consideration to the needs of the poor/minorities/women/disabled people/children?</li> <li>• Who are the major women's organisations involved in the development and implementation of agriculture and food and nutrition programmes? Provide a brief overview of their involvement and:</li> <li>• (a) Identify opportunities for increasing their engagement in future programmes/projects aimed at</li> </ul>

		<p>strengthening the agriculture-nutrition nexus.</p> <ul style="list-style-type: none"><li>• (b) Document what is known about women's decision-making power regarding agricultural production, food purchasing and distribution within the home, and income generation.</li></ul>
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## **Annex E. Briefing note**

### **CTA – food and nutrition focus**

The Technical Centre for Agricultural and Rural Cooperation (CTA) works with a wide range of stakeholders, academic and research institutes, policy-related bodies, farmers' organisations, extension and advisory services and youth and women's groups in the generation of context-specific knowledge for informing policy processes as well as in the development and implementation of strategies and programmes in support of the attainment of food and nutrition security (FNS) goals.

CTA has prioritised strengthening the linkages between nutrition and agriculture as one of the three areas for 2015 and beyond in Africa, the Caribbean and the Pacific. It has also committed to a joint EC/FAO/CTA/WBG (2014) framework of action on "Agriculture and nutrition: a common future" which includes improving "the knowledge and evidence base to maximise the impact of food and agricultural systems on nutrition" as one of the three strategic priorities. This commitment is also reflected in the newly elaborated CTA regional business plans (2015).

#### **Samoa's national food and nutrition policy 2013-2018**

The National Food and Nutrition Policy 2013-18 has been developed to facilitate and support action through the entire food and nutrition system (food production, processing, distribution, nutrition knowledge and food consumption, sanitation, as well as preventive health actions) to achieve better nutrition and health outcomes for Samoans. Good nutrition is essential to reduce NCD incidence, micro-nutrient deficiency disease and malnutrition. Improving nutrition outcomes often requires actions through multiple sectors including health, agriculture, water and sanitation, poverty reduction modelling, and the private sector.

The goals for the policy are contextualised through the following areas: food nutrition and health, food availability, access and use, and food safety. These areas focus partners broadly so that the food system is exposed to an optimal amount of expertise in every area as well as building capacity for the Ministry of Health to respond to the complexity of a continuum of health needs.

#### **Objective of CTA country rapid scan**

A rapid scan funded by CTA will undertake an analysis of existing policies, programmes/interventions and capacities to guide future investments. The main objective(s) of the assessment are:

- To undertake a rapid scan of related policies and programmes/interventions including the identification of major actors and target groups, in-country competencies in nutrition linked to addressing the FNS situation as well as the agriculture-nutrition nexus to learn lessons for formulating guidelines for improving FNS outcomes and strengthening the agriculture-nutrition nexus.
- To document and share the lessons learned with policy-makers, researchers, farmers and other stakeholders.

## Annex F. National validation workshop summary

### Objective

The main objective of the National Validation Workshop was to:

- validate the findings and potential entry points identified in the Samoa Country Rapid Scan Report; and
- share lessons learnt with key stakeholders.

### Programme

The workshop was held on 23 October 2015 at NUS Fale, Papaigalagala. The programme included the following:

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<b>Time</b>	<b>Description</b>	<b>Presenter/Facilitator</b>
9.00 am	Registration	NUS Rapid Scan Team
	Opening Prayer	Rev. Dr. Siaosi Salesulu (Officiating Minister)
	Opening Remarks	Professor Fui Leapai A. Soo (NUS Vice Chancellor & President)
	Introductory Statement	Assoc. Professor Mohammed Umar (CTA Representative & USP Assoc. Professor of Agriculture)
9.30 am	Workshop Objectives & Agenda	Peseta Desmond Lee Hang (NUS Deputy Vice Chancellor)
9.45 am	Rapid Scan Findings and Potential Entry Points	NUS Rapid Scan Team
10.00 am	Morning Tea Break and Photo Opportunity	
10.15 am	Government Agriculture-Nutrition Initiatives	
	National Nutrition Programme	Gail Gummins (Nutrition Advisor)
	Samoa Agriculture Competitiveness Export Project (SACEP)	Lafaele Enoka (SACEP Project Coordinator/Agriculture Sector Coordinator)
	School Nutrition Programme	Owen Ah Ching (MESC Principal Officer)

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11.00 am	NGO Agriculture-Nutrition Initiatives	
	Taiala Programme	Dr. Walter Vermeulen (METI – Director)
	Farm to Table	Faumuina Tafunai (WIBDI Marketing Manager)
		Leaupepe Lasa Aiono (SFA Operations Manager)
	Farmer Capacity and Awareness Support	
11.45 am	NUS Agriculture-Nutrition Programmes	Seumanu Gauna Wong
12.00 pm	Discussions and Way Forward	Peseta Des Lee Hang (NUS Deputy Vice Chancellor)
	CLOSING/LUNCH	

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## Discussions

### Rapid scan findings and potential entry points

Findings associated with limited utilisation of local green leafy vegetables, stagnant agricultural GDP contribution, declining inshore fisheries, and the high and increasing level of overweight Samoans were highlighted during the Rapid Scan presentation. A number of participants raised concerns regarding the use of contribution to GDP as a metric to gauge the performance of agriculture given it does not adequately capture the sector's total contribution (especially informal) to the economy. It was noted that although this metric may not be the most appropriate it is the best metric available at this point in time. MAF representative highlighted that FAO, SPC, MAF and SBS are looking at alternative measures with the upcoming Agriculture Census and the next Agriculture Sector Plan. Given these findings the following entry points were discussed and endorsed by stakeholders:

- Strengthening the WIBDI Farm to Table programme;
- Promoting capacity building and exchange programmes for nutritionists and farmers from ACP countries; and
- Assisting with developing booklets in Samoan regarding vegetable use and cooking.

Severe wasting among children 0-59 months (4%), high incidence of anaemia in children <2 and pregnant women, inaccurate detection of the number of people being underweight, and the severity of malnutrition were noted by participants as very alarming. Participants acknowledged the severity of these statistics and advocated better linkages amongst existing initiatives that were targeting these issues. The following potential entry points for CTA assistance were discussed and endorsed:

- Expand the School Nutrition programme to include the whole family;
- Strengthen the capacity of METI, WIBDI, SFA, SRC, SAME, CoC and University research programmes;

- Support postharvest initiatives or research to improve the shelf-life of local fruits and vegetables and promote the link between FNS and food safety.

Another key finding was that improving dietary intakes of a country's population is a complex task requiring a coordinated multidisciplinary approach of all stakeholders. In this regard the potential entry point identified is to assist with promoting an integrated approach within NUS. Essentially this would entail an integration of existing agriculture-nutrition programmes within NUS to demonstrate a more practical approach for linking production (horticulture programmes), technology (engineering/plumbing) and consumption/nutrition (hospitality/cooking).

Relatively poor opportunities to access funding for operation or implementation, compared to opportunities for accessing technical assistance, was acknowledged as a common challenge by all participants. For example, it is very difficult for an NGO in Samoa to get funding to buy items such as a vehicle which is essential to help grassroots communities, or for a school or governmental agencies to buy cooking and storage equipment such as a conventional oven, or walk in freezer. A potential entry point for CTA endorsed by participants was to provide similar assistance to identified NGOs in response to these challenges.

### **Agriculture-nutrition programmes**

The MOH's presentation on the proposed National Nutrition Programme articulated that the main objective was on malnutrition and improving the health of pregnant mothers and infants under 2. This initiative is set to commence in 2016 once all consultations and proposed activities were endorsed. Synergies with any proposed CTA assistance in this area was encouraged by participants.

SACEP is primarily focussed on improving the production and marketing side of the agriculture sector. Main components are associated with improvements in livestock breeding and management, strengthening local supply of selected fruits and vegetables and enhancing the capacities of implementing agencies in the sector. MAF, through SACEP, are currently providing support to MOH on improving nutrition awareness. Participants were keen to see more resources being leveraged through SACEP on food products with high nutritional value.

MESC outlined the importance of the School Nutrition programme which is currently targeting primary and secondary schools. The main gaps were in the early childhood level given limited levels of resources available.

The main initiatives driven by NGOs included METI's Taiala programme which is piloting the programme in selected villages and advocating a "permaculture" approach which includes elements of agriculture and nutrition.

WIBDI's Farm to Table programme has picked up momentum and WIBDI is now looking at expanding this initiative to include Farm to Home to target better access to nutritious vegetables in households as well as Farm to International Table which will target the export market. Discussions included the importance of collecting data to build the evidence base of the link between agriculture and nutrition, in particular whether consumption habits of farmers supplying the vegetables from Farm to Table initiative had improved since the programme was initiated.

The importance of sound agricultural practices and access to nutritious crops was highlighted through the SFA's Capacity and Planting programme.

### **Recommendations and way forward**

The participants officially endorsed the conclusions and potential entry points identified in the Samoa Country Rapid Scan Report.

A roadmap for improving the agriculture-nutrition nexus in Samoa was noted as follows:

- Endorsement of conclusions and potential entry points at a national level through the National Validation Workshop.
- Cross-learning workshop and confirmation of CTA pilot assistance at country-level based on Samoa Rapid Country Scan Report.
- Pilot project by CTA to be undertaken in Samoa by 2016.

## List of participants

No	Title	First name	Surname	Gender	Organisation
1	Ms.	Ruth	Ueselani	F	MNRE
2	Mr.	Tolusina	Pouli	M	MNRE
3	Ms.	Kilali	Alailima	F	UNDP
4	Mr.	Lafaele	Enoka	M	MAF
5	Ms.	Le'aupepe	Lasa	F	SFA
6	Ms.	Lemalu Emmy	Chan Mow	F	SFA
7	Mr.	Owen	Ah Ching	M	MESC
8	Ms.	Nimera	Taofia	F	MESC
9	Mr.	Viliamu	Eletise	M	MESC
10	Ms.	Fiasili	Lam	F	FAO
11	Ms.	Suafai	Salima-Seuseu	F	NHS
12	Dr.	Walter	Vermullen	M	METI
13	Dr.	Mohammed	Umar	M	USP
14	Ms.	Katifa	Bryce	F	FAKTS
15	Ms.	Kilali	Alailima	F	UNDP
16	Ms.	Faumuina	Tafuna'i		WIBDI
17		Darryl	Pupi		MOH
18	Mr.	Seumanu	Gauna Wong	M	NUS
19	Ms.	Ateca	Silatolu	F	NUS
20	Dr.	Peseta Desmond	Lee Hang	M	NUS
21	Ms.	Nadia	Meredith	F	KVA Consult
22	Dr.	Jean Hugues	Hatier	M	MLS Consult
23	Ms.	Sharon	Oliva	F	SNYC
24	Ms.	Varea	Vaurasi	F	NUS
25	Mr.	Ulisese	Rimoni	M	MCIL
26	Mr.	Albert	Meredith	M	MCIL
27	Ms.	Gail	Gummins	F	MOH
28	Ms.	Kuinimeri	Asora	F	SROS
29	Ms.	Faumuina Felolini	Tafuna'i	F	WIBDI

30	Ms.	Lineta	Tamanikaiyaroi	F	NUS
31	Ms.	Melissa	Naseri	F	
32	Ms.	Luaiufi	Aiono	F	MNRE- Integration of Climate Change Risk and Resilience into Forestry Management Project

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The Technical Centre for Agricultural and Rural Cooperation (CTA) is a joint international institution of the African, Caribbean and Pacific (ACP) Group of States and the European Union (EU).

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For more information on CTA, visit [www.cta.int](http://www.cta.int)

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