

SOSAF 2015

Situation and Outlook for Samoa Agriculture and Fisheries 2015



**Ministry of Agriculture
and Fisheries**



**Food and Agriculture
Organization of the United
Nations**

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Foreword

The Situation and Outlook for Samoa Agriculture and Fisheries (SOSAF 2015) is the Ministry of Agriculture and Fisheries document to present significant trends, issues and information covering the whole of the primary industry of Samoa - Crops, Livestock and Fisheries. This is the second attempt by the Ministry since 2004 to develop such a report, and its purpose is to assist industry stakeholders, policy makers and investors to make better decisions in developing Samoa's primary industries.

The report has highlighted a number of opportunities that are available to producers and processors in both the domestic and export markets. Risks have been identified to provide a realistic and balanced view, and to help with the planning necessary to avoid such threats. The history of agricultural development in Samoa has a number of examples where rapid growth was followed by even more rapid decline, due mainly to a lack of proper information and understanding of the markets. This report aims to support industry growth while avoiding the pitfalls of the past.

The production of this report highlighted the difficulty of obtaining reliable information, particularly for small and emerging industries. This issue will be addressed in future activities of the Ministry. Where the report remains general rather than specific, it is because the Ministry took a conservative approach, and remained within the limits of the information available. Nonetheless there are some exciting opportunities for which there are sufficient confidence to recommend further investigation and investment. Potential benefits are available for both village food production and commercial development.

In recent years, as part of the Agriculture Sector Plan 2011 - 2015, the Ministry has been expanding its partnership with the private sector in jointly developing and revitalizing our primary sector. Coconut, cocoa, taro, fruits and vegetable, organics, aquaculture, sheep and cattle are all examples of where this is happening. Work is progressing on import substitution agriculture products and further processing of crops as this report goes to print.

The production of SOSAF 2015 is an example of the Ministry seeking to assist the industry to develop. The information provided here is designed to assist to increase confidence to invest in Samoa's primary sector, and bring the private sector and government even closer together.

I commend SOSAF 2015 to you, and look forward to a growing primary industry sector, with increased production, processing and marketing of Samoan produce.



Fonoiava Sealiitu Sesega
Chief Executive Officer
Minister of Agriculture
12 August 2015

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Glossary of Acronyms and Abbreviations

ACEO	Assistant Chief Executive Officer
ACP	African, Caribbean and Pacific
APHD	Animal Production and Health Division
EC	European Community
EU	European Union
EPA	Economic Partnership Agreement
EEZ	Economic Exclusive Zone
ESNO	El Nino Southern Oscillation
FAO	Food and Agriculture Organization
FFA	Forum Fisheries Agency
FIC	Forum Island Country
GATT	General Agreement on Tariffs and Trade
HACCP	Hazard Analysis and Critical Control Point
IMF	International Monetary Fund
LDC	Least Developed Countries
MAF	Ministry of Agriculture and Fisheries
MT	Metric ton or tonne
NASAA	National Association for Sustainable Agriculture, Australia
NGO	Non-Government Organization
NTA	New Trading Arrangement
NZAID	New Zealand Agency for International Development
NZODA	New Zealand Overseas Development Assistance
NZ	New Zealand
NZD	New Zealand Dollar
PACER	Pacific Agreement on Closer Economic Relations
PIC	Pacific Island Countries
PICTA	Pacific Island Countries Trade Agreement
SACEP	Samoa Agriculture Competitive Enhancement Project
SAT	Samoa Tala
SDS	Strategy for the Development of Samoa
SOFA	Samoa Organic Farmers Association
TA	Technical Assistance
TLB	Taro Leaf Blight
USD	United State Dollars
UN	United Nations
WB	World Bank
WIBDI	Women in Business in Development Inc.
WTO	World Trade Organization

Section One: Overview

The overview section provides a summary of what 2014 was about in terms of agriculture and fisheries sector performance. It entails a broad picture of current issues and challenges facing the sectors and what the outlook will be.

Agricultural development (encompassing crops, livestock and fisheries) is in one of the four key Priority Areas for the Strategy for the Development of Samoa (SDS) for 2012-2016. This is considered a key outcome area as over 60% of Samoan households are considered to be agriculturally active. Further, the agriculture sector offers some of the best opportunities for Samoa's development.

In recent years, rapid growth in parts of the primary sector has been offset by an overall declining contribution of agriculture to national GDP over the last three years. The industry overall is at an interesting point where there is increasing interest and profitability in commercial farming and agri-processing, but there is decline in traditional areas of production, particularly coconut and cocoa.

Unless there are severe climatic events, the high level of interest in agriculture throughout the country suggests that the next few years will be characterized by new crops, new markets and new products emerging (with assistance from the SACEP Project). At the same time the producers of the traditional crops will become more active in seeking alternative markets and new uses for their products. As in all periods of change, not all initiatives will succeed but the high levels of interest and energy in growing the primary industry sector in Samoa should sustain growth through the highs and lows. Opportunities will be identified and developed at a rapid rate and it will be a challenge for the support services such as banking, research, extension and education to keep up with the participants in the industry.

While the sector is made up of many sub-sectors, there are some that have stood out over the past year. Coconut oil exports have performed well with a high of SAT\$10.8 million in export values during the period 2011/12. Copra meal also in the shadow of coconut oil performed well with an average of SAT\$500,000 per annum export values. Virgin coconut oil also continued to perform at a steady rate with an average of SAT\$283,000 export value per annum. Cocoa is slowly picking up with a current average of SAT\$33,000 export value per annum. Fresh and processed taro products (chips) have also grown with fresh taro exports reaching SAT\$1.4 million in 2013 and a provisional figure of SAT\$2.2 million in 2014, after a long period of industry adjustment as it re-establishes its export markets. The nonu industry continues to recover with export earnings from SAT\$2.2 million in 2010 to SAT\$3.1 million in 2014. Tuna export earnings continue to drop from SAT\$13.4 million in 2010 to SAT\$6.2 million in 2014 and is now preceded by coconut oil as the leading export earner from the agriculture sector. Agriculture's contribution to GDP has continued to slip further from 11% in 2009 to 9.4% for 2014. This has been largely due to faster growth rates in other sectors. Unfortunately, the contribution that agriculture makes to households that depend on subsistence farming is not fully recognized in GDP statistics, which means that its importance to the economy and society could be underestimated by policy makers and donors.

The sustainability of the natural resources used by the sectors is an issue that has been recognized by government and industry. Fisheries and forestry in particular, are areas where this needs to be

addressed. The challenge remains to obtain a balance between sustainable production and resource conservation.

Low catch volumes in the fisheries sector has had a devastating impact on returns and forced many small operators from the industry. A lack of scientific data on the issue means that the problem is not well understood, although a number of stakeholders believe that over-fishing is having major impact. Aquaculture is seen to offer a substitute for declining fish catches, and to provide commercial opportunities. However, it will not make up for the decline in the offshore fishery.

The number of organically certified farms has now reached 588, with strong demand from farmers to become certified. Many stakeholders believe that organics can offer good opportunities for Samoan agriculture due to its traditional low input farming systems. Strict production and product standards, international certification, labeling and investment in market development will be required for value-added export initiatives in the future. The high costs of maintaining the current certification scheme associated with high levels of input required for recording farm information and the high costs of bringing in international certifiers remains an issue.

Positive progress has been made in improving various crop varieties through resistance to pest and disease (eg 2 top taro varieties now exported) and through improving marketability (eg papaya varieties). A broader range of fruits and vegetables are being supplied by farmers to meet strong demand in local markets, with vegetable farmers becoming more aware of relative profitability between crops. This type of financial information, which has not always been available, is now much more keenly sought. But there remains much to be done in educating not only farmers, but community leaders, in the critical importance of making farming a business entity to make it work.

Growth in all primary sectors suffers from a lack of skilled labor entering the workforce. Attracting young people to become trained in the agriculture sector is difficult in Samoa, given that farming generally has a lower social status than professional or office-based occupations and is seldom considered as a viable career path for young people. This is an attitude held at all levels of the village community, with parents encouraging their children to become educated in areas other than agriculture. The fast growing taro industry has sparked some interest to improve the attractiveness of farming and hopefully, this example and the evolving SACEP new crop developments, will attract young people to become interested in farming as a career.

The Samoan government, through the Ministries for Women, Youth and Social Development, and Agriculture, has been working to address the problem. The “Youth of the Year Entrepreneur” award specifically targets young people in rural village communities. Nurturing this initiative can become very effective while using business concepts in agriculture enterprises, for the youth.

MAF is also exploring the potential of establishing district based agricultural training to provide better practical skills and nationally recognized qualifications. The status of being able to obtain qualifications through practical skills is seen as encouraging farming as a career and in improving productivity.

While the attractiveness of agriculture as a career will have significant impacts in the future, the shift to more commercial farming will also require a change in skills amongst Samoa’s farmers.

Traditional farming skills will need to be strongly complemented by business and marketing expertise.

The establishment of industry revitalization groups is addressing declining returns in the cocoa and coconut industries. Other sub-sectors are also forging new groups and vegetable growers associations, poultry farmers associations and taro farmers groups are just a few of many groups that are spear heading developments in their specific areas. The number of grower groups and co-operatives is expected to increase in the future.

Major constraints to industry growth remain access to capital and lack of market development, in addition to the skill shortages mentioned above. As the industry moves more to value adding and niche marketing, access to technical information and support will also become more critical.

The HTFA capacity for papaya and breadfruit exports to New Zealand will need to be expanded shortly if growth continues at its current rate. The establishment of an abattoir to facilitate meat exports to American Samoa will also require investment and both potential investments are considered under the World Bank funded SACEP program. The costs of working capital for processing and exporting, and the cost of importing processing equipment, are both seen to be limiting the growth of the value-adding component of the industry.

Traditional culture and lifestyle can present challenges to establishing more intensive farming systems. Many stakeholders believe that there is a lack of information on how changes in community structure and behavior will impact on farm production and farmer decision-making. Many commercially successful farmers also believe that rural family based customary land farming cannot succeed unless extended family leaders and potential farmers recognize the importance of farming as a business and that the business concept should be in precedence to social and traditional obligations.

Industry stakeholders in the agro-processing and export sector believe that, despite the challenges, Samoa has good opportunities to market its products to higher value international markets. A strength of Samoa's primary industries is that they specialize in producing unique high-value products that can be sold outside the main international, and increasingly competitive, commodity markets. Samoa's supply constraints mean that opportunities in commodity markets are naturally limited. Processing of existing and emerging agricultural products into high-value niche markets is widely regarded as the most appropriate strategy to improving overall sector returns.

Consideration of the assistance that government might provide to industry development and revitalization has also been included in the various sector planning exercises that have been carried out. For some crops, such as coconut and cocoa, the preferred strategies require larger volumes of product to use in redeveloping markets and new products. Necessary volumes will only be achievable through developing large-scale nucleus plantings. Due to the difficulty in coordinating scattered small farming units in the rural areas, contracting farming is seen as the most appropriate approach to securing the amounts needed by processors and exporters, to meet their potential targets. Village-based farmers could then add their small volumes onto this base, as processing and exporting grows.

Production and market prices for the main sectors have had the following trends:

- Taro production has been rebuilding over the past three years following the release of the new resistant varieties for commercial production. From 2009-2014, the estimated area planted to taro increased by 60%. Taro prices have remained steady as exports increase and overflows continue to be sold at local outlets..
- The coconut and cocoa industries have suffered severe declines over the past 10 years. The coconut industry's export income, generated largely from copra oil, copra meal, coconut cream and virgin oil, fell by 58% and 34% for coconut oil and coconut cream respectively from 2010 to 2014. Exports of virgin organic coconut oil have increased by 193% from 2010 to 2014, and copra meal also increased by 157% during the same period. Cocoa remains stagnant and is beginning to grow as diversification into chocolate and other products begins to emerge on the market, for 2014.
- The banana industry remains stagnant as the taro takes the precedence in the domestic market. Its exports show no significant growth and an important entity for chips/snacks import substitution.
- Vegetable production increased and local head cabbage production replaces imports. Farmers are also shifting from subsistence into semi-commercial production due to increased demand for vegetables and rising vegetable prices (ie 10-30% from 2010-2013).
- The export nonu juice industry is recovering fast with exports growing from 501,000 litres in 2010 to 719,000 litres in 2014.
- The organic products currently being exported from Samoa are extra virgin organic coconut oil, fetau oil and nonu juice.
- The fishery tuna industry is declining as climate changes impact on the sea increasing temperatures causing migratory tuna to move down to cooler zones. Fish catches decreased from 2,158 mt in 2010 to 1,205 mt in 2014.
- Beef cattle numbers have been increasing slowly and are expected to reach 30,000 in 2004, as more farmers favour commercial production for the *fa'alavelave* market. Almost 6% are operating commercially. Raising pigs and chickens is still an integral part of village farming systems, with a -2.4% and -6.0% decrease in numbers respectively, from 1999 to 2009. The dairy industry remains very small with a national herd of less than 100 cows.

Outlook for the main industries from 2015-2018 is as follows:

- Taro production is likely to continue to grow as farmers rebuild areas and exports to New Zealand expand.
- Taamu and taro palagi production levels are likely to stabilise at lower levels as their value as a substitute for taro diminishes.

- Slight growth is forecast for Samoa's cocoa and coconut industries due to a slow increase in the area planted to these crops.
- Banana production is expected to stabilize due to rising cost of inputs and poor farmer returns.
- The shift in trend from subsistence vegetable production to semi-commercial production is likely to continue, with prices remaining firm in local markets. The rate of growth in area of vegetable production will be limited however due to a range of constraints including labour shortage, increased chemical costs and lack of technical knowledge. The opportunity for import substitution remains promising as commercial farms expand.
- Nonu production is likely to continue to grow at steady rates due to the establishment of nonu orchards, increased harvest of uncultivated trees and short time to maturity. Organically certified nonu could give Samoa a marketing advantage as production increases dramatically around the Pacific.
- Strong growth is expected in the organic sector, with 588 farms currently registered as organic farms. Provided additional funding is available to carry out organic certification, it is anticipated that an additional 1,000 hectares will become certified over the next three years. WIBDI remains a strong driver for organic farming, and it will be wise for MAF to contract WIBDI to drive additional services required for further development.
- The future for offshore fisheries looks uncertain due to declining catch volumes. Some growth in inshore fisheries at a subsistence level can be expected over the next three years as fish stocks replenish due to rigorous conservation and management regimes recently implemented.
- Aquaculture for the aquarium market and food production will expand. Both subsistence and commercial farmers will become increasingly involved.
- Cattle numbers are expected to reach 32,000 by 2018 as commercial cattle farming becomes more popular and farmers anticipate the building of a national abattoir. Sheep farming is attracting more and more interest from Livestock Farmers, and is expected to be a fast growing livestock industry in the next five years. Pigs, poultry and dairy production will remain relatively static, although poultry has grown to completely substitute egg importation. Feed cost remains an issue and should be addressed by both private and public sectors in partnership.

Section Two: Situation and Outlook – Background and Issues Affecting the Sector

2.1 Samoan economy and exchange rates

2.1.1. Samoan economy

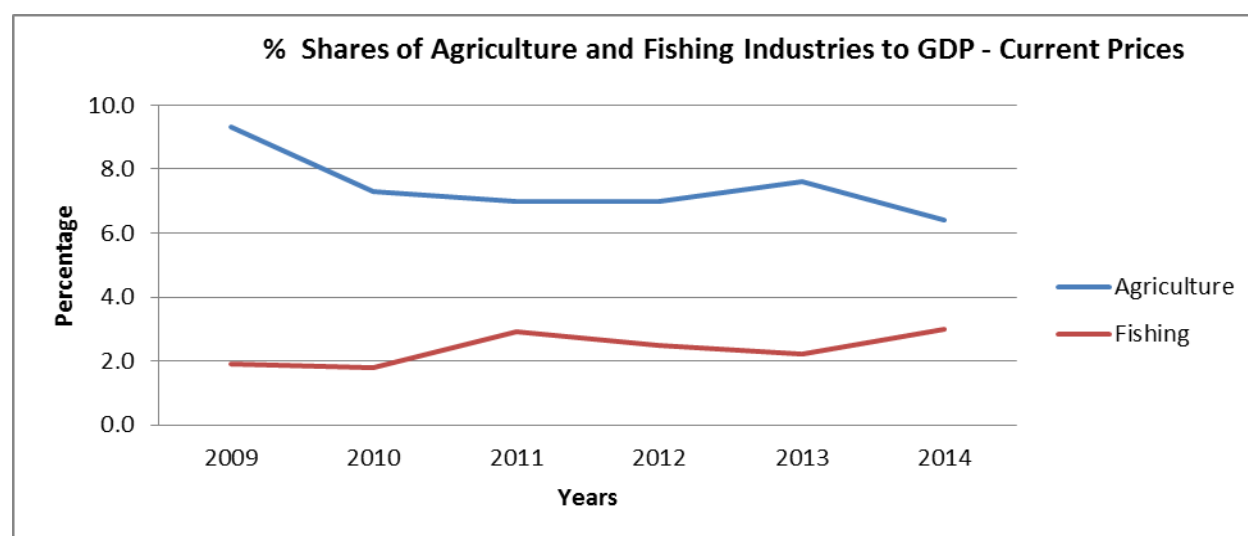
The economy had a mixed performance for year 2014 with average GDP growth at 2.4 percent for September and December quarter supported by increases in output by the Commerce, Transport, Electricity and water, Personal and other services. The Central Bank had about 4.8 months of import coverage for the third quarter of 2014. The economy also ended the third quarter 2014 with a SAT\$34.6 million deficit in its balance of payments account, caused largely by expansion of 13.8 percent in import payments despite a moderate 12.5 percent improvement in export proceedings in the third quarter of 2014.

Lending interest rates still remain around 3.2 percent. The weighted average commercial interest rate, for the September quarter, was 3.2 percent and is largely a response to the increase in loans directed to the Transport, Storage and Communication, Other activities, Trade and Building construction and installation sectors.

Headline inflation from the Central Bank of Samoa having tracked at around -1.2 percent at end of September 2014 from June 2014, but lower than -0.7 percent a year before.

On the other hand, Central Banks underlying CPI rose by 1.3 percent in September 2014 from 0.3 percent rise in the previous quarter. However, its annual average inflation level edged up to 0.9 percent in September 2014 from 0.8 percent in June 2014 and 0.3 percent in September 2013.

Figure 2.1: Percent Shares of Agriculture and Fishery Industries to GDP – current prices.



Source: Samoa Bureau of Statistics

The performance of Agriculture and Fisheries has been stagnant in the last five years or so. The Fisheries Sector has attested to the climate change phenomena, with the rising sea temperatures causing lower than usual catches for the commercial long line tuna industry. However, 2014 recorded a slight increase in catches. SBS reported that Fishery added value amounting to SAT\$11.3 million at constant 2009 prices for the December 2014 quarter. This was 35.5% higher than the SAT\$8.3 million produced in the same quarter of 2013. The industry contributed a positive 0.7 percentage points to the overall growth of GDP and having a share of 2.9 percent of GDP. The Agriculture Sector also stagnating as it begins to recover some of its export markets on its more traditional commodities such as the taro and coconut products. The December 2014 quarter recorded a significant drop of 15.4 percent on a year on year basis, contributing a negative 1.4 percent points to the overall growth of GDP. However, this was offset by the substantial increase in the export of taro by 65 percent when compared to the corresponding period of 2013.

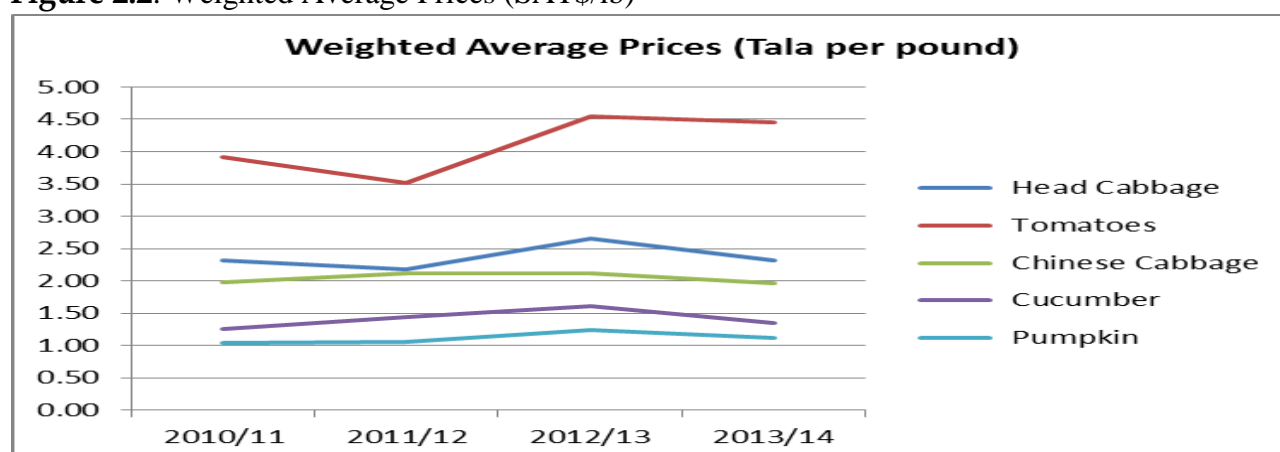
Table 2.1: Percentage Shares of Total GDP for Agriculture and Fisheries – Current Prices

	Agriculture	Fisheries
2009	9.3	1.9
2010	7.3	1.8
2011	7.0	2.9
2012	7.0	2.5
2013	7.6	2.2
2014	6.4	3.0

Source: Samoa Bureau of Statistics

Agriculture's share of total GDP is expected to have positive growth in the next couple of years with the SACEP project currently boosting the development of the fruit and vegetable and livestock industries.

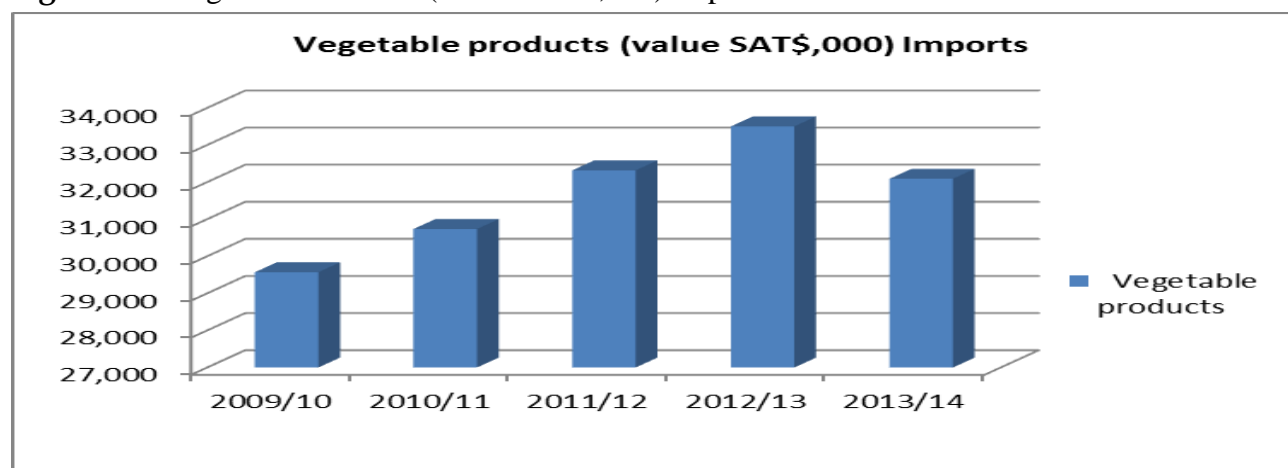
Figure 2.2: Weighted Average Prices (SAT\$/lb)



Source: Samoa Bureau of Statistics

The trend for the Fugalei Market prices, for especially the vegetables, shows a direct correlation to supplies. The slight hike in prices in 2012/13 was due to the slight decrease in supplies caused by cyclone Evan in December of 2012. Considering that part of the GDP calculation uses the Fugalei Market price trends, there is little evidence to show a willingness of these industries to expand in the current set-up; and implies a need to diversify and develop expansion of markets, which includes the very much sort after import substitution, for agriculture GDP contribution to grow.

Figure 2.3: Vegetable Products (Value SAT\$,000) Imports



Source: Samoa Bureau of Statistics

The importation of vegetable products increased also during the 2012/13 period in line with the increase of local vegetable prices (drop in local supply). This shows that direct substitution can be increased once an understanding of the market needs is taken into consideration, such as quality, consistency of supply and packaging. A strong consideration of commodity chain evaluations for fruit and vegetables would benefit the industry a lot.

The 2002 HIES reported that the value of home grown/produced items used by households was at SAT\$2,086, or 20 percent of the total income. The 2008 (2010 Report) HIES states that the proportion of own production in food consumption stands at 28.4 percent of total food consumed at the national level.

Table 2.2: Proportion of Own Production in Food Consumption

Proportion of Own Production in Food Consumption						
% of total food consumed (2008 HIES)						
	National	Apia Area	Urban	North-West Upolu	Rest of Upolu	Savaii
Average All Households	28.4	10.2		24.4	41.9	38.0

Source: Samoa Bureau of Statistics, HIES 2008

Table 2.3: Food Purchased and Home Production for Own Consumption

Food Purchased & Home Production for Own Consumption										
SAT per capita per H/Hold per week (2008 HIES)										
	National		Apia Urban		North-West Upolu		Rest of Upolu		Savaii	
by per capita H/H expenditure	Purchased	Own Production	Purchased	Own Production	Purchased	Own Production	Purchased	Own Production	Purchased	Own Production
Average All House Holds	30.10	11.93	42.24	4.81	30.74	9.96	22.40	16.15	28.68	16.36

Source: Samoa Bureau of Statistics, HIES 2008

The 2008 HIES reports that the Apia urban area indicates the lowest consumption of own grown food, at about 10.2 percent, followed by North-West Upolu at 24.4 percent, Savaii at 38 percent and the rest of Upolu at 41.9 percent. This is consistent with the high percentage of paid employed workers in Apia followed by North-West Upolu, which houses the Industrial Zone and Yazaki at the semi-urban Vaitele area. The growing urban Salelologa area in Savaii accounts for the lower than the Rest of Upolu figures. In this context, although not much data and study has been done in this area, consultations with stakeholders suggest that a lot of paid workers in Apia have families in Savaii, and support flows back there. The 2008 HIES suggest that this pattern is normal as urban areas require more expenditure in non-food items such as water rates, electricity, transportation and many other obligations not demanded of in rural areas.

The 2002 HIES reports that about 51 percent of household expenditure was on food compared to the 2008 HIES which reported a significant drop to about 37 percent of household expenditure was on food. The same explanation accounts here, as modern technology demands more expenditure on household non-food items such as electricity for refrigerators, TV, computers and also private transportation demands more expenditure.

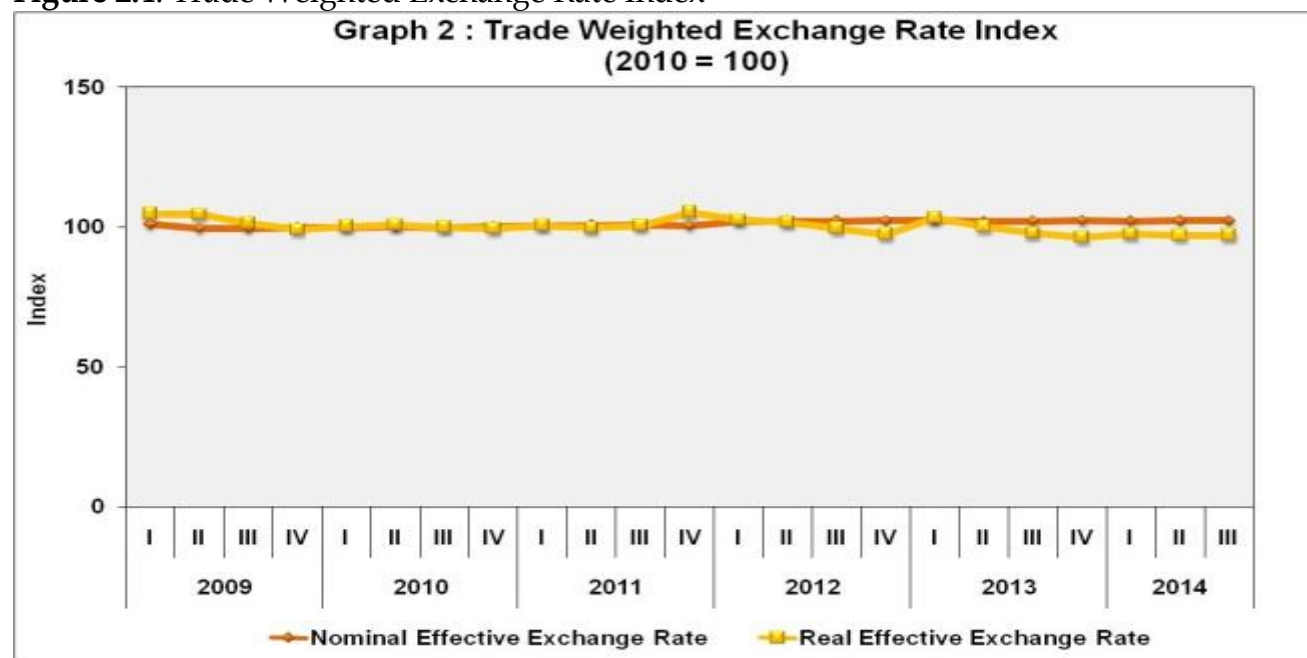
2.1.2. Exchange rate movements

The latest Central Bank figures are for the quarter ending September 2014, and suggest the following: The greenback continues to strengthen in the three months ending September 2014 on speculation that the US Federal Reserve will raise interest rates by mid-2015 as further releases of strong economic data out of the US were also expected. The currencies of Australia, New Zealand, the Euro-area, Japan and China all weakened as a result of the

rallying US dollar. Worse than expected economic data from around the globe, drop in equity and commodity prices and concerns about the economic slowdown in China also weighed on the higher-yielding currencies.

For the Samoan Tala's nominal index (NEER), the overall value of the Samoan currency against the currency basket appreciated on an average 0.02 percent in the year to September 2014. In the same period, Samoa's real effective exchange rate (REER) depreciated another 2.78 percent, giving Samoa's exports slightly more competitive as its inflation rate was comparatively lower than that of its trading partners for the period ending September 2014 (see Figure 2.4).

Figure 2.4: Trade Weighted Exchange Rate Index



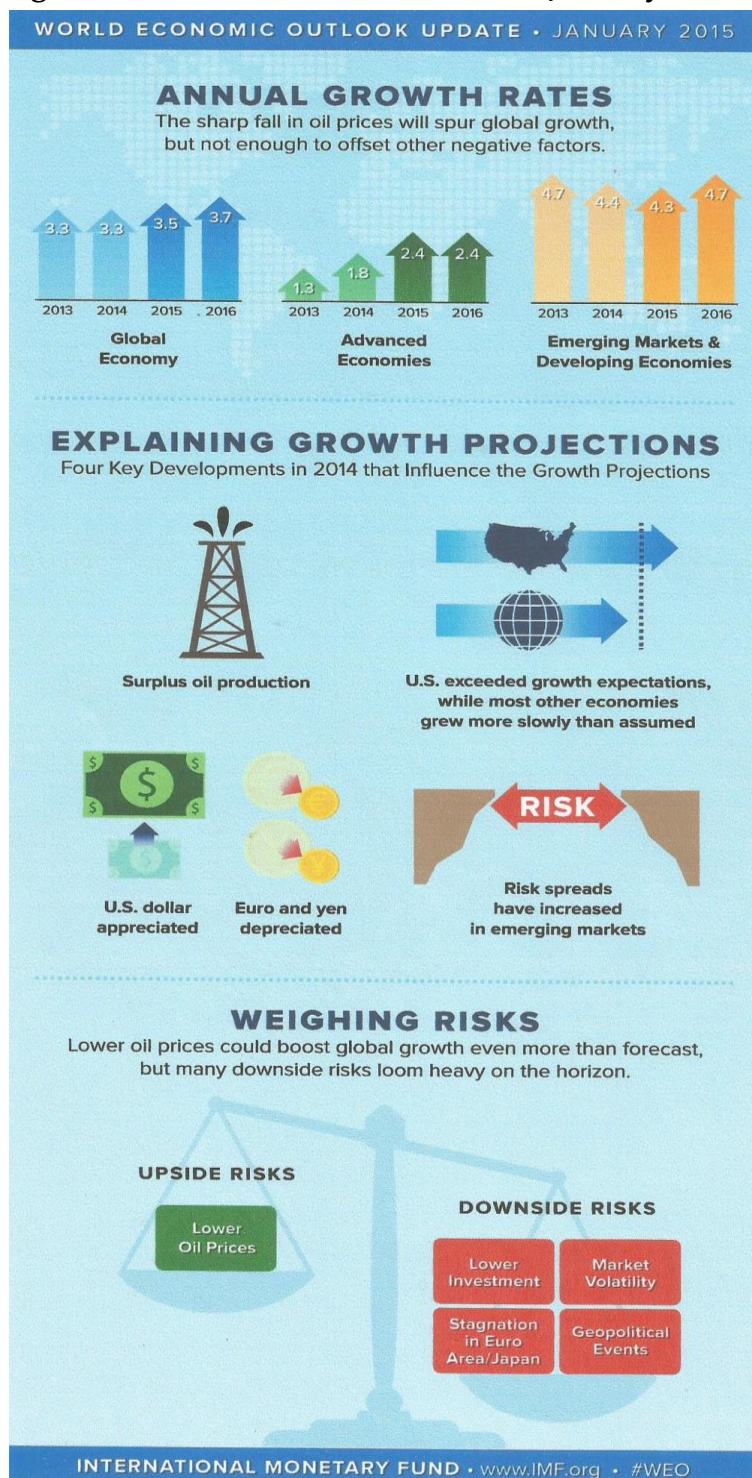
Source: Central Bank of Samoa, May(2015)

Note: Data for 2014 is for the first nine months

2.2 The world economy

2.2.1 Global Trends

Figure 2.5: World Economic Outlook January 2015



The global economic recovery of countries from the 2008 financial crisis has been slower than expected due to high levels of debt and unemployment in developed economies. However, the sharp fall in oil prices will spur global growth, but not enough to off-set other negative factors.

Figure 3.1: World Economic Outlook Update, January 2015. IMF.

The World Economic Outlook UPDATE, January 20, 2015 states that, Global growth will receive a boost from lower oil prices, which reflect to an important extent higher supply. But this boost is projected to be more than offset by negative factors, including investment weakness as adjustment to diminishing expectations about medium-term growth continues in many advanced and emerging market economies.

The World Economic Outlook goes on to project global growth in 2015-2016 at 3.5 and 3.7 percent. This is a downward revision from the World Economic Outlook in October 2014, and reflects a reassessment of prospects in China, Russia, the euro area, and Japan as well as weaker activity in some major oil exporters because of the sharp drop in oil prices. The United States is the only major economy for which growth projections have been raised.

The International Monetary Fund's (IMF) recent projections of world Gross Domestic Product (GDP) for calendar years 2014 and 2015 have been revised down slightly from their July projections to 3.3 and 3.8 percent respectively. The robust growth in the USA, the world's largest economy, is expected to be moderated by a slowing down but more sustainable growth rate in China, the second largest economy. In its flagship World Economic Outlook (April 14, 2015), the Washington-based institution kept projected the forecast for global growth this year at 3.5 percent. For 2016, the IMF now expects global gross domestic product to expand 3.8 percent up from the 3.7 percent it forecast in January (see above).

2.2.2 Regions

2.2.2.1 European Union

In the stressed euro area economies, growth is expected to remain weak and fragile as high debt and financial fragmentation hold back domestic demand.

Advanced European economies are expected to resume growth, but inflation remains very low. The projected stronger growth in these advanced economies for 2014 was lower than expected.

2.2.2.2 Asia, China and Japan

In the global projects, there reflects IMF's growing concern about key developing countries, including Russia, Brazil and South Africa, and fears of a greater slowdown in growth in China, as the world's second largest economy rebalances away from investment toward consumption-led growth.

Japan is also expected to show positive growth as the oil prices remains lower in trading. Slower growth could have significant negative spillovers for economies with strong trade and foreign direct investment linkages with Japan (Indonesia & Thailand).

2.2.2.3 United States

The robust growth in the USA, the world's largest economy, is expected to be moderated by a slowing but more sustainable growth rate in China, the second largest economy.

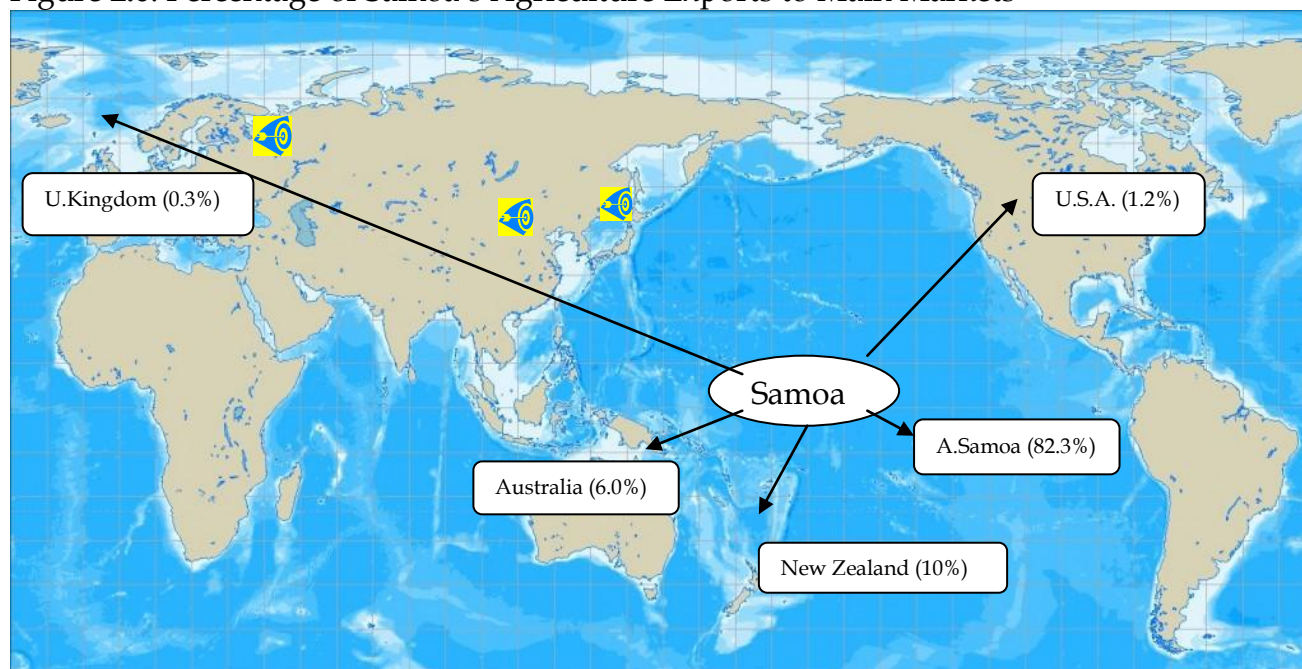
2.2.2.4 New Zealand and Australia

In the last five years, both the New Zealand and Australian economies have been enjoying economic growth. The New Zealand economy grew by 2.7percent due to construction spending, whilst the Australian economy lingered at 2.8percent in 2014. New Zealand is benefiting from continued demand from the primary industries, particularly agriculture. Australia, a net exporter of primary products and metals is taking advantage of strong demand from Asia, especially the Chinese economy.

Despite strong growth, there are signs of a slowdown on the horizon, as rising interest rate is slowing the housing boom in New Zealand, and the impact of high currency values start to take effect on export competitiveness for both countries. The challenge is therefore to sustain the prolonged economic growth.

2.3 An update of Global Trade Issues of relevance to Samoa

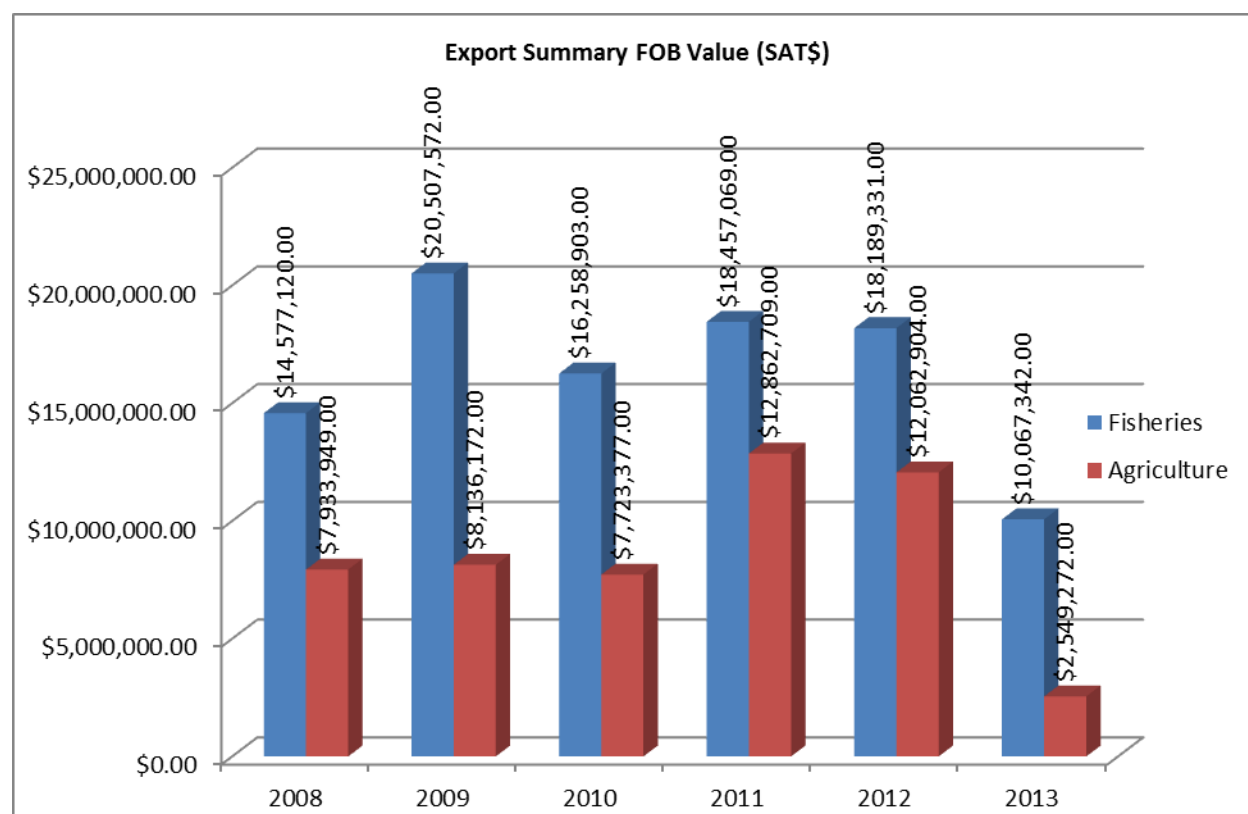
Figure 2.6: Percentage of Samoa's Agriculture Exports to Main Markets



Source: Compliments of PPCD file – MAF

In 2013, Samoa's total agricultural (and fisheries) exports recorded were mainly tuna (fresh), at about 77 percent followed by taro at about 11 percent and crude coconut oil at about 4 percent. Other important exports include nonu, coconut cream, virgin coconut oil, copra meal, drinking coconuts, vegetables, banana, kava and other root crops such as yams, sweet potatoes and taamu.

Figure 2.7: Export Summary FOB Value (SAT\$)



Source: Samoa Bureau of Statistics

Samoa is situated in the center of the Pacific Ocean and does not have most direct trading routes. It is somewhat isolated and most routes to its trading partners are through Fiji and are costly and less frequent.

2.3.1. Samoa's Accession to the World Trade Organization

The World Trade Organization (WTO) provides an institutional framework for multilateral trade negotiations and the adjudication of trade disputes. It was formed in 1994, after the Uruguay Round of the General Agreement on Tariffs and Trade (GATT) successfully concluded in 1993. Before the Uruguay Round, agriculture had largely been left out of GATT negotiations. The Uruguay Agreement on Agriculture committed contracting parties to reduce their export subsidies, domestic support and import barriers on agricultural products.

Samoa gained full WTO membership in 2012 after working towards its membership since 1998. While Samoa has commitments to concessionary requirements in set timeframes, its current position in agricultural and fishery developments and priority commodities have broadened from the original priority areas. The development of evolving industries such as the sheep industry, the onion, carrot and Irish potato industries under the SACEP will most

probably not have the concessionary benefits, now that Samoa has graduated from LDC status.

Although Samoa has anticipated long-term benefits from its WTO membership, very little investment is trickling into the Sector as other factors such as the Global Recession, Natural Disasters and other policy barriers inhibit investment opportunities into the Agriculture and Fisheries Sectors.

2.3.2. *Pacific ACP – EC EPA Negotiations*

The Cotonou Agreement, signed in June 2000, is an agreement between the African, Caribbean and Pacific (ACP) group of countries and the European Union (EU) countries, and provides for negotiations of economic partnership agreements (EPA's) and new trading arrangements (NTA's).

The more than 25 years of Trade and Economic Cooperation between the ACP countries and the European Union (EU) under the successive Lome Conventions and now the Cotonou Agreement will be put into new perspectives in the context of the negotiations of EPA's between the two groups of countries.

Trade and Economic Cooperation, is based on the extension to the ACP of enhanced market access through trade preferences. In fact all industrial products and about 85% of products of agriculture and agro industries from the ACP are subject to quota free and duty free treatment on the EU market.

The duty free benefits for all the other products have always provided an edge to ACP suppliers in terms of competition. Tariffs applied on Textiles and Clothing from third countries, for instance are to the tune of 12-14% on average. Products like canned tuna attract even higher duty ranging between 24-30%. The margin of preferences for the ACP countries over third country imports (the difference between the duty free access for the former and the rate applicable to the latter) is quite substantial in many cases and confer a definite competitive advantage. This is precisely the reason why the EU remains the prime market of almost all the ACP countries and will remain so for still a long time.

Samoa stands to benefit from such agreements especially under the agriculture and fisheries sectors. With the opening up of the Kava ban in Germany, the Pacific including Samoa can benefit under this new outcome for Kava. Samoa used to export kava in the 1990's with export values reaching up to nearly SAT\$5 million in 1998, making it one of the major agricultural export commodities at the time.

2.3.3. PICTA and PACER PLUS (Pacific Agreement on Closer Economic Relationships)

PICTA has had little impact on Samoan export sector in the past, due to low regional trade and the supply challenge Samoa faces when it establishes markets. Most agricultural products are traded with New Zealand, Australia and the United States of America, which draws more attention under the PACER PLUS agreements.

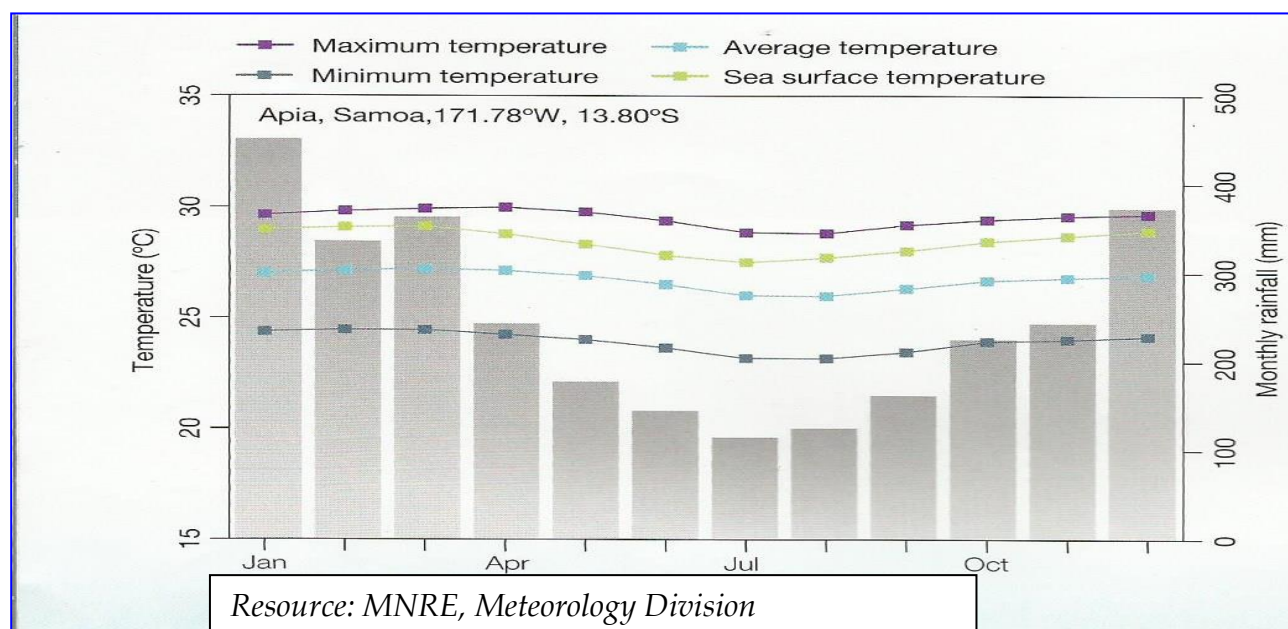
The recent commitment by Australia and New Zealand to inject funds to develop Pacific Island's capacity in Trade will be a good opportunity for the SAME in partnership with MAF to develop niche markets and promote agriculture commodities for export trade.

2.4 Climate

2.4.1. Weather and climate to date

Temperatures in Samoa are generally consistent throughout the year, with only very small seasonal differences (see Figure 3.6). Average temperatures are coolest in July, when the cool, dry south-east trade winds are strongest. The warmest month is March. The country has two distinct seasons – a wet season from November to April and a dry season from May to October. On average 75 percent of Samoa's total annual rainfall occurs in the wet season.

Figure 2.8: Seasonal rainfall and temperature at Apia



Samoa's rainfall is greatly influenced by the position and strength of the South Pacific Convergence Zone. This band of heavy rainfall is caused by air rising over warm water where winds converge, resulting in thunderstorm activity. It extends across the South

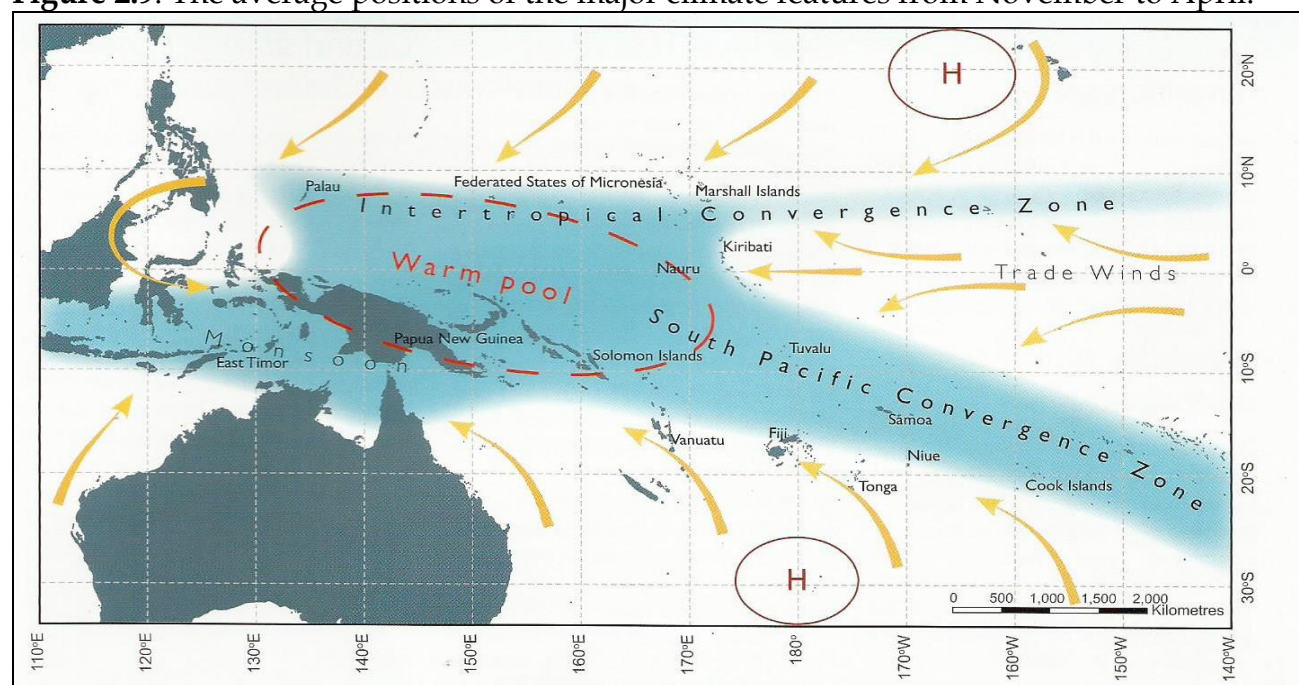
Pacific Ocean from the Solomon Islands to the Cook Islands and lies between Samoa and Fiji during the wet season (see Figure 2.8).

Samoa's mountains have a significant effect on rainfall distribution. Wetter areas are located in the south-east and relative sheltered drier areas in the north-west.

Samoa's climate varies considerably from year to year due to the El Niño-Southern Oscillation. This is a natural climate pattern that occurs across the tropical Pacific Ocean and affects weather around the world. There are two extreme phases of the El Niño-Southern Oscillation: El Niño and La Niña. There is also a neutral phase. In Samoa, El Niño events tend to bring wet seasons that are drier than normal, while La Niña events usually bring wetter and cooler than normal conditions.

Samoa experienced wetter than normal weather conditions in 2014 with overall rainfall recording above normal conditions. The span of variability each month continued from 2013, where the average rainfall was also above normal in comparison to the last thirty years for the whole country.

Figure 2.9: The average positions of the major climate features from November to April.



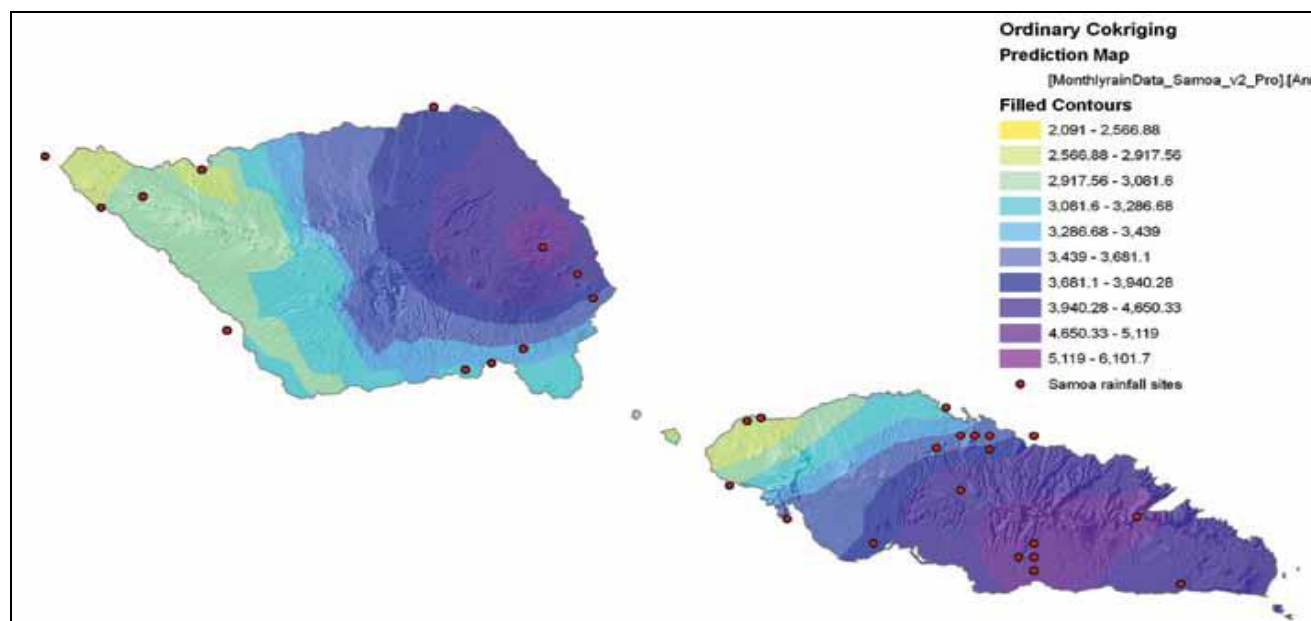
The average position of the major climate features from November to April. The arrows show near surface winds, the blue shading represents the bands of rainfall convergence zones, the dashed oval shows the West Pacific Warm Pool and H represents typical positions of moving high pressure systems.

Source: MNRE – Samoa Meteorology Division

2.4.2 Seasonal Climate Outlook for January to June 2015

The Meteorology Division expects a good chance (50%) of a weak La Nina occurring from January to February and 30 percent chance in March, which is likely to bring wetter (high amount of rainfall) than normal weather conditions. The spell of above normal rainfall is expected to ease off towards April-June when the chances of a La Nina phase continuing drops off to 30 percent, while the chances of an ENSO Neutral phase increases to 50 percent for the rest of 2015.

Figure 2.10: Rainfall Maps for Samoa



Source: MNRE, Meteorological Division

Maps of long-term average climate variables (such as rainfall and temperature) are useful for seeing how one area differs from, or is similar to, another area.

Section Three: Situation and Outlook - Primary Sectors

3.1 Agriculture - Crops

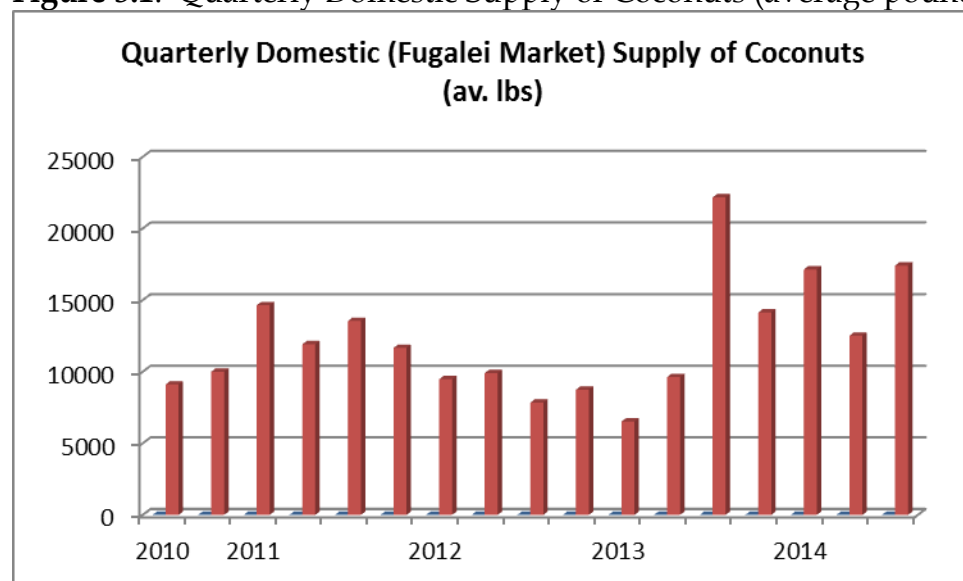
3.1.1 Situation and Outlook: Major Tree Crops

The Fugalei Market in Apia accounts for roughly 60 percent of all locally sold commercial produce and is used in this section as an indicator of national production and market conditions for most crops.

3.1.1.1 Production

Coconut supplies to the Fugalei market have increased through much of 2014 after a temporary dip in domestic coconut in especially the first quarter of 2013 following cyclone Evan in December 2012.

Figure 3.1: Quarterly Domestic Supply of Coconuts (average pounds)



Source: Samoa Bureau of Statistics

Table 3.1: Quarterly Domestic Supply of Coconuts (average pounds)

Quarterly Domestic (Fugalei Market Survey) Supply of Coconuts (av lbs)																
2010		2011				2012				2013				2014		
III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III
91	99	146	119	135	116	94	98	78	87	65	96	221	141	171	125	174
01	97	39	17	45	57	70	99	35	39	17	20	69	35	35	08	04

Source: Samoa Bureau of Statistics

While coconut supplies to the Fugalei market have returned to above average 2010 levels, a fair volume is consumed by the processing sector for the production of coconut cream, virgin coconut oil, crude coconut oil, copra meal and drinking coconuts (see Markets and Prices Section).

Although the 2009 Agricultural Census reported about 28,000 hectares of coconut cultivated and harvested, replanting schemes implemented by MAF on coconut throughout the early 2000's suggest an additional 45,000 hectares (112,500 acres) coming into fruiting bringing the national estimates at about 50,000 hectares harvested, with aggregate production output for 2014 estimated at 28,645.83 mt (copra equivalent¹), or about 99 million nuts. MAF reports at the XLVII APCC² Session Ministerial Meeting (Solomon Islands), Samoa Country Report 2011, that aerial photography land under coconut is estimated at more than 90,000 hectares, which brings the rest of coconut land under secondary forests (and senile trees), to an estimated 40,000 hectares³. The figures highlight a huge land area under coconuts that are not able to be maintained and harvested, and if rehabilitated, can boost coconut production outlook.

MAF continues to distribute hybrid coconuts to farmers at \$0.20sene per seedling. In 2013/14 a total of 39,246 seedlings were produced and distributed (sold and given out free under development projects), a rise of about 275 percent from 10,479 in 2012/13. These seedlings are likely to come into production within 6-10 years, however, overall area maintained under new planting still remains low.

The outlook for coconut production will continue to remain around an annual supply volume of between 28,000 mt copra equivalent (99 million nuts) and 29,000 mt copra equivalent (100 million nuts). Market uncertainty including low market prices and the slow revitalization activities for the industry will continue to restrict production growth, dampening farmer confidence.

Cocoa production in 2013/14 remains relatively stable with a total estimate of around 388 metric tons. The change in strategy by MAF ten years ago to promote the fine-flavor cocoa varieties, Trinitario and Criolo, and to phase off the low quality Amelonado, will see a change in direction of markets to the niche, fine-flavour, high quality cocoa market, and the promotion of *Koko Samoa* (see Figure 3.2).

In 2013/14 a total of 80,174 cocoa seedlings were distributed by MAF up from 25,513 in 2012/13 and 20,000 in 2011/2012.

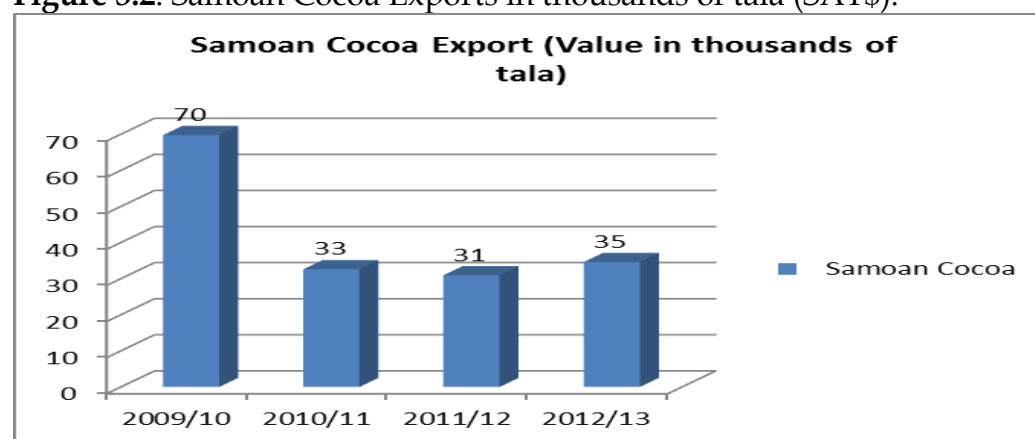
¹ Estimated 3.5 mature nuts to get 1 kg copra.

² Asian, Pacific, Coconut Community

³ 2011 - XLVIII APCC Session, Samoa Country Report (MAF); MAF/MNRE GIS Aerial Land Use Map – estimates.

Despite the high amount of planting materials given out by MAF Crops Division, it cannot match up with the number of senile and affected trees by diseases due to the prolonged wet season throughout the last couple of years. Climatic condition and technical problem like blooming are still major problems to the cocoa farmers, especially during the wet season. As a result some farmers have replaced old trees with more easily managed short term crops. As some cocoa industry stakeholders suggested that moving into planting vegetable and taro are more profitable. In general, the cocoa production from the last three years has not significantly changed.

Figure 3.2: Samoan Cocoa Exports in thousands of tala (SAT\$).



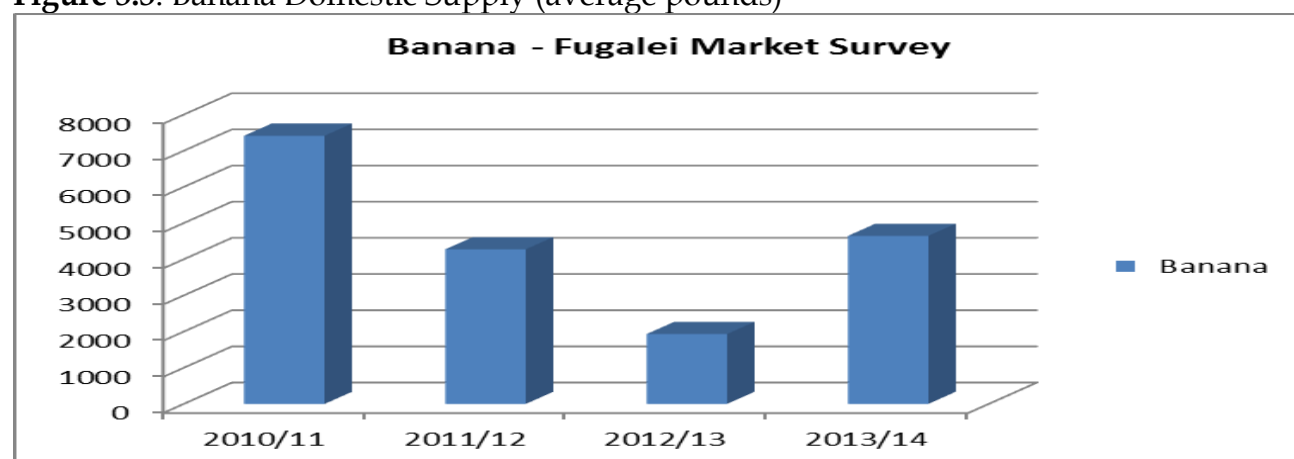
Source: Samoa Bureau of Statistics

The outlook for production of cocoa, given significant percent increases of cocoa planting material given out to farmers from the last three years, will continue to have small increases. Educating farmers in improved farm management (including area suitability) and market oriented approached through MAF Crops Division workshop training can contribute to the production increase. Farmer's association and farmer groups (including cocoa/chocolate processors/advocates) can be a driving body to the cocoa sector to prompt growers to improve their production not only to the cocoa but also the coconut sector as well.

Improving roads access to farm land has not lessened the movement of farmers to other developments that appears to have more attractive income opportunities like tourism. To reduce market uncertainty which has threatened the sector, it is essential that a healthy network of communication between MAF and the Private Sector, especially the processors and exporters of both cocoa and coconut be nurtured, so that both can jointly complement each other, at promoting production and processing for lucrative markets; the latter, which can be strongly driven by private entrepreneurs/processors that are currently marketing these products.

Banana: The average supply to the Fugalei market in the year 2013/14 continues to increase from the ditch in 2012/13 due to cyclone Evan in December 2012. However, its future projections is expected to slow down a bit as the taro industry's dynamic growth for the export market will overflow into the domestic market, and will compete with all other staples there.

Figure 3.3: Banana Domestic Supply (average pounds)

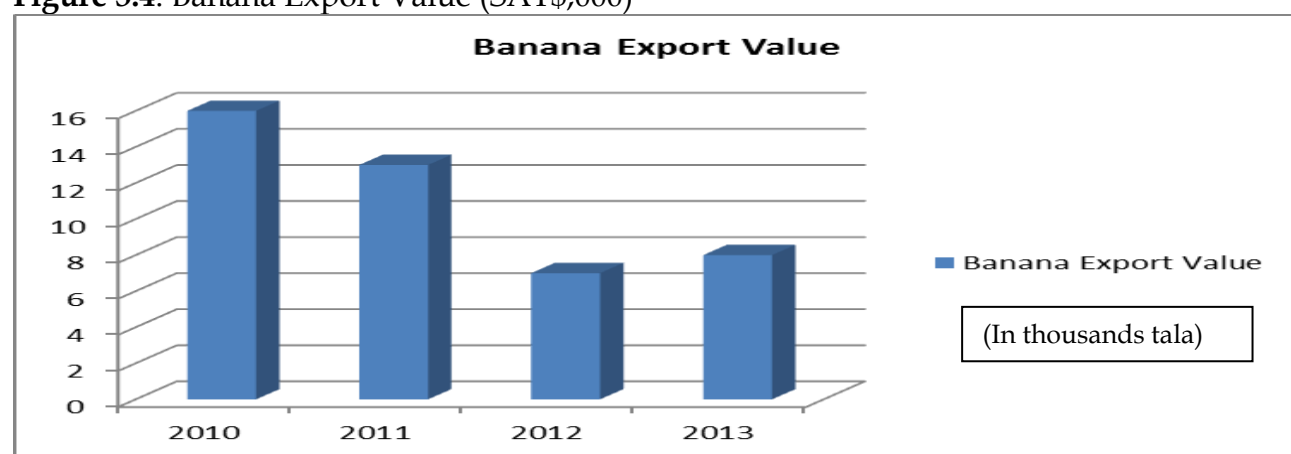


Source: Samoa Bureau of Statistics

Given a growing number of banana chip processors with strong demand, new investors can still find new niche markets to sustain the industry.

Gradual increase in green banana supply, as suggested by some industry farmers was mainly from Cyclone Evan's relief assistance through FAO, ADRA and World Bank funded programs providing planting materials and inputs. MAF Extension has also continued to distribute banana planting material to farmers, approximately 6,355 planting material was distributed in the financial year 2013/14, compared 601 planting material in 2012/13.

Figure 3.4: Banana Export Value (SAT\$,000)



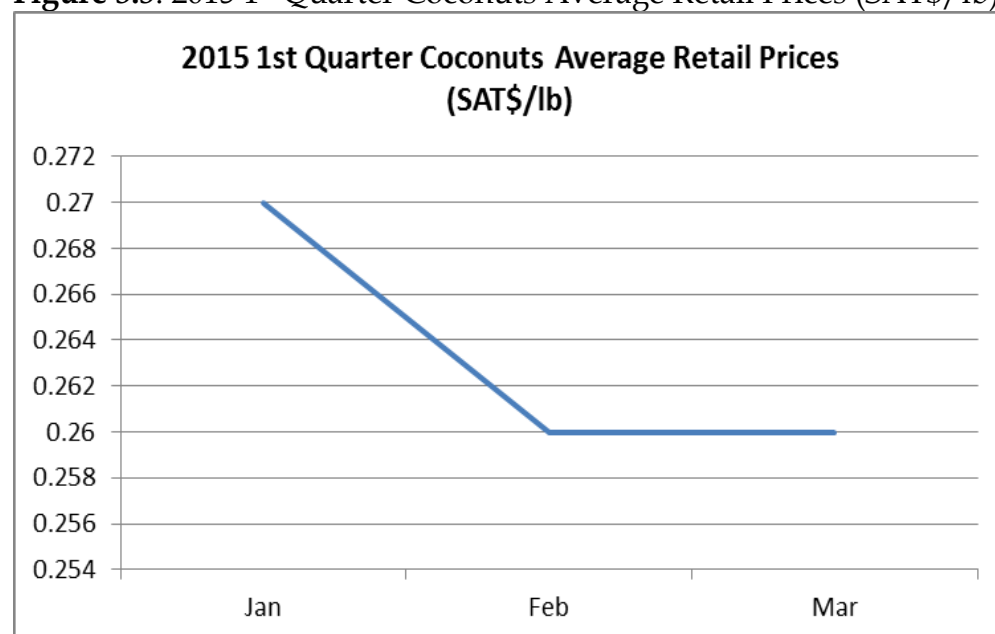
Source: Samoa Bureau of Statistics

The export figures for banana, also follows the same trend, with a much more favorable projection. Again, industry information and policy networking will promote niche market development for the banana industry.

3.1.1.2 Markets and Prices

Coconut: As mentioned above a significant increase in the supply of coconut to the Fugalei market in the 2014 period after a temporary dip in 2013 due to cyclone Evan in December 2012. Given a steady increase of coconut supply, prices have remained around between SAT\$ 0.26 to SAT\$ 0.27 per pound for mature husked coconut, in the first quarter of 2015.

Figure 3.5: 2015 1st Quarter Coconuts Average Retail Prices (SAT\$/lb)



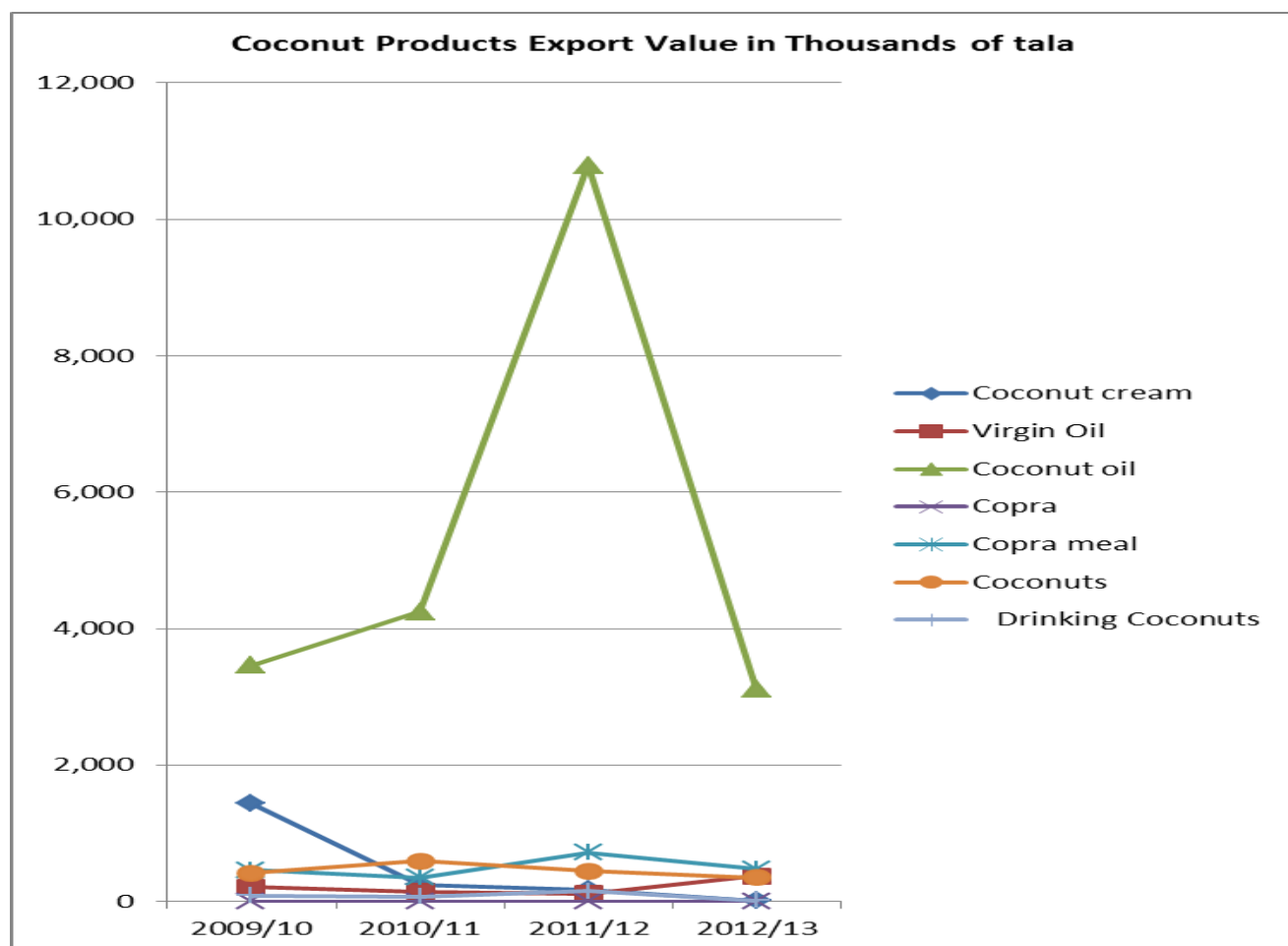
Source: Samoa Bureau of Statistics

Coconut cream exports fell from production value of SAT\$1.4 million or 3.3 percent in 2010 to SAT\$10,000 in 2013. Estimates from production lines suggest a significant rise in production in 2014 and 2015 with new strategies for further investment into the industry. Virgin Oil has been steady from 2010, with a little ditch in 2012, and then bounded back in 2013 as nuts were more accessible after cyclone Evan in the end of 2012. The Virgin Oil Industry is more responsive to a niche market for the Body Shop. Coconut Oil exports on the other hand, has also recorded a steady production with a huge increase in 2011 as it diversifies into cooking oil. Similarly, the by-product, copra meal, follows the same trend. Coconuts and drinking nuts have similar trends, with drinking nuts more affected by Cyclone Evan with a significant drop in 2012/13. Complete recovery is expected in the 2014 and 2015 figures.

Table 3.2: Export Values in thousands tala

During the period in thousands of tala	2009/10	2010/11	2011/12	2012/13
Coconut Cream	1,433	244	177	10
Virgin Oil	207	143	113	369
Coconut Oil	3,459	4,250	10,792	3,115
Copra				
Copra meal	459	349	717	474
Coconuts	415	595	445	351
Drinking Nuts	89	73	150	9

Source: Samoa Bureau of Statistics

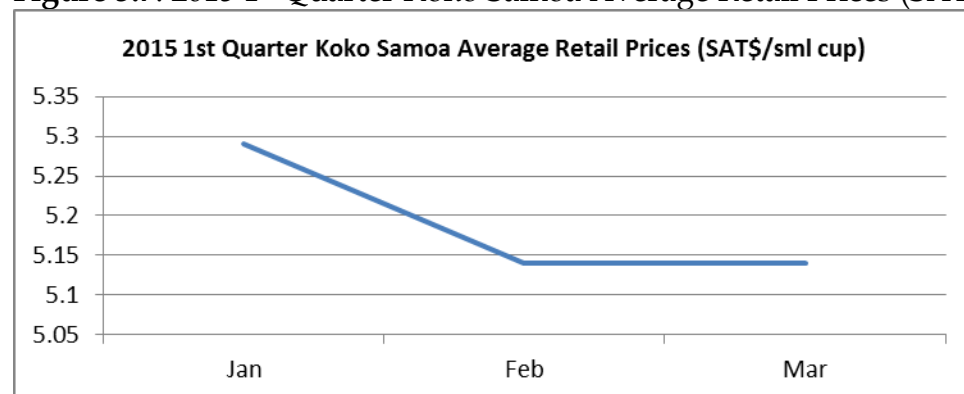
Figure 3.6: Coconut Products Export Value in thousands of tala

Source: Samoa Bureau of Statistics

Figure 3.6 suggests that coconut commodities continue to have a steady export trend although its capacity can be much higher. Cyclone Evans' destruction, which occurred in December 2012, affected exports of coconut products in the early 2013. The 2014 and 2015 figures are expected to return to pre-cyclone levels as the industry recovers.

Cocoa: Cocoa prices have been favorable throughout the year in local markets at approximately SAT\$5.00 for processed Koko Samoa and cocoa bean (200-250gram packets) for SAT\$6.00. Towards the end of the year 2014 during off-season, high local demand seems to drive the local markets, pushing the price up at times to SAT\$ 10.00 a packet.

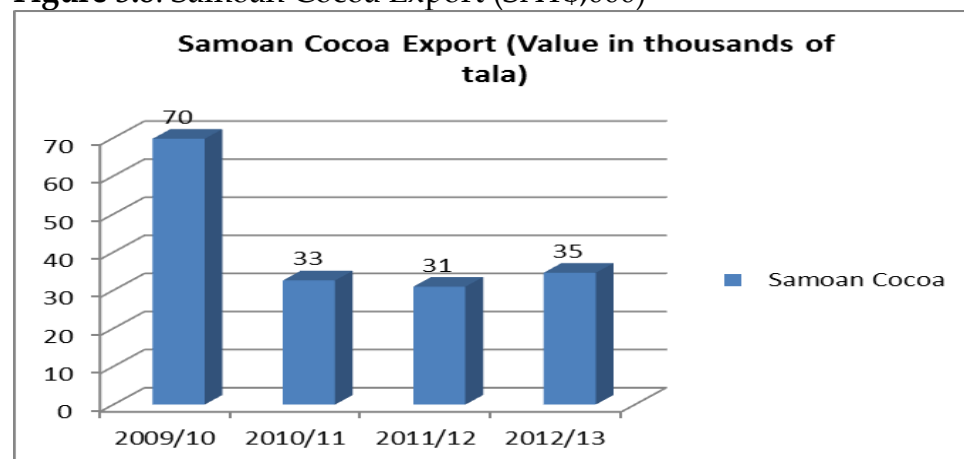
Figure 3.7: 2015 1st Quarter Koko Samoa Average Retail Prices (SAT\$/small cup)



Source: Samoa Bureau of Statistics

Koko Samoa (Cocoa Paste) with large quantities are hand carried overseas by Samoan travelling and some are exported and sold in New Zealand for NZD\$8-\$10 for a small cup size.

Figure 3.8: Samoan Cocoa Export (SAT\$,000)



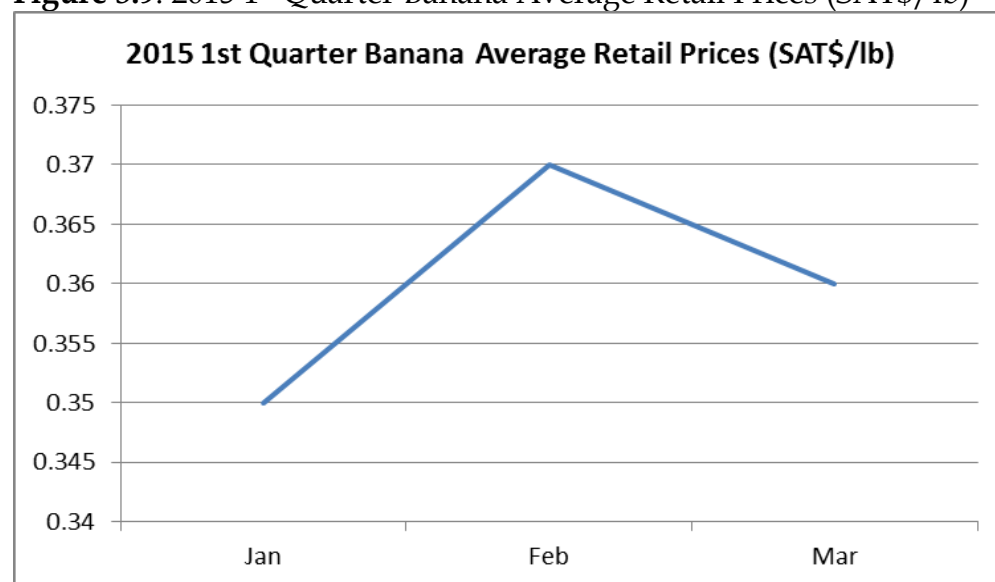
Source: Samoa Bureau of Statistics

The cocoa price outlook will continue to be around the SAT\$5.00 level as uncertainty in market expansion and competitiveness reduces Farmer confidence. Demand needs to grow in a healthy rate for production to pick up quickly, as the Fine Flavor high quality cocoa (Trinitario and Criollo) should fetch a premium price on the world market. However the lack of processing capacity and low production in off-season continues to be a barrier to building local and export market opportunities. A strong suggestion from stakeholders for a stronger public-private sector partnership to foster development of the industry has strong merits for this important industry.

Banana: Banana industry is still struggling with intensive husbandry management, high cost of inputs required and inconsistency in supply. However, considering it takes less than 12 months to reach maturity, some stakeholders suggests that the faster turn-over of the banana enterprise over its sucker management makes it more economical to use for chips compared to other crops. Banana for chips does not require much quality (appearance) management, and therefore cost less to produce. As a result processors take about 30 percent of the estimated national total production (Cavendish and others including the plantains). These are either delivered by regular farmers or bought straight from the domestic markets.

Since the total production of green banana has not increased significantly, and this has been partially due to the faster growth in the taro industry, the banana price is expected to remain around SAT\$0.34 to SAT\$0.37 for the rest of 2015.

Figure 3.9: 2015 1st Quarter Banana Average Retail Prices (SAT\$/lb)



Source: Samoa Bureau of Statistics

Demand is driven by the market, with attractive opportunities offered by chips processing. The market for banana chips is most likely to grow faster than the taro and breadfruit chips.

The other market avenues of total production supply are consumed by restaurants and households around town and nearby villages. The ladies finger (misiluki) is a much easier variety to cultivate, as it is resistant to most diseases found in Samoa. However, it only grows best around the low lying coastal areas, and its distinct sweet flavor when fully ripe provides an attractive liking for the Tourist industry, as an all-time local favorite.

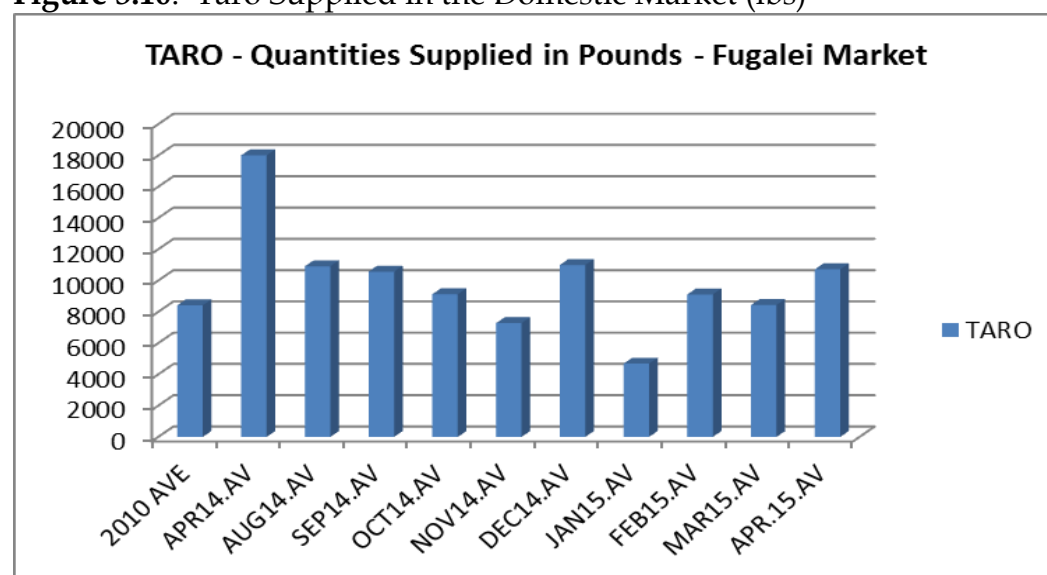
The outlook for banana price is likely to remain firm for the next three year. American Samoa and to some extent, the New Zealand markets, are likely to continue but the consistency in supply will still to be an issue. The Plantain (fa'i Samoa) has an attractive price and steady demand in NZ with no HTFA requirements and therefore has good prospects for development, compared to other bananas, with the exception of the Ladies Finger (misiluki), which WIBDI has developed a niche market for dried fruit.

3.1.2 Situation and Outlook: Major Root Crops

3.1.2.1 Production

Taro: Taro production has increased significantly as it fights to regain its export markets with the new varieties released by MAF. The fluctuating supply for the year 2014 indicates the growing number of exported taro as exporters develop the markets overflowing periodic supplies into the domestic market. MAF is about to release a further batch of improved taro varieties, that will further draw a lot of interest from farmers as export markets begin to stabilize and develop as demand increases for export taro from Samoa.

Figure 3.10: Taro Supplied in the Domestic Market (lbs)

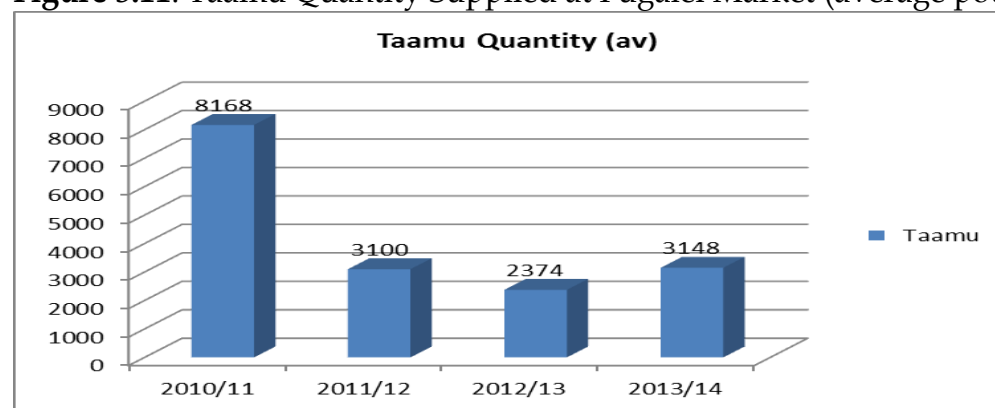


Source: Samoa Bureau of Statistics

Taro is the fastest growing industry in Samoa at the moment, and MAF has strongly embraced a strong partnership with the private sector as the industry develops. The estimated acreage is around 30,000 acres as planting material becomes more readily available, and export demand rises.

Taamu is used as a substitute for other key staples such as taro, breadfruit and banana. Supply of taamu at Fugalei market according to the Central Bank recovered to 3148 lbs in 2013/14 compared to low of 2374 lbs in 2012/13. Taamu is the less preferred staple to taro, breadfruit and bananas. However, a fair amount is still consumed locally and exported to American Samoa.

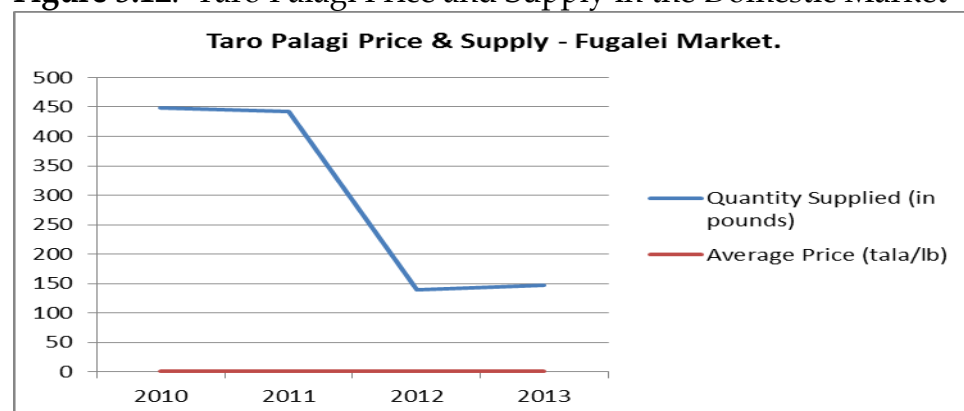
Figure 3.11: Taamu Quantity Supplied at Fugalei Market (average pounds)



Source: Samoa Bureau of Statistics

Taro Palagi: Supply data of *taro palagi* (*Xanthosoma sagittifolium*) from the Fugalei market is likely to become less reliable as a sign of total production for this crop. Inconsistence in supply, irregular harvesting period and lack of farm management puts this indicator in a weak position. In addition some processors are forming direct buying arrangements with farmers and avoiding the market.

Figure 3.12: Taro Palagi Price and Supply in the Domestic Market



Source: Central Bank of Samoa

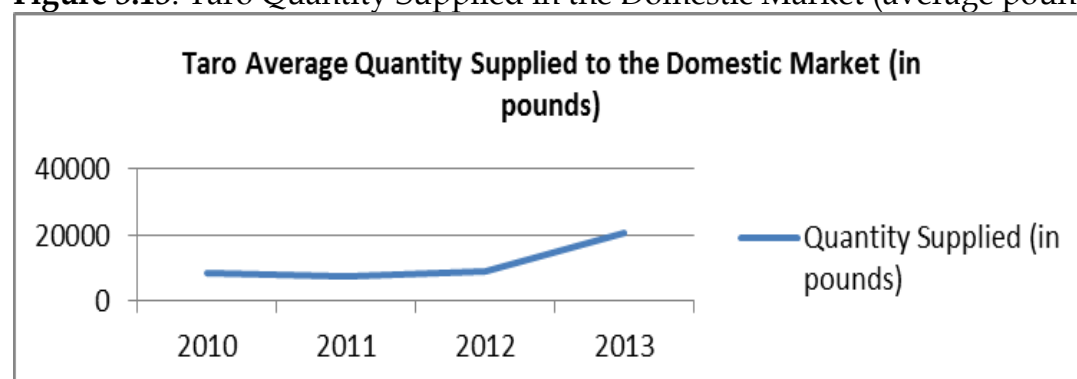
The supplies of *taro palagi* to Fugalei market survey in the last five years has dropped significantly as prices remain on average of SAT\$1.00 per pound. Both the *taamu* and the *taro palagi* have similar trends following the recovery and strong growth of the taro industry.

However *taro palagi* is recognized as a cash crop and also the preferred variety for taro chips production, but has experienced limited market intake, thus gaining less confidence from farmers.

3.1.2.2 Markets and Prices

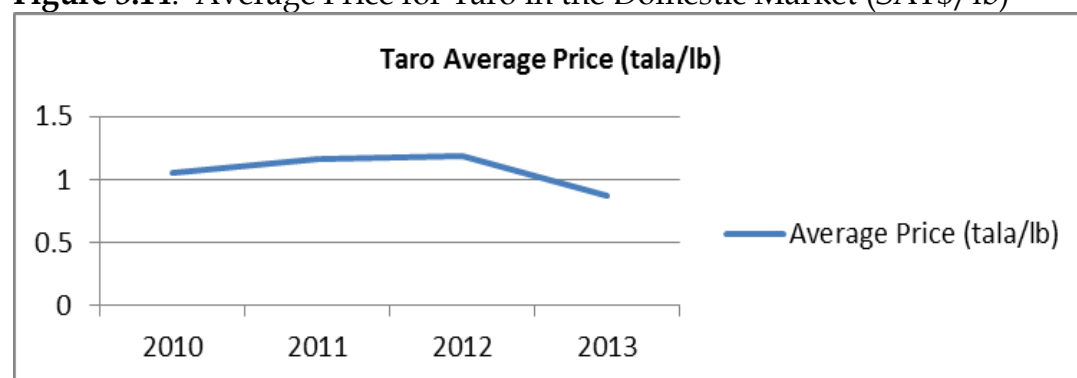
Average price of taro for the Fugalei market varies throughout the past three years and are largely driven by supply. Figure 4.13 shows this relationship clearly, increasing taro supplies reducing prices. Availability of taro to the Fugalei market in 2014 and 2015 is expected to increase as the taro export market opens up and excess (rejects) are expected to flow into the domestic markets.

Figure 3.13: Taro Quantity Supplied in the Domestic Market (average pounds)



Source: Samoa Bureau of Statistics

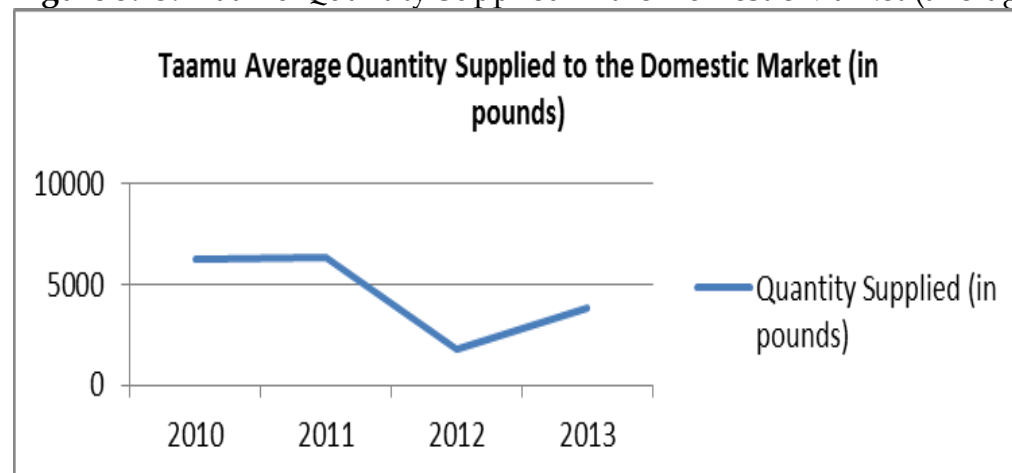
Figure 3.14: Average Price for Taro in the Domestic Market (SAT\$/lb)



Source: Central Bank of Samoa

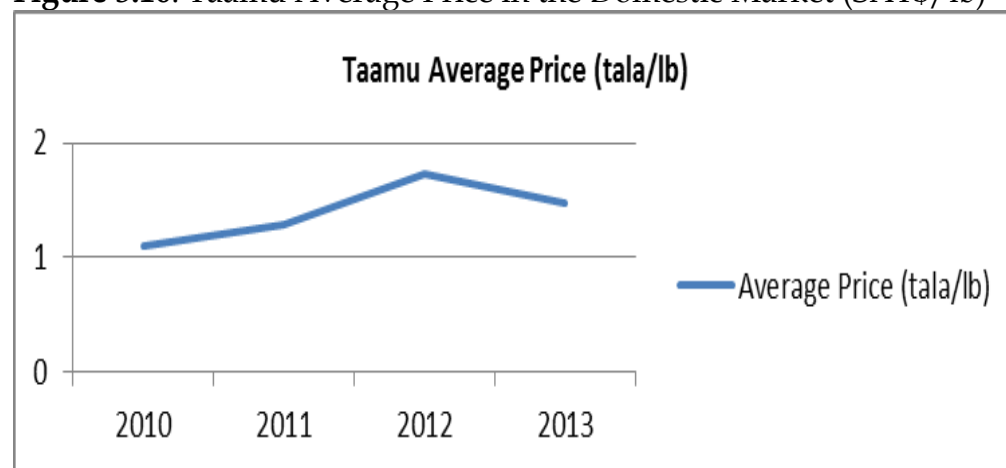
Taamu has suffered like other staples as a result of the growing taro industry. The average price of taamu remained at around SAT\$1.40 per pound for the last four to five years. The increase in taro availability will see no significant rise in supply for taamu in the next decade or so.

Figure 3.15: Taamu Quantity Supplied in the Domestic Market (average pounds)



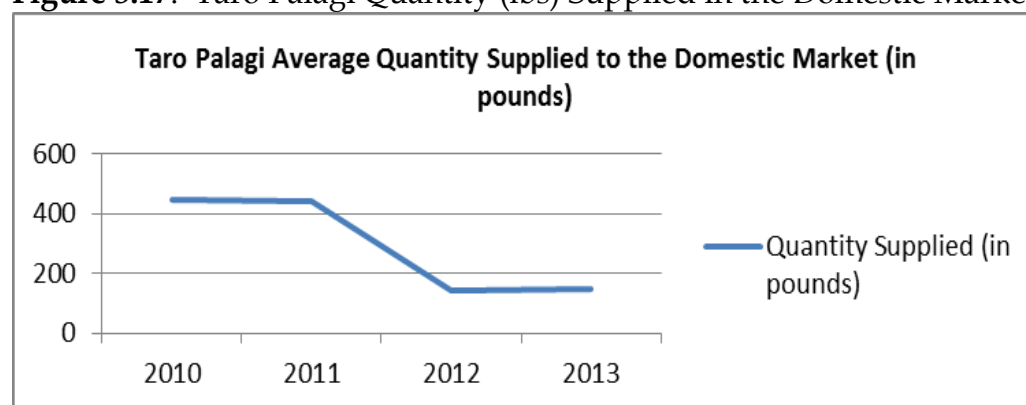
Source: Samoa Bureau of Statistics

Figure 3.16: Taamu Average Price in the Domestic Market (SAT\$/lb)

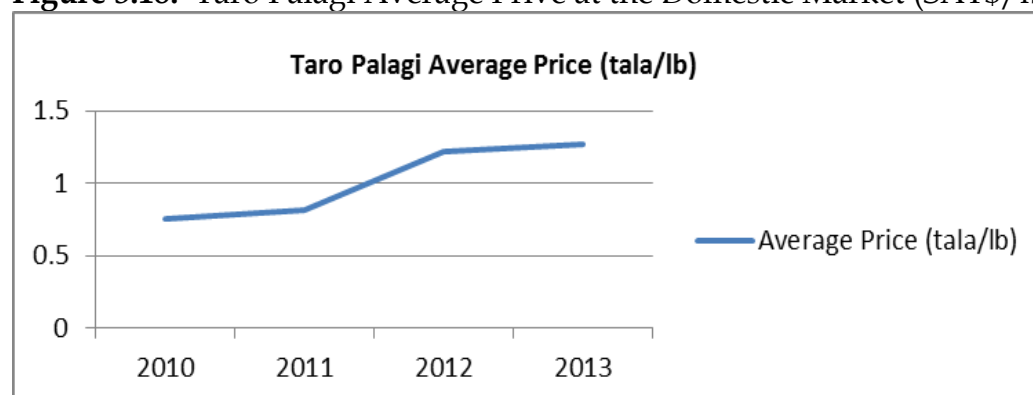


Source: Samoa Bureau of Statistics

Taro Palagi follows a similar trend as the Taamu as taro remains the preferred staple. Taro palagi is the preferred root crop for chips or snacks. However, the more intensive cultivation required under husbandry practices, has made it less attractive economically to farmers. Its price remains around the SAT\$1.00 level for the last four to five years.

Figure 3.17: Taro Palagi Quantity (lbs) Supplied in the Domestic Market

Source: Central Bank of Samoa (2015)

Figure 3.18: Taro Palagi Average Price at the Domestic Market (SAT\$/lb)

Source: Central Bank of Samoa (2015)

3.1.3 Situation and Outlook: Vegetable Crops

3.1.3.1 Production

MAF – SACEP⁴ Project was made effective in July and officially launched in October 2012. Project duration is 5 years funded through a credit facility and grant funding by the World Bank and implemented by the Ministry of Agriculture and Fisheries (MAF). Total project cost is US\$16 million and comprised three main components: (a) Livestock Production and Marketing; (b) Fruit and Vegetable Production and Marketing; and (c) Institutional Strengthening.

SACEP would assist fruit and vegetable farmers and livestock producers to improve enterprise productivity and take greater advantage of domestic and export market opportunities. Project objectives and the activities have been widely publicized at project inception and throughout implementation, and farmer participation in any aspect of the

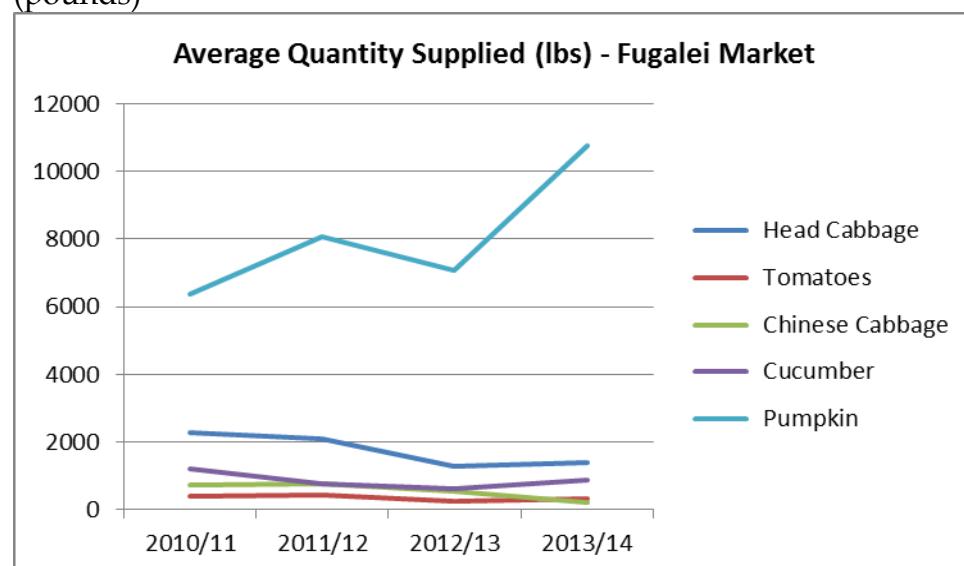
⁴ SACEP – Samoa Agriculture Competitiveness Enhancement Project.

project would be purely demand driven. Sector institutions would be strengthened in key areas such as supply-chain organization, applied research and extension.

The project will promote the adoption of improved technologies and agricultural practices; and finance investments both on-farm and in strategic market infrastructure.

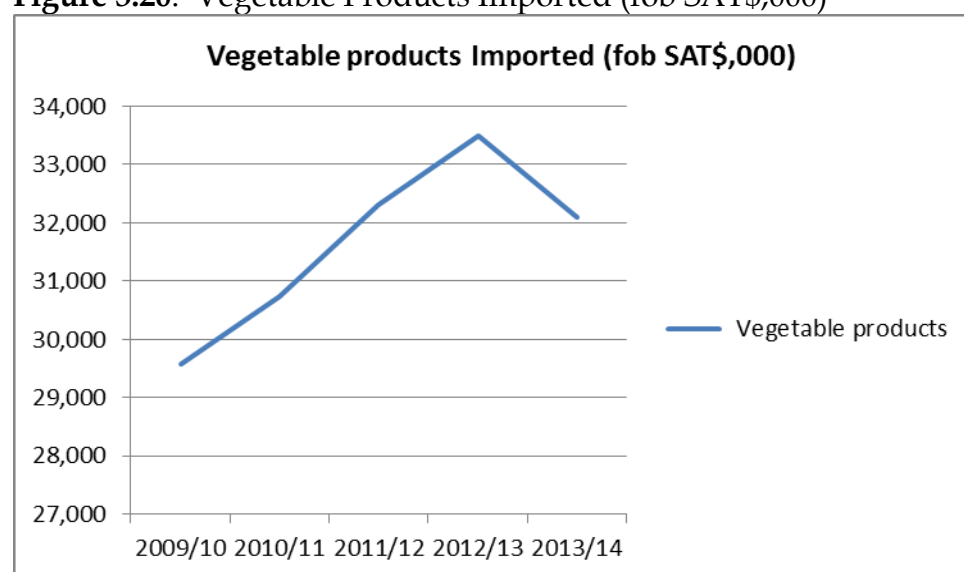
The SACEP has boosted huge confidence in the Fruit and Vegetable sectors.

Figure 3.19: Selected Vegetables Average Quantity Supplied at the Domestic Market (pounds)



Source: Central Bank of Samoa (2015)

Figure 3.20: Vegetable Products Imported (fob SAT\$,000)



Source: Central Bank of Samoa (2015)

A dramatic down-turn in total vegetable imports from the period 20012/13 indicates an increase in local production of quality vegetables. Vegetables are a fast turn-over sector from three months to eight months, depending on the vegetable grown. Several croppings can be done within the year, and with climate variations, climate mitigation through tunnel houses, will enable vegetables to be grown all year round.

Vegetable production outlook in the next three years is likely to have healthy increases. SACEP is expected to improve Farmers skills in farm management and a better understanding about market demand for vegetables.

Climate change and variability will continue to be a challenge, and in some instances, beneficial to vegetable production. Mitigation through new technology such as the use of tunnel houses is essentially part of the overall strategy for developing the vegetable sector.

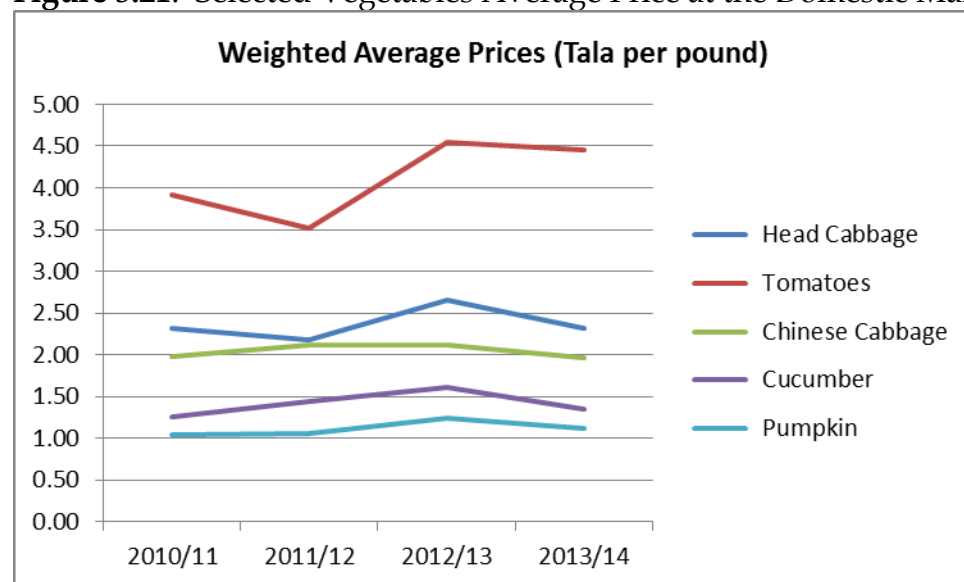
In addition, the following issues will continue to constraint future production increases:

- lack of post-harvest handling capacity and facilities (e.g. cool store); and
- physical constraints such as rocky soil types and steep contour areas making mechanization difficult.

It is very crucial that commodity chains be carefully scrutinized to identify and remedy losses caused along the value chain. Answers may not lie in cool stores and huge expensive storage facilities, but it may be in the commodity chains, where losses occur in transportation, packaging and variety types, prior to arrival to cool storage facilities provided by retailers.

3.1.3.2. Markets and Prices

Figure 3.21: Selected Vegetables Average Price at the Domestic Market (SAT\$/lb)



Source: Central Bank of Samoa (2015)

The supply and price trend of selected vegetables at the Fugalei market depends on the availability during the year. Vegetables season generally starts at the end of the rainy season and finishes at the onset of the rainy season. This is due to the high incidence of diseases and pests during the rainy season, making vegetable production un-economical. Supply is highest during the 3rd and 4th quarter. However, as mentioned before, technology such as tunnel houses can prolong the vegetable season, to all-year round supply.

There are two major issues suggested from data, to be addressed to significantly reduce further imports of vegetables in Samoa. First, is the quality of the vegetables and secondly, the supply consistency. A suggested solution is to use tunnel house technology with efficient irrigation systems, should help supply quality vegetables all year round. The SACEP has attempted to address these two major issues, including rock removal.

Imported tomatoes, for example are about double the price (SAT\$10.00 a packet average) than local tomatoes (SAT\$4.00 a packet average). The main difference is the quality, size and presentation. However, these are the characteristics that hotels and restaurants look for as well to service their customers' preferences.

3.1.4 Situation and Outlook: Other Crops and Emerging Industries

3.1.4.1 Production

Other crops in Samoa include avocado, breadfruit, citrus, mango, nonu, papaya, pummelo, pineapple, rambutan, vanilla and vi.

Avocado, lemon, papaya and pineapple have remained strong in supply to Fugalei and especially the Taufusi Market, which is the second domestic market in Apia, for the last 12 months. Supply of vi, mango and rambutan were lower than its normal supply due to the prolonged wet season and climate change.

Breadfruit has declined with sporadic fruiting during seasoning. Prediction in production cannot be reliable due to variations in climatic conditions which causes unconventional fruiting patterns for breadfruit. However, breadfruit has the potential for significant growth for the non-gluten flour market and as the main ingredient for one of the Vailima breweries commercial beer product, *Vailima Natural*.

The three top fruit tree distribution numbers by the Crops Division of MAF include Rambutan, Papaya and Tahitian Lime, with figures for each exceeding one thousand seedlings per annum for 2013 and 2014. This is reflected in the supply to both the Fugalei and Taufusi domestic markets. The Tahitian lime has both a lucrative export market and also service supplies to local bar, restaurants and hotels.

The Samoa Farmers Association (SFA), the Women in Business Development Incorporated (WIBDI) and Organized Farmer Groups, have formed partnership relationships with MAF

in driving the development of especially the fruit tree and vegetable subsectors. It is also important to acknowledge the contribution and support of other government agencies such as the MWYSD, MOH, MNRE and SROS in implementing parallel supporting development activities in especially the fruit and vegetable areas. Other important non-government organizations include ADRA, FAO, World Bank, ADB and the UNDP (SPFS, SUNGO, etc). These Agencies have helped provided four main functions such as; leadership to the industry, initiate market development, facilitate research and development, and represent growers' interest. These Agencies will continue to work hand in hand with MAF's strategic plan to achieve its set goals.

Nonu production continues to fluctuate, but is an important export earner for Samoa. The bulk of production comes from uncultivated tree that are left to grow wild and harvested when needed. The Nonu industry has not had a good experience with the collapse of the Chinese market in the late 2010. However, it has provided an alternate source of income for the rural community, and will remain an important industry.

Breadfruit and papaya production is likely to continue growing largely due to favorable local prices and the development of good markets.

3.1.4.2 Markets and Prices

Breadfruit flour is now used by the Vailima breweries for their new product, *Vailima Natural*, while the papaya is eyed by the hospitality markets, as the Tourism Industry grows. Both industries have not been able to continue their fresh fruit market due to stringent Quarantine requirements by the importing countries. Breadfruit production has declined slightly from its four seasons high due to climate change, to sporadic production as seasons slow down.

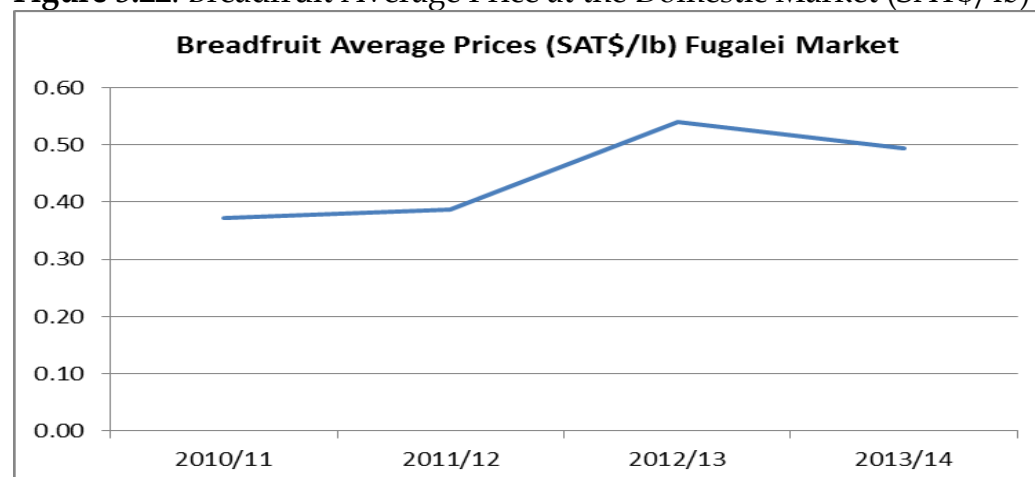
Other fruit trees like rambutan, pummel, apiu, rollinia and other exotic fruits will have to target the Hospitality Industries with Tourists looking to sample local exotic fruits. Most of these fruit trees are seasonal and pose difficulties attracting cultivation by small Farmers as a serious source of steady income.

Nonu markets are growing steady in US, German, Australia, Japan and Taiwan with tight competition from Tahitian, Tongan, Cook Island, Fiji and New Caledonia. Export Nonu Juice Volume is slowly increasing from the ditch in 2012 of about 582,000 litres after the collapse of the Chinese market to 645,000 litres in 2013 and 720,000 litres in 2014. However, nonu fruit volumes have declined during the same period.

Price of breadfruit is around SAT\$0.50/lb and is highly dependent on the availability of other staple foods such as taro and banana. Papaya prices vary by variety, with the sunrise

variety fetching a much higher price at SAT\$2.00 a fruit, while the local yellow flesh variety sells at about SAT\$5.00 per basket. Nonu growers currently sell dried nonu for SAT\$ 2.50/kg about SAT\$0.50 increase from year before and nonu fruit also rose to SAT\$.50 per kilo from SAT\$0.45/kg from the same period.

Figure 3.22: Breadfruit Average Price at the Domestic Market (SAT\$/lb)



Source: Samoa Bureau of Statistics

Nonu, Papaya and Breadfruit will continue to be important industries that contribute positively to the Samoan economy, and assisting in income for the rural communities...

3.2 Livestock

3.2.1 Situation and Outlook: Cattle

3.2.1.1 Production

There were a total of 2,903 herds (farms), comprising a total of 29,553 head of cattle counted during the Samoa Cattle Census reconfirmation count in 2012. However, the 2009 count of 38,949 has been officially taken in Samoa Bureau of Statistics Census of Agriculture 2009 release, and as the figures can be volatile as slaughtering and replacement do take place. The census also indicated a total of 8,884 cattle slaughtered in the earlier twelve months from enumeration period for the purpose of retail sales (21 percent), faalavelave sales (23 percent) and owner's domestic faalavelave (56 percent)⁵.

Table: 3.3: Number of Cattle by Region and Census Year

REGION	1889	1999	2009
Samoa	13,431	27,883	38,949
AUA	643	3,516	3,495

⁵ Market Link – Volumn 7, Issue 4, January – March 2014, MAF (PPCD)

NWU	1,187	4,320	4,977
ROU	5,756	9,943	14,006
Savaii	5,845	10,104	16,471

Source: Samoa Bureau of Statistics Census of Agriculture 2009.

The number of carcasses for local retail market is collected by the APHD Meat Inspection Unit on a regular basis to give an estimate of the total production entering the retail outlets.

Table 3.4: Monthly Retailed (Locally Produced) Meat Collection Data Update

Month 2012-2013	Beef			
	No. Carcasses	TCW (kg)	ACW (kg)	SAT\$/kg
July	142	25,064.45	176.51	6.79
Aug	220	42,702.18	194.10	6.93
Sept	122	19,551.36	160.26	7.08
Oct	162	28,815.68	177.87	7.08
Nov	148	25,208.55	170.33	6.95
Dec	87	15,335.61	176.27	6.98
Jan	128	24,182.09	188.92	6.91
Feb	97	18,432.09	190.02	7.17
Mar	129	24,507.01	189.98	6.97
Apr	122	21,684.75	177.74	7.15
May	150	25,348.64	168.99	7.00
June	119	21,766.60	182.91	7.00
Total	1,626	267,250.37	179.49	7.00

Source: MAF (2015). PPCD, Market Link for Primary producers, Vol 7, Issue 4, Jan-Feb 2014

About 67% of the total quantity of retailed beef is imported. For the locally produced-retailed beef, farm-gate price has included the un-regulated field slaughtering practices in addition to the unhygienic conditions and excessive handling associated with transporting carcasses from farms to meat retailing premises.

All local meat destined for retailing are sourced from un-regulated field and backyard slaughtering and usually handled and transported from farms to meat retailers under hygienic conditions.

There are various issues that hinder the future development of cattle industry. The current increase in the overall number of cattle slaughtered appears to be unsustainable and could lead to a decline in national herd despite an improvement in slaughtered cattle weights. The reproductive rate of the national herd remains as low at between 40 and 60 percent, largely due to poor nutrition and inadequate animal husbandry practices such as over grazing and

over stocking. Current production levels indicate that increase in slaughter appears to be unsustainable and could lead to national herd decline in the future.

Future development of the beef industry and the sustainability of current slaughter levels are affected by a number of issues. Beef industry issues include low productivity and profitability, a lack of reliable information and lack of farmer to farmer live sales.

3.2.1.2 Markets and Prices

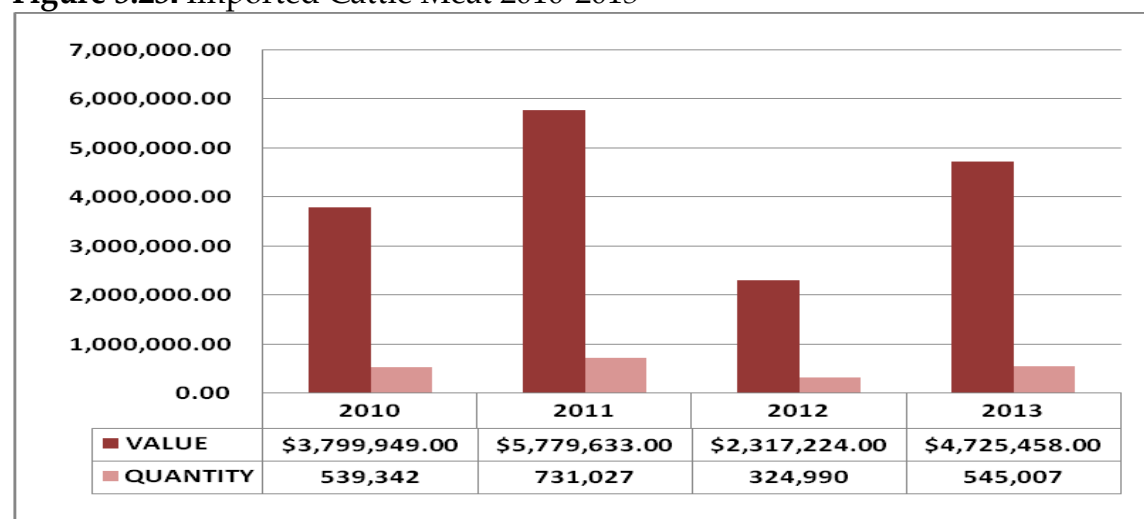
Fa'alavelave continues to dictate the local beef market, with 70 percent of slaughtered cattle used for social obligations. About 29.5 percent is sold through supermarkets whereas the remaining which is less than 1 percent is for home consumption. Fa'alavelave cattle prices within 2005 vary from SAT\$800 – SAT\$1,200 depending on age and weight. Retail cattle prices vary, normal price for steers and heifers is around \$2.50/lb and bull ranges from around \$2.00 – \$2.20/lb. Average carcass retail price for all supermarkets is about SAT\$1,200 or SAT\$2.50/lb (SAT\$5.50/kg).

Average farm gate price has estimated at \$6.54/kg for local beef which is relatively lower compared to the average \$7.80/kg for imported beef⁶.

All slaughtering is currently done on the field, causing health concerns and preventing export potential. This also leads to inconsistencies in meat quality.

The five main retailing outlets for meat are Lucky Foodtown, Frankies Supermarket, Thor & Lynn Netzler, Farmer Joe and Mynas Supermarket. The major beef importing countries are New Zealand, USA and Australia which has established internationally recognized meat quality and meat safety standards and regulations.⁷

Figure 3.23: Imported Cattle Meat 2010-2013



Source: Samoa Bureau of Statistics

⁶ Page 2, Market Link, Volume 7, Issue 4. PPCD, MAF.

⁷ Annual meat marketing report 2011- 2012, AHPD, MAF

New Zealand and USA have always been the main exporters of cattle meat to Samoa recorded from 2010 until now whereas Australia started exporting to Samoa recently. Total quantity of imported beef has remained relatively the same in the 2005-2006 and 2011-2012 periods despite noted increases in total value (CIF basis) and \$/kilogram prices. Devaluation of the local currency over the time period may have also contributed to the noted price increases.

The Figure 3.23 shows that volumes and values of imported beef meat from 2010 generally follow a fluctuating pattern, indicating some degree of uncertainty and low confidence in the industry. There has been an increase in imports of low value substitute products such as chicken which also substituted turkey tails to some extent and also leads to decline in imported beef meat. The volume of imported chicken 2014 was as high as 17,127 mt.

Imported beef meat volumes are less likely to increase over the outlook period and may stabilize at current levels. This is partly due to the weakening of the New Zealand dollar and increasing import volumes of low value substitute meat such as chicken and turkey wings. The SACEP has also imported new breeding stock and are targeting an aggressive national breeding program to increase fertility rates, calving rates, mortality rates and overall production throughput, as a requisite to any decision to build a national abattoir.

Fa'alavelave prices have remained at current level (\$800.00 - \$1,200.00) for the past four years. A slight increase in fa'alavelave market prices is likely to cause a general lift in local prices over the outlook period.

3.2.2 Situation and Outlook: Pigs and Poultry

3.2.2.1 Production

The highest percentages of agriculturally active household in Samoa have pigs and chickens. It was recorded in the 2009 Census of Agriculture that households raising chickens accounted for 85 percent of the agriculturally active households and those raising pigs accounted for 76 percent of the agriculturally active households.

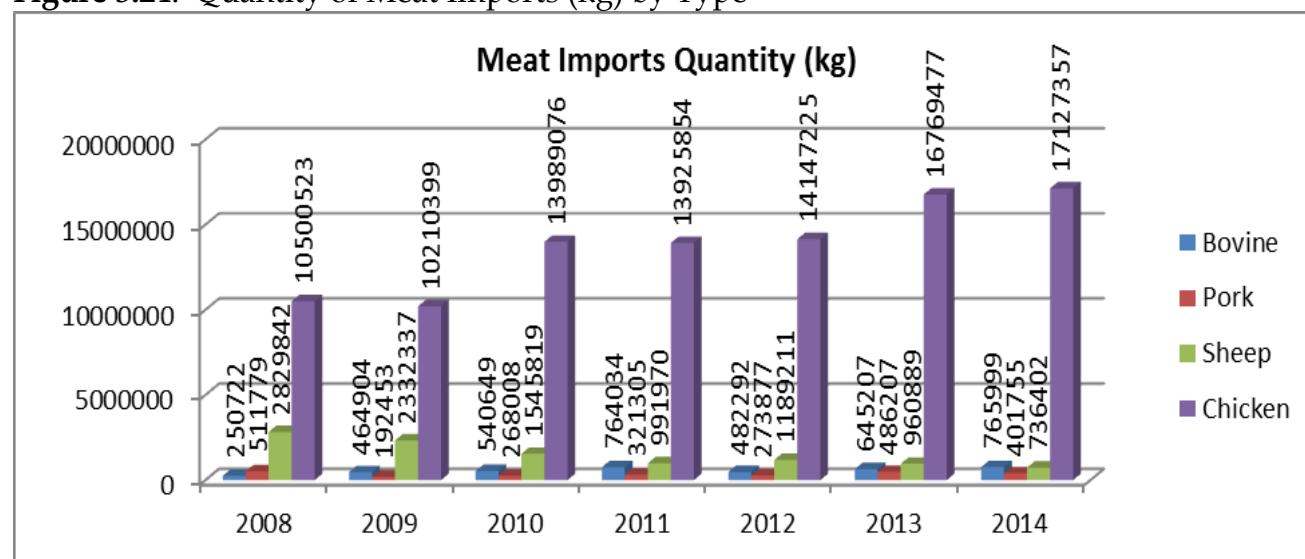
Table 3.5: Number of Households Keeping Livestock: 1999 - 2009

	1999	2009	% Change
Cattle	5,673	4,238	-25.3
Pigs	12,316	12,026	-2.4
Chickens	14,207	13,354	-6.0
Goats	121	7	-94.2
Sheep	NA	26	+NA

Source: Samoa Bureau of Statistics

The total number of pigs kept by households in 1999 was 167,316 but the total recorded in 2009 was 152,145, so the volume of pigs produced in the country decreased by 9%. In comparison, the volume of chicken produced decreased by 29% from a total of 431,090 in 1999 to 307,040 in 2009. The decreasing number of both agriculturally active households keeping chickens and pigs, and the number of chickens and pigs, has direct relationships to the availability of cheap poultry and pig products imported into Samoa.

Figure 3.24: Quantity of Meat Imports (kg) by Type



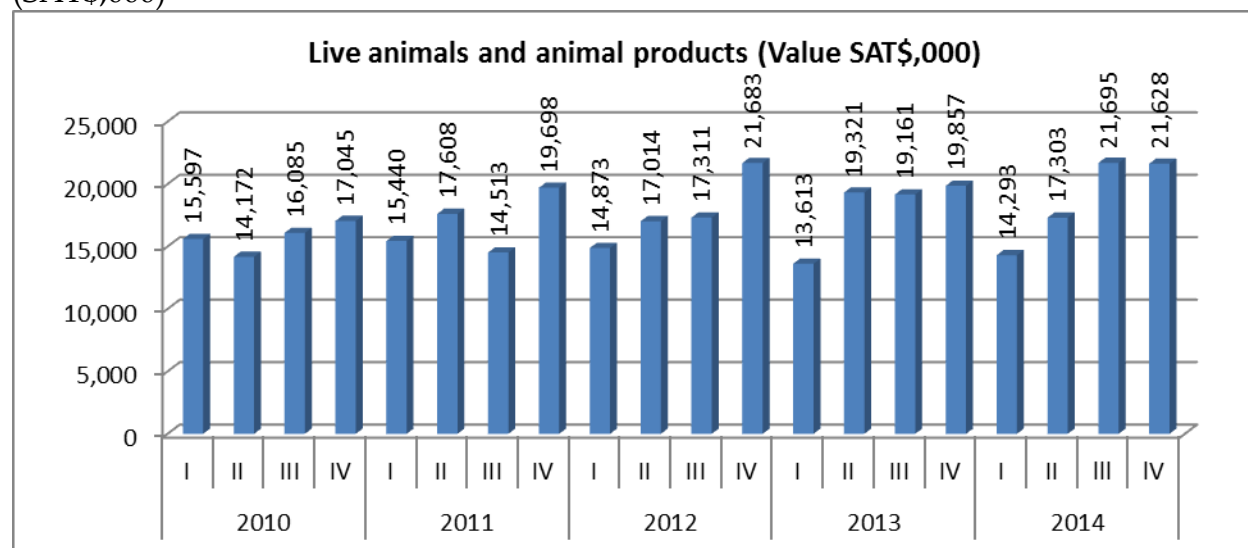
Source: Samoa Bureau of Statistics

The continued dropped in the total number of pigs in Samoa as recorded in the 2009 census of agriculture also indicates that, pigs are been replaced more and more by beef carcasses and canned corned beef in the faalavelave system. An annual meat report for 2013 recorded an increasing number of weaned (size 2) pig carcass sold to retail outlets, especially for the roast table pig market. More so pigs than chickens, the pressure to pen in and contain free-range pigs has also contributed to the reduction in the number of pigs kept by households.

The SACEP-MAF project is expected to also address the efficiency of production, improved management and technology and improved breeds for livestock to give it a more competitive edge to imported pig and poultry.

3.2.2.2 Markets and Prices

There is unlikely to be any significant increases in either pigs or poultry over the outlook period. However, if successful, the local initiative to produce competitive broiler produce by targeting the feed issues may see growth in the broiler industry. The availability of cheap imported substitute meats and the growing preference for local whole beef carcasses, tinned fish and corned beef for fa'alavelave is likely to prevent any expansion and numbers may decline slightly, for especially the piggery industry.

Figure 3.25: Imports of Live Animals and Animal Products (broad category) Value (SAT\$,000)

Source: Samoa Bureau of Statistics

With the Egg Standards in place, the expansion of Samoa's egg producers in the last five years have enabled them to effectively compete with imported eggs from mainly Fiji. The removal of import tariff on feeds and other inputs have contributed to the expansion of the local egg producers in the local markets and the import substitution of eggs.

Table 3.6: Imports of Egg by Quantity (doz) and CIF Value (SAT\$)

Egg Imports			
Year	Country Of Export	Quantity (Doz)	Sum of CIF (SAT\$)
2008	Fiji	507,977	\$2,960,806
2009	Fiji	640,985	\$2,724,203
2010	Fiji	776,896	\$3,085,622
2011	Fiji	711,402	\$2,467,397
2012	Fiji	116,193	\$422,721
2013	-	No Imports	-
2014	-	No Imports	-

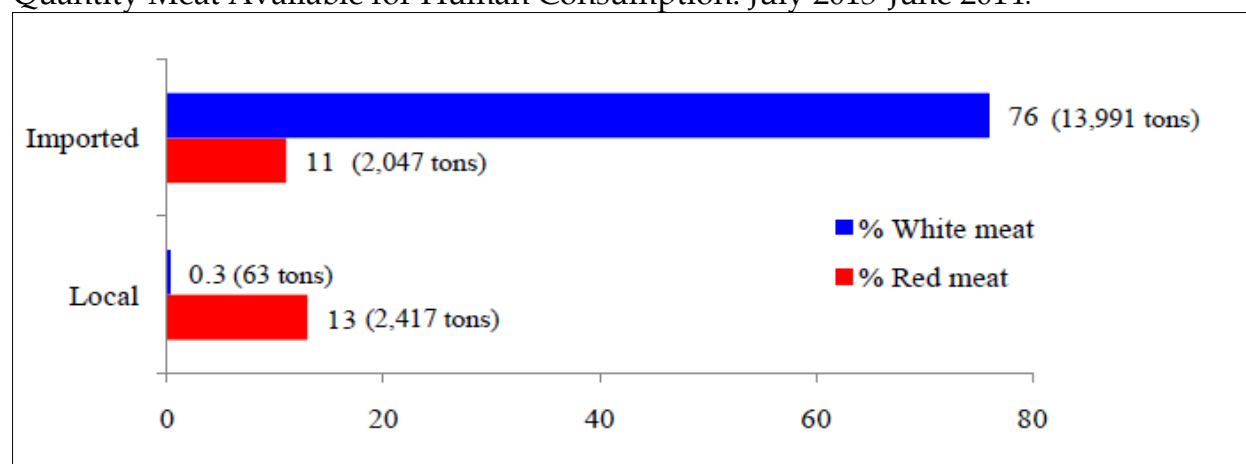
Source: Samoa Bureau of Statistics

Broiler production is in its' infant stages, as Investors research and test the markets for economic viability. Given the huge volume of cheap poultry meat imported by Samoa, it is important that MAF embrace Private Sector Partnership to create an enabling environment for production and market policies, similar to the egg industry, for the broiler industry to

grow by competing and substituting cheap imported chicken meat⁸. Samoa can learn from policies imposed by its neighbour Fiji, for its Poultry Industry.

One of the main constraints faced by investors in the poultry industry is the feed and feed costs. About 80 percent of the operating costs for poultry (egg & broiler) production is on feeds.

Figure 3.26: Composition Quantity (%/tons) of White and Red Meat over Projected Total Quantity Meat Available for Human Consumption: July 2013-June 2014.



Source: MAF, Animal Production and Health Division

3.2.3 Situation and Outlook – Other Livestock and Emerging Industries

3.2.3.1 Production

Dairy: Samoa's dairy industry is very small with only three dairy farmers. Two of these dairy farmers are in Upolu and one in Savaii. The national herd consists of less than 100 milking cows. These farmers are completely responsible for their own production, processing and marketing.

There has been no major change in the dairy industry since the last two years. Local demand for milk is supplied mainly by imported UHT milk from New Zealand and Australia as it is cheaper and easier to purchase.

The dairy industry in Samoa is expected to remain a very small industry in the future. It is unlikely that future production will increase as dairy production are more efficient and effectively done in New Zealand and Australia, producing much lower prices than can be reached by Samoan farmers.

⁸ White Meat is mostly Poultry Meat. Red meat is mostly referred to beef and other ruminant meat.

According to the APHD, current new farmers joining the cattle industry preferred beef cattle instead of dairy cattle. This is an indication of no further growth of the dairy industry in the future.

Sheep: The 2009 Census of Agriculture reported a total of 249 sheep counted for 26 holdings. Since then, the National Sheep Census conducted by the APHD of MAF in 2014 reported an increase of 827 sheep for 53 holdings. This is an increase of about 332 percent within five years span.

Table 3.7: Proportion of Sheep holdings relative to Flock Size (2014).

	Category	No. Holdings	Total	Proportion of Population	Proportion of Holdings
Upolu		38	715	86.5%	71.7%
	31 plus head	6	334	40.4	11.3
	21 – 30 head	4	97	11.7	7.6
	11 – 20 head	12	182	22.0	22.6
	< 10 head	16	102	12.3	30.2
Savaii		15	112	13.5%	28.3%
	31 plus head	0	0	0	0
	21 – 30 head	1	26	3.1	1.9
	11 – 20 head	2	30	3.6	3.8
	< 10 head	12	56	6.8	22.6
Samoa		53	827	100%	100%
	31 plus head	6	334	40.3	11.3
	21 – 30 head	5	123	14.9	9.4
	11 – 20 head	14	212	25.6	26.4
	< 10 head	28	158	19.2	52.9

Source: MAF, APHD, National Sheep Census, 2014.

The main objectives for introducing the tropical sheep from Fiji in 2005 was to not only provide farmers with an alternative livestock farming option that could substitute imported mutton flaps, but it was also known that sheep can be easily integrated into the root cropping farming system without damaging the crops (i.e. taro and other root crops). Tropical sheep is seeing as a good source of protein for the Samoan diet, with less fat and is a better food option to reducing obesity and other non-communicable diseases.

One of the challenges to the industry is the high cost of maintaining pastures, because sheep can eat faster than the cattle causing weeds to grow in pastures, if not managed properly. In Fiji, where the sheep was first imported from, it is known that the only minor threats to sheep production are dogs and worms. The worms can be managed through de-worming schedules but more importantly for Samoa, there is a Dog Control Legislative to address stray dogs and other dog problems in the sheep industry.

Culled Rams, and Hoggets are readily available from both the MAF farms and private farms throughout Samoa for consumption or retail markets. The selling prices range from SAT\$6.60 to SAT\$10.00 per kilogram live weight, depending on the type of carcass. The younger tender sheep would have the higher price tag on it.

The demand for breeding stock for new farms continues to grow, and there should be evolving retail markets for local mutton products once the retailer have a steady flow of readily available carcasses.

Bee keeping: Bee keeping has been in Samoa for a long time, but its development has been slow to dormant due to lack of management skills. There is some uncertainty as to where the Honey Industry should be housed in MAF at the moment. However, its importance is somewhat of significance to a lot of the crop industries for good pollination.

A disease survey report in mid-2005 by the Bee Keepers Association of Samoa Incorporated (BASI) stated that Samoa has the best disease free bees in the world. At present, there are 2 major suppliers of honey, and they are CCK and Lester Dean, operating from an estimated total of 350 hives in Samoa. It has been evident that the most appropriate areas to raise bees are on the northern parts of Upolu and Savaii. These specified areas have the most appropriate weather conditions for rearing bees.

Honey is usually harvested after 4 to 6 months, and the ideal time to set up a hive is during April to May. It is possible that honey can be harvested all year round except during the rainy seasons. From the 350 hives in Samoa it is estimated that about 2 percent of the total number will not produce well due to either mismanagement, lack of pollen or bad weather. An overall honey production for 2014 has been not as good as on an average year as the industry is still recovering from the 2012 Cyclone Evan damage.

Future prospects for the growth of the bee keeping industry for 2015 – 2018 is likely to increase at a slow but steady pace. The number of interested people in joining the industry is growing, and its importance to agriculture is also underemphasized. Current improvement in the bee keeping program depends on the success in the breeding program for queen bees which enables mass multiplication of hives.

Future industry growth may be constrained mainly by the lack of funding for materials such as protective clothing, smoker and hive tools and hives themselves. Since all the materials required for hive construction and protective clothing is imported from New Zealand, the high costs have made it a constraint. According to the consultant for the bee keeping program, Mr. Lester Dean, one of the major problems are the isolation between apiaries and the smallness in number of hives kept per individual. This creates higher

transportation costs for servicing the hives. A suggested economical size per apiary would be a minimum of 5 hives.

3.2.3.2 Markets and Prices

Dairy: Samoa imports a substantial amount of dairy products such as butter, cheese and milk mainly from New Zealand and Australia. There is no real commercial dairy industry in Samoa, except for a few small units that produce fresh milk, which are sold as fresh or processed into ice-pops, yoghurt and butter for a small niche market in the villages.

Sheep: The 2014 National Sheep Census reported that out of the 53 holdings, only 28 were involved in some form of disposal (consumption) since the establishment of their Holdings. A total of 113 animals were recorded as disposed for own consumption, faalavelave market, given away, retail and live sales. The average farm gate price for dressed weight sheep carcass is SAT\$8.50/Kg.

Table 3.8: Sheep Disposal, Classified by Disposal and Sheep Type (2014)

Disposal of Sheep by Classification of Disposal by Type of Sheep (2014)									
Classification	Total	Proportion of total disposal	Ewe >2 yrs	Ewe hogget >1 yr	B/ram >2 yrs	Ram hogget >1 yr	Weather	Culled Ewe	Culled B/ ram
Live sales	28	25%	4	7	2	9	6	0	0
Retail	44	39%	0	0	0	13	29	0	2
Salughtered (Faalavelave)	18	16%	0	0	0	12	5	0	1
Slaughtered (own consumption)	23	20%	0	0	0	15	7	1	0
	113	100%	4 (3.5%)	7 (6.2%)	2 (1.8%)	49 (43.4%)	47 (41.6%)	1 (0.9%)	3 (2.6%)

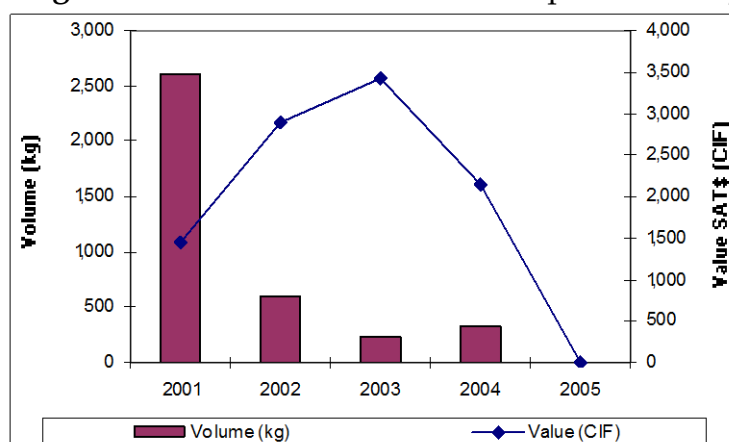
Source: MAF, National Sheep Census May 2014.

Bee keeping: A farm gate price for locally produced honey is about SAT\$12.00 / kg and about \$17.00 / kg to retail stores. However, it is anticipated by the industry producers that recent supply of honey from existing farmers still does not satisfy the quantity demanded by local consumers. According to Mr. Lester Dean, in 1975 before the destructive Cyclones Ofa and Valery, Samoa used to export 10 to 12 tons of honey to Holland and Germany. That can be achieved again.

For protection of Samoa's disease free honey bees, a Bee and Bee Products Prohibition Order was signed on the 9th March 2000 under the Customs Act. Adoption of the Quarantine (Biosecurity) Bill 2005 has further emphasized the ban on Bee and Bee products coming in from diseased countries.

There is no more honey coming into Samoa at present since 2005.

Figure 3.27. Volume and Value of Imported Honey



Source: Samoa Bureau of Statistics

There is a bright future for Samoa's Apiculture Industry not only in honey, bees wax, pollen, Propolis, royal jelly and bee venom, but also the export of healthy live honey bees, queen bees, and nucleus hives for pollination, especially for crops such as almonds, avocados, coffee, coconuts and citrus, clover grass and nitrogen producing legumes.

The current status of the bee keeping industry in Samoa has yet to reach the number of bee colonies in order to consider exporting. It has been envisaged that it would be viable to export honey only when the number of hives is about 4,000 to 5,000 with proper management.

3.3 Fisheries

3.3.1 Situation and Outlook: Offshore Fisheries

3.3.1.1 Production

Tuna catch volumes continue to decline and this has resulted in the decline in export volume and value as well. For the last six months of 2014, export volume remained steady at 891 metric tons compared 311 metric tons of the first six months. The continued fluctuation of catches throughout the last five years has not helped in building confidence into the industry resulting in some smaller alia boat owners moving elsewhere because of this.

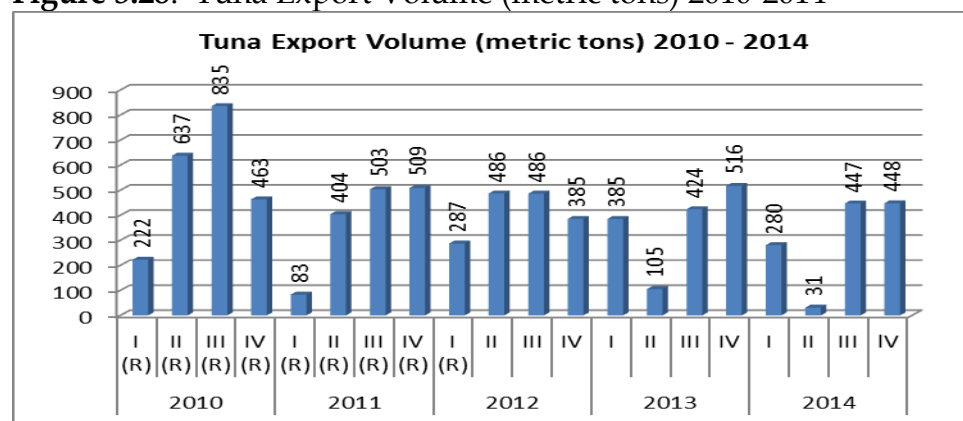
The main factors that may have contributed to the decline in the tuna catches include:

1. Oceanographic conditions – highly variable and if the cold waters are pushed beyond our EEZ zones, la nina & el nino occurs. In short, if sea temperatures rise, tuna moves to cooler sea levels.

2. Over-fishing of the main tuna species like albacore in the open waters and nearby EEZ before reaching Samoa EEZ.
3. Cost of operation – the cost of deploying 100 hooks back in 2002 is very much different compared to nowadays.

All these factors contribute to the overall decline in the production in the fishing industry.

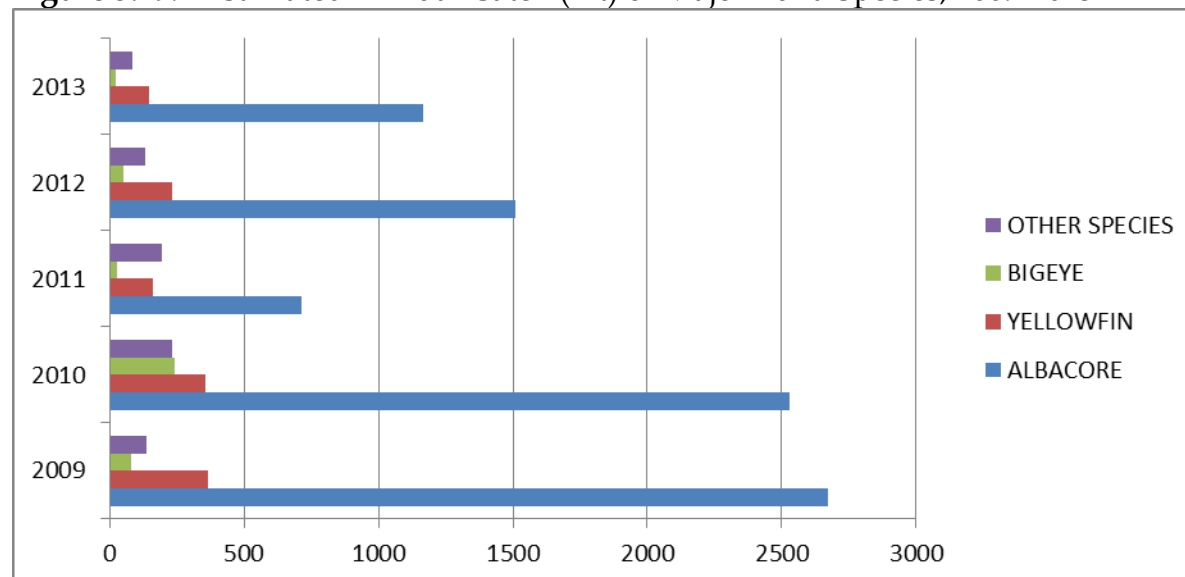
Figure 3.28: Tuna Export Volume (metric tons) 2010-2014



Source: Samoa Bureau of Statistics

The tuna longline fishery is the main offshore fishery and the country's largest export earner. It depends on three main species, albacore, yellowfin and bigeye tuna.

Figure 3.29: Estimated Annual Catch (mt) of Major Tuna Species, 2009-2013



Source: Ministry of Agriculture and Fisheries, Fisheries Division.

For the year 2013 shows a huge reduction of 47 percent for bigeye tuna from 53.3 metric tones in 2012 to only 25.5 metric tones in 2013. Yellowfin tuna as well turned down to more

than 63 percent of estimated catch from 230.5 metric tons in 2012 to 146.5 metric tons in 2013. Albacore also dropped from 1508.8 metric tons in 2012 to 1165.6 metric tons in 2013.

Table 3.9: Catch Estimates of Tuna Longline Fishery by Species (Metric Tons), 2009-2013

	2009	2010	2011	2012	2013
Albacore	2670.8	2527.3	715.4	1508.8	1165.6
Yellowfin tuna	365.1	354.7	163.0	230.5	146.5
Bigeye tuna	81.6	242.3	29.9	53.4	25.5
Others	136.3	234.9	195.8	134.5	84.8
Total	3601.8	3359.2	1104.1	1643.5	1422.3

Source: Ministry of Agriculture and Fisheries, Fisheries Division.

In addition to the tuna fishery, other pelagic fish were harvested and sold at the domestic market (Table 4.8). An estimated annual average of 1,643.5 tonnes was landed in 2012 and 1,422.3 tonnes in 2013. The current market price for fish is estimated at SAT\$4 per kilogram, putting the estimated value of other off-shore fisheries harvested in 2012 at SAT\$0.54 million and SAT\$0.34 million in 2013.

Table 3.10: Catch Estimates for Pelagic Fisheries by Species (MT), 2012-2013

Species	2012	2013
Wahoo	33.13	26.07
Masimasi	35.63	31.31
Skipjack tuna	26.16	9.73
Blue marlin	10.70	4.69
Great Barracuda	3.70	0.57
Broadbill swordfish	5.11	2.46
Sailfish	1.86	0.79
Black marlin	10.16	3.51
Sunfish	0.09	0.10
Shortbill spearfish	0.07	2.46
Dogtooth tuna	0	0
Striped marlin	2.69	3.45
Silky Shark	0.09	0.15
Bigeye barracuda	0.03	0.52
Southern bluefin tuna	0	0
Bigeye thresher shark	0	0.27
Other ^a	1730	1317
Total Annual Catch	1,859.42	1,403.08

Source: MAF, Fisheries Division

The fleet structure of fishing boats engaged in offshore fisheries has changed considerably over the past four years. While the versatility of the alia boat design allows it to switch with ease to other types of fishing, a number of factors have gone against small alia fishermen in the offshore fishing industry. These include:

- the dramatic decline in tuna catches;
- aging fleet and rising costs of boat maintenance;
- poor returns to operators with low catch volumes;
- the application of improved export standards increasing rejection rates (sold on local markets) that reduce returns;
- lower export market prices with the weakening of the US dollar;
- the introduction of income tax to the industry; and
- boats not meeting the required standards to warrant fishing licenses.

The data in the Table 4.10 below demonstrates how these factors have forced the profile of the offshore fishing industry to change during the past five years.

Table 3.11: Domestic Fishing Boats Engaged in Off-Shore Fisheries By Class, 2009-2013

Year	Class A	Class B	Class C	Class D, E	TOTAL
2009	54	4	3	14	75
2010	29	2	4	13	48
2011	70	1	2	10	83
2012	58	0	2	11	71
2013	52	0	2	8	62

Source: MAF, Fisheries Division

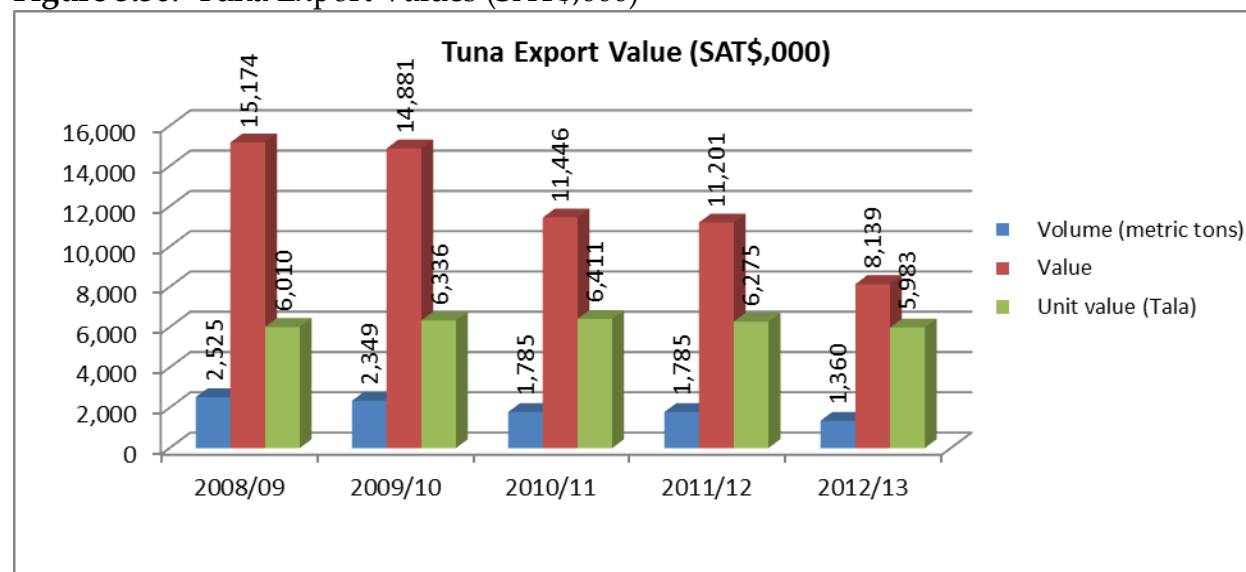
Samoa's Economic Exclusive Zone (EEZ) is 120,000km² and is the smallest in the Pacific region. The distribution of the domestic fleet operating within the EEZ depends largely on vessel design, fishing effort and the carrying capacity of vessels. Class C, D, and E cover great distances and are equipped to fish outside the 50-mile zone from shore. These vessels are capable of fishing anywhere within or near Samoa's EEZ boundaries bordering American Samoa, Tokelau, Cook Islands, and Tonga. The smaller alia design fishing vessels (Class A and B) are limited to fishing within the 50 mile zone from shore.

3.3.1.2 Markets and Prices

A decline of about 2 percent in the value of tuna export from SAT\$11.4 million in 2010/11 to SAT\$11.2 million in 2011/12, and then a further decline of about 27 percent in value of

SAT\$8.1 million in 2012/13 portrays a general decline in catches, and value. The unit value also declined by about 5 percent, from SAT\$6,275 per metric ton in 2011/12 to SAT\$5,983 per metric ton in 2012/13.

Figure 3.30: Tuna Export Values (SAT\$,000)



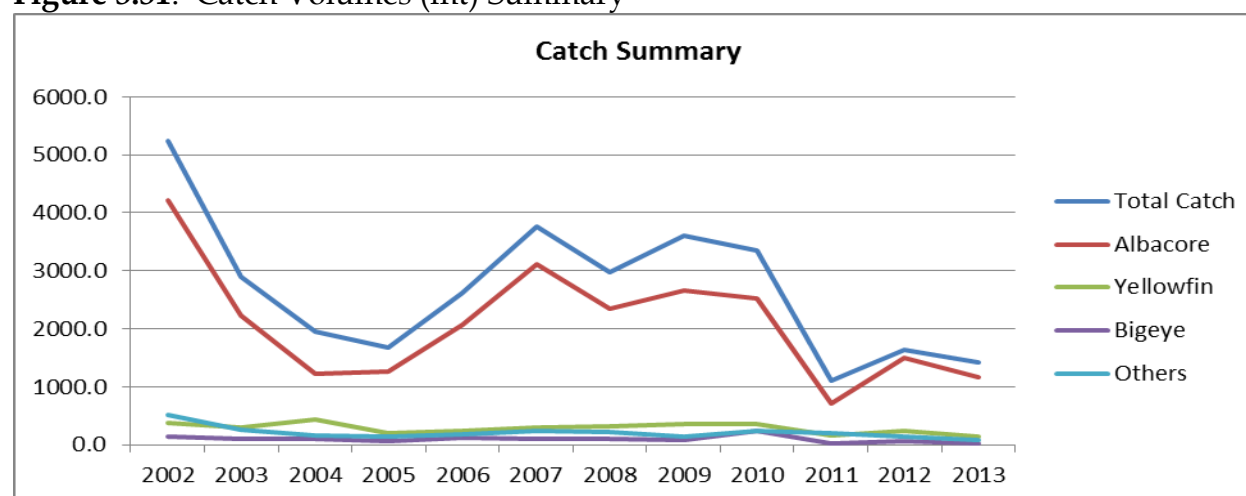
Source: MAF, Fisheries Division

3.3.2. Offshore: Outlook

3.3.2.1 Production

Overall, tuna catch volumes remains relatively low and results in decline export volume. Some reason behind this decline was due to climatic conditions and low season, and the division is expecting improvement in tuna stocks in June/July 2015.

Figure 3.31: Catch Volumes (mt) Summary



Source: MAF, Fisheries Division

The Tuna Commission was set up to benefit not only small countries like Samoa, but also long distant fishing operators. The benefits for Samoa include putting in place management measures to ensure sustainability for its long term benefits and dependence, economically and socially, on fishery resources. The Tuna Commission requires all members involved to follow guidelines and measures to sustain fishery development.

3.3.2.2 Markets and Prices

According to the current trends, export value of tuna fisheries continues to decline. Given the small EEZ, Samoa has very little options left if it is to pursue protection of the existing local industry. For the Fishery Industry to grow, it will need to look outside the box, and look at possible outside investment in processing, market coordination and leadership in the region. Samoa has several positive characteristics that can diversify the Fishery development strategies. Some of these unique characteristics are:

- Samoa is central (or close to) in the Pacific and can be a Coordinating Hub for marketing, processing (value added);
- Samoa has the most stable government in the small island region, and that attracts foreign investment;
- Samoa's track record in good governance and reform development, puts it in an attractive position where dynamic development policies can be nurtured and developed;
- Samoa has been one of the fastest growing developing economies in the Pacific, and that is good for foreign investment.

Samoa has the smallest EEZ, and it is within its interest to look at the broader picture to develop bilateral policy agreements with its neighbors on possible sharing of EEZ's, fishery resources and bilateral fishery management and coordination. One of such example is the possible setting up of a cannery that can service fishing vessels in the region, create huge employment opportunity and boost its economic status. The Bumble Bee Cannery has expressed interest in this field, and it can be a good opportunity to consider through a feasibility study.

3.3.3 Inshore Fisheries: Current Industry Situation

3.3.3.1 Production

In the early 1990's, inshore landings of near shore fish and fishery products⁹ began to decline as a direct result of destructive fishing practices such as, explosives, bleaching

⁹ Fishery products, refers to processed or semi-processed sea food (ie sea cucumber, sea urchin, lollyfish, green seahare)...

agents and plant-derived poisons. By 1990, the estimated total inshore fishing catch had dropped to 39 tonnes down from 246 tonnes in 1986. The dramatic decline in volume forced the Fisheries Division to put in place conservation and management plans to help the fishery recover.

Table 3.12: Inshore Fishery Landings – Volumes (mt) and Value (SAT\$)

Inshore Fishery Landings					
	2009	2010	2011	2012	2013
Volume (MT)	129.2	131.82	123.7	130.987	129.55
Value (SAT\$)	\$1.80 million	\$1.799 million	\$1.70 million	\$1.77 million	\$1.62 million

Source: MAF, Fisheries Division

The current annual catch from inshore fisheries is around 100-150 metric tonnes, with an estimated value between ST\$1.5-2 million a year. Anecdotal evidence suggests that the fishery is gradually recovering, although there is still a lot of work to do to ensure sustainable levels are reached. The Fisheries Division - MAF has four main priorities in this area:

1. Continue public awareness on sustainable fishing methods and the impacts of destructive fishing;
2. Facilitate and establish community based fisheries management plans;
3. Rebuild inshore fisheries through the release of fish stocks into village reserves; and
4. To establish aquaculture.

One of the major parts of the campaign to manage and conserve village reserves is the use of laws to prosecute individual(s) that break village rules on marine reserves. Individuals fishing in the conservation areas can now be prosecuted with instant fines or court proceedings. Other measures enforced by the Fisheries Division under the Fisheries Act are the regulation and monitoring of size limits of fish and shellfish. The ultimate goal is to increase future production of inshore fisheries through the promotion of sustainable utilization and management.

3.3.3.2 Markets and Prices

The main market for inshore fishery products is the domestic market made up of the Apia and Salelologa fish markets, retail shops and village roadside stalls. In 2014, fish and fish product prices range from SAT\$4-8 per kilogram depending on fish species. Around 73% of the annual inshore landings are traded through this market.

The second and emerging market for the inshore fisheries is the export market mainly to New Zealand. Export fish and fishery products are destined for both commercial markets and *fa'aoso* (travelling passengers accompanied cargo). Fish are packed fresh chilled. About 27% of the annual landing is exported.

3.3.4 Inshore Fisheries: Outlook to 2018

Inshore fisheries are still recovering after damages caused by several tropical cyclones, the latest, Cyclone Evan in 2012. The outlook for future production is positive given conservation and management regimes are being rigorously implemented by the Fisheries Division. The main focus will be on rebuilding fish and shellfish stocks through several research projects currently undertaken by the division. Overtime, and with appropriate management, the annual inshore fisheries catch is expected to recover to sustainable levels close to pre-1990 catch volumes.

In 2014, a total of 76 villages in Samoa, 46 in Upolu and 30 in Savaii, are actively implementing their inshore fisheries management reserves.

3.3.5 Aquaculture: Current Industry Situation

3.3.5.1 Production

Samoa's aquaculture sector is relatively small and limited to subsistence production of mainly finfish tilapia (*Oreochromis nilotus*) and giant clams (*Tridacnid family*). Despite its small size, the sector has the potential to become a significant source of fish for the future with the current focus on research and development. It also has the potential to provide product for the aquarium trade and for high value exports.

Table 3.13: Fresh Water Tilapia Fish Farms Established

Year	No. of tilapia farms established	No. of tilapia fingerlings distributed.
2009	9	5175
2010	4	219
2011	14	2813
2012	9	2930
2013	14	3570

Source: MAF, Fisheries Division

Reliable production estimates are not available, although stakeholders indicate that tilapia farming has produced variable results and that there might be a slowing down in the number of new farmers entering the sector. Domestically there has been mixed feedback from the market as to how the fish is perceived from a quality viewpoint. Fish from earthen ponds need to be properly conditioned before sale, and this may have been a factor in this response.

Tilapia also produces a high-quality smoked fish, and this value-adding option could create markets, both here and overseas.

3.3.5.2 Markets and Prices

The current market for Tilapia is mainly for subsistence with a few being sold to Hotels and Restaurants. Tilapia is a good source of protein for rural inland households living close to fresh water source. It is also a good alternative for food security. There are varying prices offered, but are mainly below the fish from the sea, at a range of SAT\$1.50 to SAT\$4.00 a kilogram.

3.3.6 Aquaculture: Outlook to 2018

The fresh water aquaculture industry will continue to remain a good alternative source of protein and food security in the rural community, with community managed farms. It will also take pressure off the inshore management reserves.

Exporting mudcrabs to Japan and the USA offers an exciting and profitable opportunity for the future. Similarly the international trade in aquarium species has the potential to provide good income streams for village farmers. Giant clams can be traded to the aquarium trade, as can many fish species from the reef.

3.4 Organics

3.4.1 Situation and Outlook: Organics

3.4.1.1 Production

The organic industry is growing steadily by level of interest from farmers. However, the current organic productive base in Samoa has about 600 members. There are about 588 organically certified farms plus some villages that have registered as organic, which include Salailua, Siutu, Sagone, Sili and Aopo in Savaii. Currently, a total land area of more than 40,233 hectares is registered as organic farm lands. However, there is a higher number of farms growing organically, but have not officially being certified. These farms need to be certified as organic before the produce from farms can be marketed overseas as organic.

Women in Business and Development Inc. (WIBDI), is the leading organic industry support organization. In addition, WIBDI facilitates the farm inspection and certification process, which is implemented by the National Association of Sustainable Agriculture Australia (NASAA). Farm inspection and certification process is done once in a year, at a cost of about AUS\$22,000 per annum for the 588 members and is seen as a major constraint at increasing organic farming in Samoa.

The following organically certified products are produced in Samoa: virgin coconut oil, fetau oil, coffee, vanilla, cocoa, Natural Insect Repellent, dried bananas, coconut soap, noni

juice and fresh fruit and vegetable baskets. Other goods include mixed fruits for frozen pulp, citrus, herbs, taro mixed vegetables, fetau nuts, spices (chilli, black pepper, turmeric), coffee cherry, vanilla pods.

3.4.1.2 Markets and Prices

WIBDI has recently start developing niche markets to export organic cocoa to the United States and coffee to New Zealand. In addition, there has been an increase in level of interest also from Japan markets for this crop. Exporting Organic Nonu Samoa is expected to increase for the coming year. Exports virgin coconut oil mainly to the Body Shop has been limited to bulk shipments only. Future plans of external assistance and potential private sector investment from business parties in New Zealand may revive virgin coconut exports over the next year. The Fetau Oil has picked up in its sales, according to WIBDI. Future prospects are good.

Organics offer good potential but industry organization, structure and use of appropriate technology will be needed. Meeting overseas standards that demand fresh produce to be 100% free of pests and diseases is particularly difficult for organic farmers.

WIBDI continues to negotiate with fair-trade association to avoid uncertainty in prices. A fair-trade for farmers produces, which covers the cost of production, and increases economic benefits for organic products and farmer returns. However, Organic farmers are generally not involved in marketing their produce. WIBDI has played the marketing role in trying to link up farmers with exporters and processors.

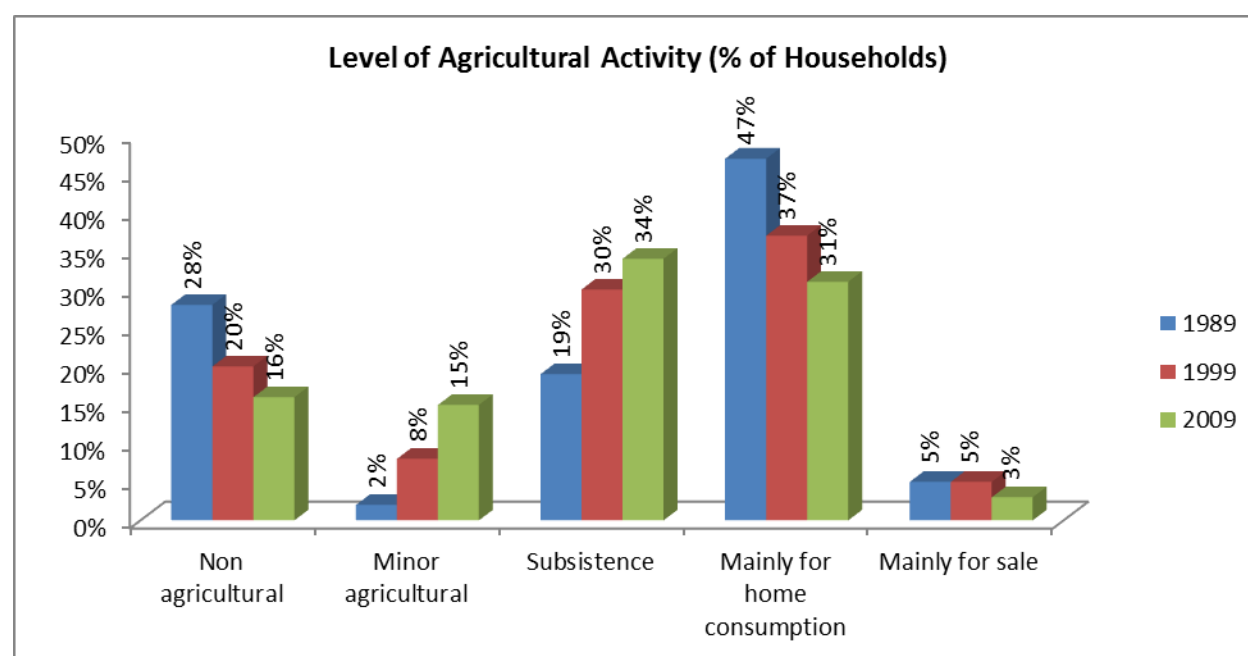
WIBDI is also looking at other opportunity to make possible markets for other organic products, such as ginger, cocoa products, vanilla and tropical fruits. These organic products are sold on traditional local markets and received a high level of interest from overseas buyers.

Very low volumes of products that is available for export, the lack of premiums in Samoa local market for organic produce, and the lack of resources and capital to develop the industry, continues to hamper further market development.

Section Four: Social Issues and Land Changes

Land tenure: The village and family life of Samoa is the foundation of its tradition and culture. Growing and harvesting the products on family farms, gardens and fisheries is integral to that social fabric and remains vital to the economy. The Census of Agriculture 2009, indicate a drop in the percentage of non-agricultural households from previous censuses (see Figure 5.1). It in turn, it indicates a rise in percent for both minor and subsistence agriculture, which shows many households moving towards growing agricultural plants for food and raising some livestock or some sort of agriculture activity, although it may not be the main source of income. The drop in agricultural activity *mainly for home consumption* and *mainly for sale*, shows some specializing of commercial farming. This may also indicate a few dominant farmers having access to huge areas of land for farming commercially, which is mostly leased and/or freehold land.

Figure 4.1: Level of Agricultural Activity (% of Households)



Source: Samoa Bureau of Statistics – Census of Agriculture 2009.

Credit access: Access to credit has been hindered mainly by the high interest rates that accompany them, which include the Development Bank of Samoa, which was set up to mainly assist the agriculture sector development. However, under close scrutiny, it was revealed that these high interest rates have been translated from high risks that are taken by these lending facilities. Given the fact that agriculture is a high risk sector, attempts have been made by some agencies such as the SBEC to reduce these risks, by training farmers in

operating their farms as a business enterprise, and thus have the ability to service their loans, and reduce risks involved in business/farm failure.

It is highly crucial that commercial farms have a high degree of good business management for it to be successful, and this is found wanting in the sector. Business plans coming out of the SBEC workshops have shown good profits out of most agricultural enterprises, and the challenge is to manage family, social and personal costs from drawings against the farm business. SBEC pointed out that most failures in loan servicing comes out of the failure of family Matai's to recognize farms as a business, operated by, especially the youth or non-title holders, under their extended family. Thus farms on family land are obligated to traditional extended family ceremonies.

Migration and Urban Drift: Samoa is experiencing a drain in its labor force from the rural agriculture development. In 2010, MAF conducted a survey on the Stimulus Package Program for the replanting of coconut, cocoa and other economically important crops. One of the main criteria at the time was to plant these crops as an organic farm, without the use of weedicides, fertilizer and other chemicals. A lot of farmers decided after initially showing some interest, to withdraw from the program, and one of the main reason indicated by the survey was because of the lack of family labor to maintain the farms, given that organic farming requires a fair amount of manual labor.

Samoa's population growth from the last population census is around 12% after being stagnant at about 1% for so long. This is mainly due to the migratory flow to the urban outskirts and through the overseas quota and seasonal workers. Part of this drift is to settlements around the Apia outskirts such as Vaitele and Vailele. A lot of Samoan expatriates have also returned to set-up business here in Samoa. The challenge is to attract the youth to take up farming as a profitable enterprise.

Public Sector Support Services (MAF): The Policy, Planning and Communication Division of MAF is very much understaffed and will need governments commitment for resource allocation to this Division of MAF if it is to successfully sustain its monitoring and policy development role for the sector.

Public – Private Sector Partnership: MAF needs to work closely with Private Sector if it is to service the agriculture sector successfully. Networking and periodic consultative activities are essential for government to identify timely issues, constraints and failures within the sector, in order for it to apply timely remedial actions and for the sector to move forward. This exercise has projected private sectors willingness to work closely with government, if resources are allocated to networking partnerships that can suggest timely policy advice to government for an enabling environment for the sector to develop positively.

Career Preference: Agriculture is seen as the less preferred career path to most youth in Samoa today. This is mainly due to the tainted failure of agricultural enterprises in the past due to the low level of good management practiced, especially in cash flow control and management, as mentioned in the credit issue above. Successful commercial farms should be highlighted and a special study on its successes should be done to profile agriculture as an economically viable career option to pursue. Agriculture should be labeled as a business in order for it to succeed and not just a cultural social activity to perform.

Section Five: Opportunities and Issues for Growth

This section highlights the key opportunities for Samoan agriculture (including fisheries) which have developed over the past three to five years and have been identified in this report. The opportunities identified are not limited to new or expanding business enterprises but are all related to the agriculture sector's overall performance and its role as the centre of village economic activity and traditions. These opportunities are *real* as opposed to popular concepts for future growth and are all at critical stages of their industry development. Each industry is faced with a range of issues and challenges to future growth and these have been identified through stakeholder consultation and various sector reports. These issues are described in relation to sector development over the outlook period.

5.1 Emerging Industry Opportunities

5.1.1 Reviving the Taro Industry

Taro is one of the fastest growing industries in Samoa at the moment. It has evolved from years of breeding Taro Leaf Blight Resistant varieties that inherit the preferred characteristics of the original Samoan taro, but resist the Taro Leaf Blight disease. The outcome of these breeding programs are three top varieties selected from tasting, texture and shelf-life trials, and now being exported to New Zealand and American Samoa. MAF has just recently launched additional varieties that are of a much superior quality and will be on the export market very soon once planting acreage is well developed.

According to the MAF coordinated taro shipments at Atele, a very high demand from New Zealand of 6 to 8 containers per week was never achieved, and the opportunity exist for further growth.

Opportunity also exists for processing the rejects into taro chips, given the available technology. Already there is taro chips on super market shelves, which can be expanded and substituted for the unhealthy imported snacks.

5.1.2 Organic Products – A niche Market

There is a wide area of opportunity for marketing organically grown and certified agricultural products to specific markets. One of the markets identified in Samoa is the hospitality industry, where Hotels and Restaurants can serve up organically grown and certified food to specific customers. Organic products can be marketed as a healthy alternative to the health conscious community and may fetch a good premium price.

Markets exist overseas, and these organic markets are growing strong. The challenge is sustaining these markets, and regional approach may be required to achieve the supply consistency needed.

5.1.3 Fruit and Vegetable Industries

Fruit and Vegetables is becoming a strong component in the general Samoan diet, as healthy living concepts become health conscious to the high incidence of the general population with non-communicable diseases such as diabetes and high blood pressure, heart diseases and general wellbeing.

Samoa imports a very high number of fruit and vegetables, most of which can be grown locally. The SACEP of MAF has pursued the development of these sectors and hopes to increase import substitution of these products. Samoa used to import vegetables with a value (FOB) as high as SAT\$33.5 million in the period 2012/13.

SACEP of MAF, has identified several key products that have undergone field trials with very promising results. These include the carrots, irish potato, bulb onion and the orange. These are the main products imported into Samoa, but can be grown in Samoa to substitute the imported products. Opportunity exists for these new crops (see 5.1.9 below), and the SACEP Project will assist in developing these industries through direct assistance to interested farmers. Commodity Chain Studies have been highly recommended alongside these developments to highlight unnecessary losses and real remedial actions needed to resolve them, and make fruit and vegetables more competitive to substitute the imported commodities.

5.1.4 Cocoa Products

Already there is Samoan Chocolate being processed at Vaisala from the high quality *Trinitario* and *Criollo* varieties now being promoted in Samoa. Samoans love their cocoa beverage (Koko Samoa), and there will always be cocoa around. Opportunity exists for developing these cocoa products, especially for the Tourist Industry.

It is perceived that Organic cocoa presents a niche market for a double premium price. That's a special opportunity for developing.

5.1.5 Coconut Products

Coconut Virgin Oil produced from organic farms has attracted some external investors, and MAF, in collaboration with WIBDI is planning to launch a massive replanting program worth at about SAT\$20 million in its recent proposal for the coconut industry. Coconut, like cocoa and taro are traditional crops that are used in everyday food and feed. Already there is a healthy export volume of crude coconut oil with an export value of about SAT\$2.554 million in 2014, and a peak of SAT\$8.021 million in 2012.

5.1.6 Agro-Processing

Already there are several locally processed and marketing of chips products (taro, banana, breadfruit and cassava). To develop it further with a good marketing strategy can give it a

further boost. The tourism industry is interested in locally produced products of high quality and opportunity exists to replace imported snacks with locally produced snacks.

WIBDI has processed dried lady's fingers (Misiluki) into a very healthy organic snack. This can be promoted further. Other organic processed products will also open export markets where SPS stringent requirements of importing countries are not required.

5.1.7 Poultry Broiler Production

The huge amount of chicken parts imported into Samoa can be substituted by local production units. SACEP of MAF is also addressing this in their development strategy. Initial work has been done to look into possible strategies that will address the most costly input to poultry production, poultry feed. There is strong interest from private sector entrepreneurs to spear heading this industry development, and MAF's role is very important, in nurturing strong partnership that will ensure an enabling environment for this industry to develop. Already, the egg production is now fully self-sufficient to provide for the nations needs and no more eggs have been imported.

5.1.8 Apiculture (Honey Production)

Samoa is one of the disease free countries, if not the only one, in the Pacific and Pacific-rim. World statistics shows the decline in honey production, especially in the EU. There are many benefits from Honey Production that can highly compliment agricultural production, for both Animal and Plants. Pollination by Honey Bees would increase the seed set which germinates and produce more grass for fodder feed for livestock. Pollination by Honey Bees would increase fruiting of food trees and crops, especially for crops such as almonds, avocados, coffee, coconuts and citrus, thus boosting production.

Other very important products from the Apiculture Industry is not only in honey, but also bees and queen bees (disease free and can be exported), wax, pollen, Propolis, royal jelly and bee venom. Samoa is now supplying Samoan Honey only on their retail and super market shelves.

5.1.9 New Agriculture Commodities (SACEP)

SACEP under its research component has identified some new possible industries, targeted from the huge volume and value of imported commodities such as onions, carrots and oranges that can be grown in Samoa yet imported with values worth millions of tala. The project has identified some varieties that can be grown economically and developed in Samoa. Opportunity exists for these commodities to be developed as emerging industries.

5.2 Issues and Challenges to Future Growth

There are a number of operational issues that impact on future industry development for emerging or rapidly growing primary industry sectors. The key strategic issues that affect a number of sectors are outlined below.

5.2.1 Efficiency of Production, Post-Harvest Management and Supply Chains

The issues throughout this report on individual Industries, underlines the need for Commodity Chain Studies and Value Chain Studies to address the unnecessary cost and losses that make agricultural production less efficient and therefore less competitive, especially with imported agricultural products. This can never be over emphasized with the production of Fruit and Vegetables in Samoa. Consultations with Hotel owners and Retailers highlight the need for consistency in supply, quality of products and from retailers, to add on presentation or packaging and labeling, so that less additional work is done to present them attractive on the shelf. A lot of import substitution can be done if these needs are met at a lower cost.

5.2.2 Quality Standards and CODEX Alimentarius

A very important issue on the standards and quality of the local agricultural products, especially the fruit and vegetables, versus the standards and quality of imported products comes to light as part of the overarching constraint that deters progress on import substitution. It is obvious that Retailers would not have to import commodities that can be produced locally with the same or better standards or quality. The challenge for Samoa's agricultural industries lies in being able to meet local market demands by supplying good quality products and providing a base for higher value export markets.

Meat can have a Standard developed by the CODEX Committee to create high quality products and produce an enabling environment for local product development. A lot of low quality meat are imported and are causing health problems. Standards can be set to stop the importation of these low quality products and at the same time promote the high quality local product. This can be done with the sheep and poultry industry.

5.2.3 Industry Training and Knowledge

The ability of Samoa to improve the volume and quality of agricultural production and compete on high-value international markets will depend heavily on the skills of its producer base. Agriculture (including fisheries) is widely perceived as an unviable career path at the village community level with student application numbers to attend agricultural courses (at USP, Alafua) lagging. A number of industry stakeholders, agri-processing and crop production stakeholders, have identified the lack of skilled people as a key constraint to industry growth. This is an issue being addressed, in part, through the Secondary Schools Education Curriculum and MAF institutional support. On farm training is also being expanded.

The most significant constraint faced with village based farming is the lack of business knowledge and the appreciation of it across the family and village level. Village based farming for most extended family heads (Matai) sees farming by family members as an extension of traditional family obligation to support traditional and church ceremonial

activities. This makes individual efforts (for especially Youth) almost impossible to succeed and therefore less attractive and uneconomical. The challenge is to educate all levels of the community on the importance of business based farming and the benefits that follow the expected successes. SBEC has had clients that have problems serving their loans under credit facilities because of the demands from traditional leaders to commit farm produce to traditional obligations. This, and the frequenting of natural disasters, makes agriculture a high risk sector to credit facilities. The challenge is to reduce risks through mitigation and education of rural communities. SACEP may be in a good position to try and address this issue as it pursues the same requirements and issues in its project approach.

Farm contracting is a new conceptual idea that falls under the business based farming issues raised above. The challenge is to commit the farmer and make him and his Family Leaders (Matai), under customary land ownership, accountable to meeting and supplying the requirements and commodities, in a timely and consistent manner. These concepts, when established in a community, may make agriculture and farming an attractive career to the youth and school drop-outs. Urban drift will be reduced and less social-economic problems will arise in urban areas.

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