



**GOVERNMENT OF SAMOA  
SAMOA BUREAU OF STATISTICS**

**IN-DEPTH COUNTRY ASSESSMENT OF THE NATIONAL  
SYSTEM OF AGRICULTURAL AND RURAL STATISTICS IN  
SAMOA**

**(Carried out under the Global Strategy to Improve  
Agricultural and Rural Statistics)**

**November 2014**



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## **FOREWORD**

**BY**

### **THE GOVERNMENT STATISTICIAN OF THE SAMOA BUREAU OF STATISTICS AND CHIEF EXECUTIVE OFFICER OF THE MINISTRY OF AGRICULTURE AND FISHERIES**

The Samoa Bureau of Statistics in collaboration with the Ministry of Agriculture and Fisheries is pleased to present the In-depth Country Assessment Report (IdCA 2014) for Agriculture and Rural Statistics in Samoa. The IdCA report is deemed very essential as it provides the benchmarks for developing Strategic Plans for Agriculture and Rural Statistics (SPARS) for Samoa.

The Government of Samoa's Strategy for the Development of Samoa (SDS 2012 – 2016), with its vision of *"boosting productivity for sustainable development"*, recognized agriculture as one of the key productive sectors driving the economy.

The creation of an Agriculture Sector Plan (ASP 2011 - 2015) coupled with an existing National Statistical Development Strategy in place (Samoa Strategy for the Development of Statistics 2011 – 2021) has helped Samoa to establish the necessary framework to support the development of agriculture and rural statistics. To formulate effective policies, good data support systems are essential. Timely and reliable data and information help us understand critical issues, design appropriate interventions and efficiently monitor programs and policies.

This IdCA report provides an insight into the challenges in agricultural and rural statistics in the country and pinpoints the inputs, processes and outputs for bringing improvement in them. It also provides benchmark for monitoring and evaluation of the impact and outcome of the support to be provided for improvement in agriculture and rural statistics.

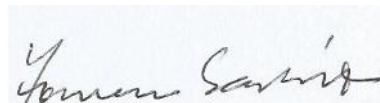
The IdCA report is the result of intensive studies conducted using FAO's standard methods of country assessment concerning agricultural and rural statistics. Slight modifications were however, integrated into the study to fit our own context and address our need. Intensive deliberations took place over the findings and recommendations of the IdCA report among stakeholders that produce and use agriculture data.

The Samoa Bureau of Statistics and Ministry of Agriculture and Fisheries would like to thank the United Nations Food and Agricultural Organization for its generous support. We would also like to acknowledge the unwavering hard work and contributions put in by stakeholders in bringing out this report.

This assessment report is intended to be used as an authentic reference document by the agriculture sector, other relevant government agencies and international community interested in the development of agriculture and rural statistics in preparing proposals and action plans. It is our hope that this report will lead to development of practical agriculture statistical plans and contribute to informed decision making towards poverty alleviation and improving food security in the country.



Muagututi'a Sefuiva Reupena  
GOVERNMENT STATISTICIAN



Fonoiaava Sealiitu Sesega  
CHIEF EXECUTIVE OFFICER

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## ACRONYMS

ACEO	Assistant Chief Executive Officer
ADRA	Adventist Disaster Relief Agency
APHD	Ministry of Agriculture and Fisheries – Animal Production and Health Division
ASP	Agriculture Sector Plan, 2011-15
AusAID	Australian Agency for International Development
CBS	Central Bank of Samoa
CEO	Chief Executive Officer
CPI	Consumer Price Index
CSPRO	Census and Survey Processing System
DBS	Development Bank of Samoa
FAO	Food and Agriculture Organisation of the United Nations Food and Agriculture Organisation of the United Nations, Sub-regional Office for the Pacific Islands
FAO SAP	
FFA	Pacific Island Forum Fisheries Agency
GDP	Gross Domestic Product
HIES	Household Income and Expenditure Survey
HS	Harmonized Commodity Description and Coding System
IdCA	In-depth Country Assessment
ISIC	International Standard Industrial Classification
MAF	Ministry of Agriculture and Fisheries
MfR	Ministry for Revenue
MNRE	Ministry of Natural Resources and Environment
MoF	Ministry of Finance
MWCSD	Ministry of Women Community and Social Development
NOAA	National Oceanic and Atmospheric Association, United States Department of Commerce
NSS	National Statistics System
PPCD	Policy, Planning and Communications Division, Ministry of Agriculture and Fisheries
SACEP	Samoa Agriculture Competitiveness Enhancement Project
SAT\$	Samoa Tala (currency)
SBEC	Small Business Enterprise Centre Samoa
SBS	Samoa Bureau of Statistics
SDS	Strategy for the Development of Samoa, 2012-16
SIAP	Statistical Institute for Asia and the Pacific
SITC	Standard International Trade Classification
SNA	System of National Accounts
SPC	Secretariat of the Pacific Community
SPREP	Secretariat of the Pacific Regional Environment Programme
SSDS	Samoa Strategy for the Development of Statistics, 2011-21
UNDP	United Nations Development Program
UNPFA	United Nations Population Fund
WIBDI	Women in Business Development Inc.



## EXECUTIVE SUMMARY

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### Global Strategy to Improve Agricultural and Rural Statistics

The *Global Strategy to Improve Agricultural and Rural Statistics* is an international effort to improve the quality of the agricultural information used in decision making. It has three main pillars: (i) establishing a minimum set of core data required to meet current and emerging needs; (ii) integrating agriculture into the national statistical systems; and (iii) building the capacity to ensure sustainable agricultural statistics systems. Samoa has been selected as one of the first group of countries for implementation of the Global Strategy.

The first step in implementing the Global Strategy for a country is to carry out an In-depth Country Assessment. This report presents the results of the assessment for Samoa. It describes the existing agricultural statistics system, identifies data gaps and weaknesses, and identifies the minimum set of core data. The report also assesses the country's statistical system and identifies the technical assistance and training interventions needed to improve the statistics.

For the purpose of the Global Strategy, the agricultural sector includes crops, livestock, fisheries and forestry and rural statistics encompass its social and environmental dimensions.

During 2011 and 2012, the Food and Agriculture Organisation of the United Nations (FAO) conducted a preliminary Country Assessment survey on the capacity of agricultural statistics in Samoa. This survey sought information on a range of issues related to the four dimensions of country capacity, including Institutional Infrastructure, Resources, Statistical Methods and Practices and the Availability of Statistical Information.

The 2011-12 assessment was based on self-reported data by countries which was incomplete in many areas. The information was used to derive indicative measures of capacity which were used as one factor in the selection of countries for in-depth assessment.

In 2012, Samoa, through the Samoa Bureau of Statistics (SBS), formally expressed interest in participating in the FAO *Global Strategy to Improve Agricultural and Rural Statistics* initiative through the Asia-Pacific Regional Action Plan. In 2013, Samoa was selected as the only Pacific Island nation to be supported in the initial Global Strategy round, along with Asian countries Bhutan, Sri Lanka and Indonesia.

In December 2013, meetings were held with the major stakeholders who either produce or use agricultural statistics to gather information for an In-depth Country Assessment (IdCA) of Samoa's current agricultural and rural statistics' system.

In May 2014 the initial IdCA findings were discussed at a Stakeholder Workshop, agreement was obtained on the minimum core data set for Samoa and discussions were held on the way forward for the project.

The assessment will serve as the basis of a detailed diagnostic report for developing a Strategic Plan for Agriculture and Rural Statistics (SPARS) for Samoa. There is currently no strategic plan and the Global Strategy initiative presents as an opportunity to move forward and develop such a plan.

This report is the primary output from the in-depth assessment and documents the findings and outcomes of the IdCA process in Samoa.

### Assessment of agricultural statistics in Samoa

Two of the key Samoa Government agencies, namely the Ministry of Agriculture and Fisheries (MAF) and SBS, both have acknowledged issues and weaknesses with the current agricultural statistics situation in the country.

The Ministry, in its Agriculture Sector Plan, 2011-15 (ASP) identified that the availability and quality of agricultural statistics had declined over the years and was one of the key challenges now facing the sector. Further, that the provision of key income and expenditure, production and employment data will be vital to the measurement and subsequent monitoring and evaluation of the progress of key components and outcomes of the ASP.

SBS, in its Samoa Strategy for the Development of Statistics, 2011-21 (SSDS), acknowledged that there were gaps in some areas of statistics and a lack of capacity to conduct necessary surveys. It further identified that some sectors of the Samoan economy needed specific statistical development, including the agriculture, fisheries and forestry and tourism sectors.

SBS conducts an Agricultural Census every ten years. The last Census, in 2009, was the third in the series, following Censuses in 1989 and 1999. The next Agricultural Census is planned for 2019.

The 2009 Agricultural Census collected agricultural household, crop type and area planted/harvested information as well as livestock data. Data on farm forestry and household fishing activity, agricultural inputs (fertiliser and pesticide use) as well as farm equipment and machinery used were also collected. Aside from the ten yearly Agricultural Census, there are currently no regular crop or livestock surveys undertaken in Samoa.

Agricultural sample surveys were conducted in 2000, 2002, 2004 and 2005, however these lapsed due to budget and time constraints and concerns that the 1999 Agricultural Census sampling frame was no longer valid after five years. The *Samoa Strategy for the Development of Statistics, 2011-21* proposes that an Agriculture Census or Survey be conducted each five years with the next cycle (Agriculture Survey) planned for 2014, although it is now unlikely this will occur before 2015.

SBS also undertakes the five-yearly Population and Housing Census as well as regular national household surveys such as the Labour, Education and Skills Survey and the five-yearly Household Income and Expenditure Survey (HIES). It also collects other important national statistics and compiles Samoa's national accounts.

Ministries and other government and private organisations also undertake their own statistical work to meet additional data needs. In the case of MAF, this is particularly during intercensal years, with support and guidance provided by SBS when this is sought. In recent years, MAF Divisions have collected crop production and livestock data on an ad-hoc and opportunistic basis, when donor funding has become available. Recent examples include the Ministry's 2012 Cattle Census and 2013 Fruit and Vegetable Survey, both undertaken to collect base-line information for the Samoa Agriculture Competitiveness Enhancement Project (SACEP) which is being financed by the World Bank.

Fisheries data are collected by the MAF Fisheries Division whilst forestry data are compiled by the Ministry of Natural Resources and Environment (MNRE).

### **Data gaps**

The major weakness identified through the In-depth Country Assessment phase was the lack of available information and evidence upon which to base sound planning and policy decisions. This weakness is primarily due to the lack of regular collection and survey activity. Whilst some aspects of agricultural activity may not change greatly from one year to another, such as irrigation or cultivation methods for example, there are various production and other data which are required more regularly and preferably annually, i.e. crop production and yields, input use, livestock counts, impact of climatic events etc.

The lack of available information is further compounded by the fact that some collected data is often not publicly available. A critical component of any statistical system is the adoption of effective dissemination methods which ensure that information is available and accessible to policy and decision makers and other users. The internet provides one such medium for this dissemination, therefore it was disappointing that websites of some of the ministries and organisations were not maintained/updated regularly or effectively utilised to publish important information that was collected or held by that agency.

### **Capacity Assessment**

The challenge, particularly for SBS and MAF, will be to find the necessary resources, both financial and human, to enable it to deliver and maintain a regular and sustainable agricultural and rural statistics system into the future, including annual or biennial data collection activities.



Financial resources, including an adequate budget to both introduce and sustain an ongoing agriculture statistical system will be critical. This includes the provision of adequate statistical staffing levels in SBS and MAF, and administrative funds to support field activities.

Capacity building and improving skills of technical staff in agriculture subject matter, sample survey operations and analytical skills has been consistently identified as a current weakness and a significant constraint to the operations of several agencies. This is reflected in the capacity indicator for Human Resources: Training, which scored zero. There is a real opportunity to garner support from FAO and the Secretariat of the Pacific Community (SPC) to assist both SBS and MAF in building their respective expertise and capacity in identified areas of weakness.

Relationships and partnerships, particularly between SBS and MAF, are not strong, and these along with partnerships with other data suppliers and users need to be further developed and strengthened. There are a number of strategies which could assist this partnership strengthening and are worthy of consideration, including joint survey and project collaborations, staff exchanges between organisations, and the out posting of experienced SBS staff to MAF and other ministries to provide statistical advice and assistance with survey activities.

The FAO Sub-regional Office for the Pacific Islands (SAP) also has a key role to play in supporting both SBS and MAF in developing effective relationships and identifying opportunities for the two institutions to work more effectively and cohesively and in developing stronger partnerships. Ultimately the success of otherwise of any agriculture statistics system introduced in Samoa could be dependent on the effectiveness and solidarity of these relationships.

## COUNTRY CAPACITY INDICATORS

To complement this assessment, a set of country capacity indicators (CCI) was developed through the CAF<sup>1</sup> to monitor the development of statistical capacity at the country level more objectively. These indicators, which span four dimensions and twenty-three elements (**Annex VI**), are based on information collected during the in-depth assessment using a Standard Questionnaire revised for use in Asia Pacific.

This baseline assessment under the CAF fielded responses from Samoa Bureau of Statistics (SBS), and relevant line ministries covering crops, fisheries, and livestock - representing the major producers of agricultural and rural statistics in the country. Responses received fed into the calculation of a complete set of indicators. Scores are recorded on a scale of 0 to 100, where a score of 100 defines a complete coverage of the criteria under the CAF.

Out of the four dimensions of country capacity, Samoa showed relative strength in its institutional infrastructure (figure 1), for which a statistics law has been enacted and subsequently declares the SBS as the agency for collection, processing, analysis and dissemination of statistical information related to socio-economic and demographic structure of the country. This legal basis for the collection of agricultural and rural statistics is further supported by the development of a Samoa Strategy for the Development of Statistics 2011-21 (SSDS) and an Agriculture Sector Plan (ASP) 2011-2015 under the Ministry of Agriculture. Weaknesses were however noted in the area of coordination where such mechanisms were shown to be non-existent (figure 2).

### Country Capacity Indicators

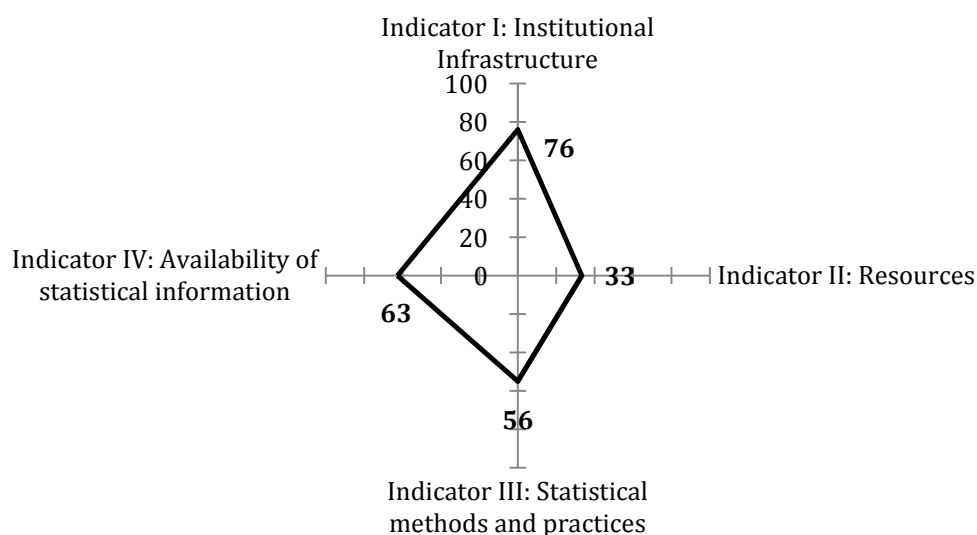


Figure 1. Country Capacity Indicators

<sup>1</sup>Framework for Assessing Country Capacity to Produce Agricultural and Rural Statistics vol. 1b, FAO, 2014.

## Indicators of Institutional Infrastructure

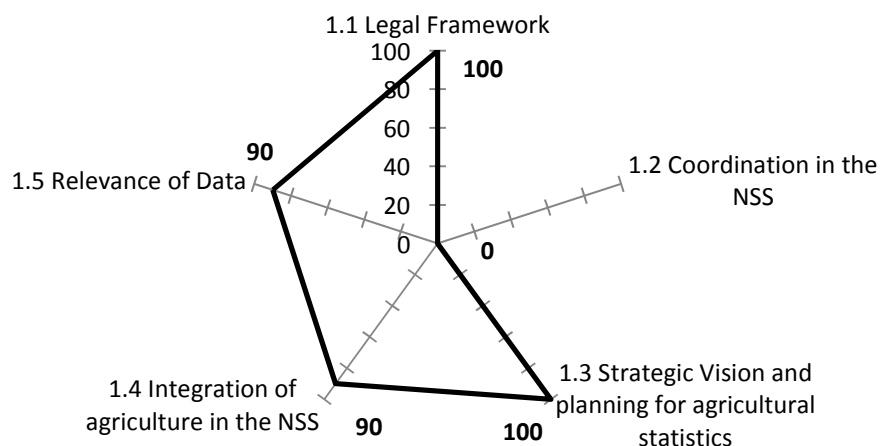


Figure 2. Institutional Infrastructure

## Indicators of Resources

On the state of available resources for the production of agricultural and rural statistics, weaknesses were observed across all elements – particularly in the area of human resources where the availability of technical and professional staff was noted as a dominant constraint to ongoing operations in both the SBS and MAF. The limited availability of training in both SBS and MAF was also highlighted under the assessment - identifying training as an area of high priority for the development of agricultural and rural statistics in the country.

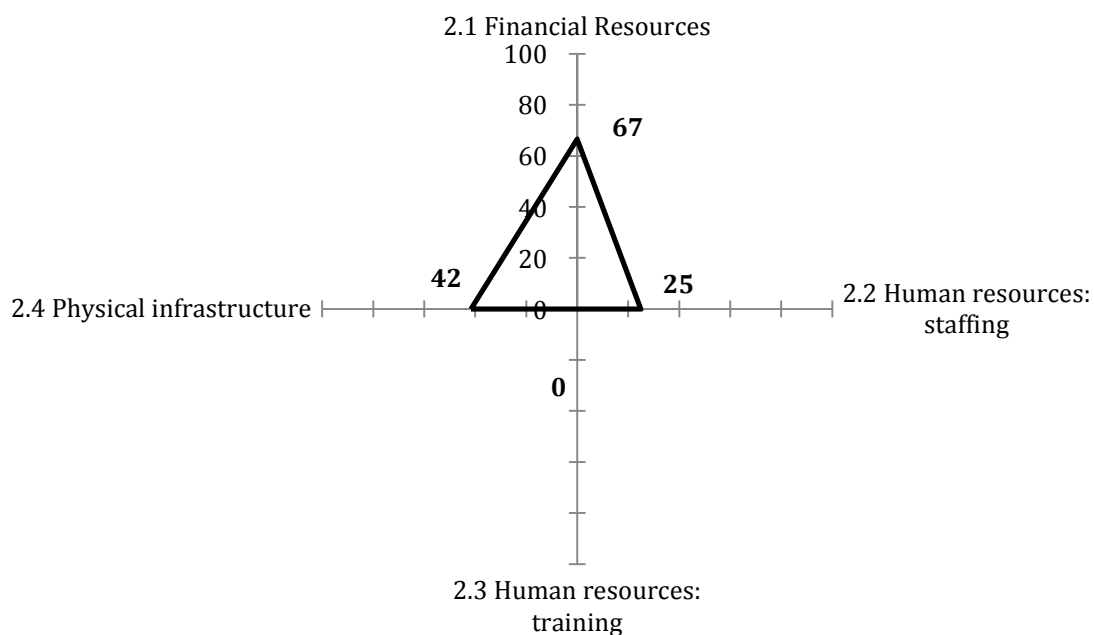


Figure 3. Resources<sup>2</sup>

## Indicators of Statistical Methods and Practices

On the state of statistical methods and practices, a number of areas for technical assistance were identified with moderate deficiencies reported in the availability and use of data collection technology, the adoption of international standards, and the lack of availability in key agricultural and rural surveys. There were, however, some identified areas of relative strength in IT related elements such as those on statistical software capability and information technology (IT) infrastructure.

<sup>2</sup> The resources indicator is representative of the situation in the Samoa Bureau of Statistics (SBS)

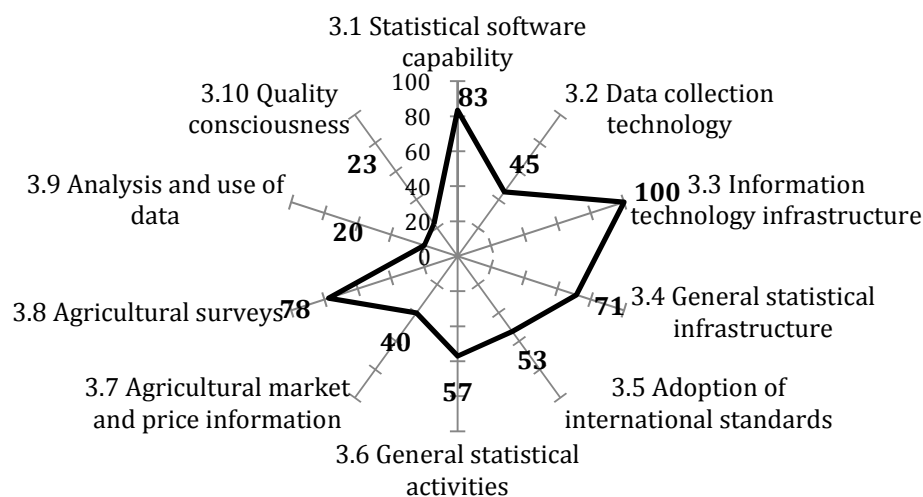


Figure 4. Statistical Methods and Practices

### Indicators of Core Data Availability

On the state of core data availability, the standard questionnaire noted limited coverage of the minimum set of core indicators (29 items of the minimum set of core indicators) with deficiencies in the availability of data for aquaculture, agricultural inputs, agro-processing, rural infrastructure, and the environment. The issue of timeliness was also stressed where the modal year of recent availability for agricultural and rural surveys lagged by two years or more. This point was reiterated by users noting timeliness as the most significant constraint in using agricultural and rural data for policy making.

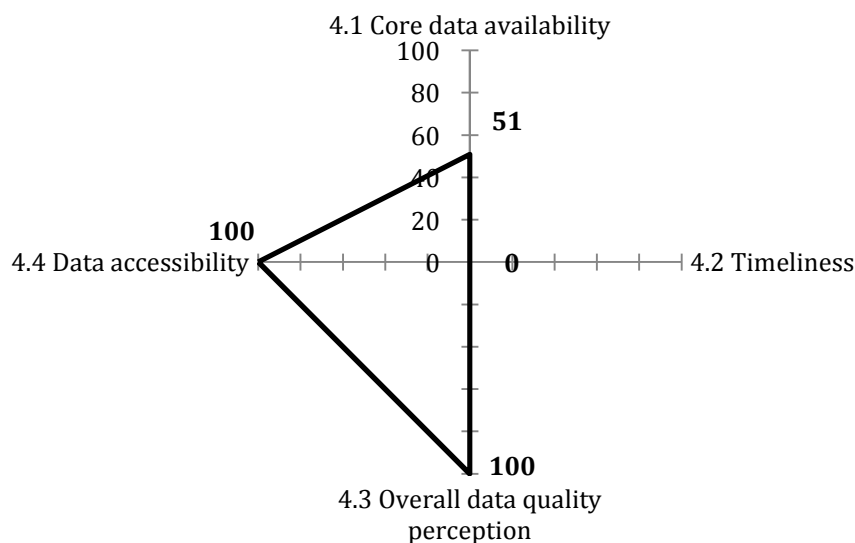


Figure 5. Core Data Availability

The full Capacity profile of the NSS may be referred in **Annex VI**.

# CHAPTER 1

## INTRODUCTION

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### 1.1. The Global Strategy to Improve Agricultural and Rural Statistics

Most people living in poverty in developing countries tend to live in rural areas. Most of these rely on agriculture for their livelihoods. Agricultural development is vital to alleviating poverty and achieving food security, but is also a contributor to global warming, water scarcity, pollution and land degradation.

New data requirements are emerging in the quest to understand how population growth, demand for natural resources, competing uses of food crops, and the effects of extreme weather and climate change affect food security, poverty and well-being. Decisions about aid and investments intended to promote agricultural growth need to be based on sound information.

In many countries, there has been a decline in the availability and quality of agricultural statistics to the point that many countries lack the capacity to produce and report even the minimum sets of data to monitor national trends, the Millennium Development Goals (MDGs) and the emerging issues in agriculture such as the environment and the use of food crops for biofuels.

In response to these concerns, the World Bank in collaboration with the United Nations and the Food and Agriculture Organization of the United Nations (FAO), prepared the report *Global Strategy to Improve Agricultural and Rural Statistics* (World Bank et al, 2010). The main purpose of the Global Strategy is to provide a framework to enable national and international statistical systems to produce the basic agricultural information needed to guide decision-making. The Strategy is based on three pillars:

- Pillar 1. Establish a minimum set of core data required to meet current and emerging needs;
- Pillar 2. Integrate agriculture into the national statistical systems and use sound data management systems; and
- Pillar 3. Establish suitable governance processes and build the necessary statistical capacity to ensure sustainability of agricultural statistics systems.

Under Pillar 1, the Strategy provides a conceptual framework for agricultural statistics that covers the economic, social and environmental dimensions of agriculture. The economic dimension relates to agricultural production, marketing and household income. The social dimension includes aspects related to farm demography and labour, gender, food security and risk and vulnerability. The environmental dimension covers sustainability issues such as the impact on the environment, biofuels, land use and water use. For the purpose of the Strategy, the agricultural sector includes crops, livestock, forestry and fisheries.

A list of 33 key indicators needed to monitor the performance of the agricultural sector has been identified. A minimum set of core data items needed to measure those indicators has also been identified (see Annex II). The core data globally include eight core crops (wheat, maize, barley, sorghum, rice, sugar cane, soybeans and cotton) and five core livestock types (cattle, sheep, pigs, goats and poultry). The set of core items is intended to provide the starting point for building the agricultural statistics system in each country.

Under Pillar 2, integration of agriculture into the country's national statistics system is seen as the key to avoiding duplication of statistical effort and ensuring the use of consistent statistical standards. The aim is for each country to develop a master sample frame for use in conducting all agricultural sample surveys and censuses, taking into account the need for data at both the farm level (the economic unit) and the household level (the social unit), as well as to provide links with land use data. In each country, an integrated programme of agricultural surveys and censuses will be developed based on the master sample frame. Additional data sources such as administrative reporting systems may also be needed.

Under Pillar 3, it is recognized that an integrated agricultural statistical system will affect the roles and relationships between data producers, including the national statistical office and line ministries. Coordination mechanisms are needed. The Global Strategy proposes that a governance body such as a national statistics council be formed for this purpose. The need for capacity building should take account

of the quality of agricultural statistics and the existing skills in data collection and analysis. Assistance from donor agencies and technical cooperation agencies will be needed to support capacity building.

An action plan has been prepared to implement the Global Strategy (FAO et al, 2012). A number of Asia-Pacific countries have been selected for early implementation of the Global Strategy, and Samoa has been identified as one of these priority countries for implementation in 2013-2014.

## **1.2 In-depth Country Assessment (IdCA)**

### **1.2.1. Background and Scope**

Country assessments are the starting point for the implementation of the Global Strategy in each identified country. This is done in two stages. The first stage involves countries reporting on the current status of agricultural statistics in their country. In the Asia-Pacific region, these first-stage country assessments were completed in 2012.

As part of the Samoa initial country assessment, the Samoa Bureau of Statistics (SBS) identified the following specific areas of need for assistance:

- To have technical capacity in selecting sample for agriculture surveys;
- Financial assistance in conducting an assessment of the damage done by cyclones and other climatic events to major export agriculture products, such as bananas, coconuts and forestry; and
- The 2009 Agricultural Census was domestically funded and in terms of sustainability to ensure that agriculture information are available every ten years, the need for external financial support is very crucial

The second stage involves an In-depth Country Assessment (IdCA) to provide a comprehensive assessment of the agricultural statistics system in the country and determine the national capability to produce the required statistics on a sustainable basis. The IdCA involves the participation of all stakeholders including agricultural data producers, users and research institutions. The specific objectives of the IdCA are to:

- Describe the statistical system in the country, document the current agricultural statistics system, and evaluate the data collection methodologies;
- Determine the extent to which the existing agricultural statistics system is capable of generating data needed by government, development partners, research agencies and the private sector;
- Determine the minimum set of core data for the country;
- Provide information necessary to design and deliver technical assistance, training and research support and to prepare a Country Proposal to seek short-term support;
- Provide baseline information to help monitor the impact and outcome of the support to be provided in the future to improve the agricultural statistics system; and
- Provide an authoritative reference document on the development of agricultural and rural statistics for the wider national and international community.

The assessment is a cooperative effort of the relevant Government agencies, and is the basis of a detailed diagnostic report for developing a Strategic Plan for Agriculture and Rural Statistics (SPARS) for the country. The objective of the assessment is to assess the statistical capacity and state of the' (1) institutional infrastructure, (2) human, financial and technical resources, (3) statistical methods and practices and (4) the availability and accessibility of the "core data" required for an integrated and sustainable agriculture and rural statistics system.

### **1.2.2. Process followed**

Following the selection of Samoa as one of the first of four Asia-Pacific countries to be supported under the *Global Strategy to Improve Agricultural and Rural Statistics* initiative in Asia-Pacific, FAO appointed a Samoa-based National Consultant to commence the in-depth country assessment process. The Consultant's role included:

- Identifying key stakeholder organisations in Samoa, both as users and/or producers of agricultural statistics;
- Providing these stakeholders with information about the Global Strategy;
- Organising and inviting stakeholders to a Stakeholder Workshop.

In conjunction with the FAO Global Strategy Regional Coordinator and FAO International Consultant, the following IdCA assessment processes commenced in December 2013:

- Separate briefings were held with Executives members of the Ministry of Agriculture and Fisheries, Samoa Bureau of Statistics and FAO Sub-regional Office for the Pacific Islands (SAP) to both inform and garner high level support for the Global Strategy;
- A Stakeholder Workshop was held on 10 December 2013 (attended by approximately 30 representatives from 14 key stakeholder organisations);
- Follow-up interviews with all stakeholder organisations represented at the Workshop were then conducted by the FAO International and National Consultants, as well as other organisations identified as a key user and/or producer of agricultural statistics;
- Key discussion points from each meeting were summarised and provided to the relevant organisation for confirmation;
- Each stakeholder organisation was also requested to complete a comprehensive questionnaire detailing their use and/or production of agricultural statistics. This included an assessment of the frequency and quality of available data, and any identified data needs or constraints in terms of effective data analysis;
- Where necessary, further information or clarification was sought from some stakeholders.

The first draft of this IdCA report was circulated for comment in March 2014. A revised version of the report was then circulated to stakeholders for consideration prior to a second workshop of national stakeholders which was held on 29 May 2014.

### **1.2.3. Workshops, meetings and interviews held**

The first Stakeholder Workshop was conducted on 10 December 2013, with meetings and interviews conducted during the initial IdCA period (9 – 20 December 2013).

A second Stakeholder Workshop was conducted on 29 May 2014 where the findings of the IdCA process were discussed, minimum core data for Samoa identified and the way forward discussed. Meetings and interviews were conducted during the period 26 May – 6 June 2014.



## CHAPTER 2

### THE AGRICULTURAL SECTOR IN SAMOA

#### 2.1. Overview of the Agricultural Sector

The Independent State of Samoa consists of two main islands, Savaii and Upolu, with eight smaller islands and a total land area of 1,100 sq. miles (2,830 sq. km.).

The population of Samoa, as reported in the 2011 Population and Housing Census, was 188,000, with over 80 percent of the population classified as rural. Savaii is the largest island (660 sq. miles or 1,700 sq. km.). The second largest island is Upolu with an area of 430 Sq. miles or 1,100 sq. km where the capital Apia, with a population of 37,000, is located.

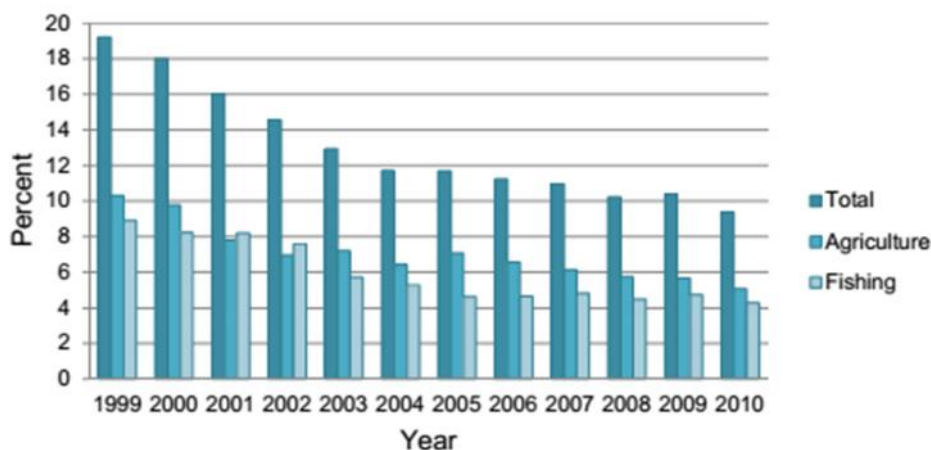
The country, which consists of about 330 villages for administrative purposes, is divided into 41 districts. These districts are further grouped into four census regions namely Apia Urban Area, North-West Upolu, Rest of Upolu and Savaii.

Samoa's traditional village economy has historically been dominated by village and community-based agriculture. This provided food for the family and the potential for a cash income from the sale of copra or other produce. However in the years since independence was obtained in 1962, the traditional village-economy has changed markedly, and now household food consumption is supplemented by imported items and incomes are boosted by employment and remittances from family members living and/or working overseas.

Agriculture had been, until the early 1980s, the most dominant sector in the economy of Samoa accounting for nearly 90% of total exports and around 60% of the country's total employment. The sector share of GDP was estimated at 50.8% in 1972, 51.7% in 1978, and 50.5% in 1983.

The performance and relative contribution of the agriculture sector including fisheries to the national GDP has since steadily declined from above 50% in the 1970's and 80's to 22% in 2000 and less than 10% in both 2010 and 2011.

**Figure 1. Percentage Contribution of Agriculture and Fisheries (at constant prices) to GDP**



Source: Samoa Bureau of Statistics

Samoa's farming systems are characterized by closely interdependent production activities that cut across the crops, livestock, fisheries and forestry sub-sectors. The production base is however narrow, being confined to a few root crops, vegetables and fruits that are grown haphazardly on a small scale, plus coconuts and cocoa grown as cash crops.

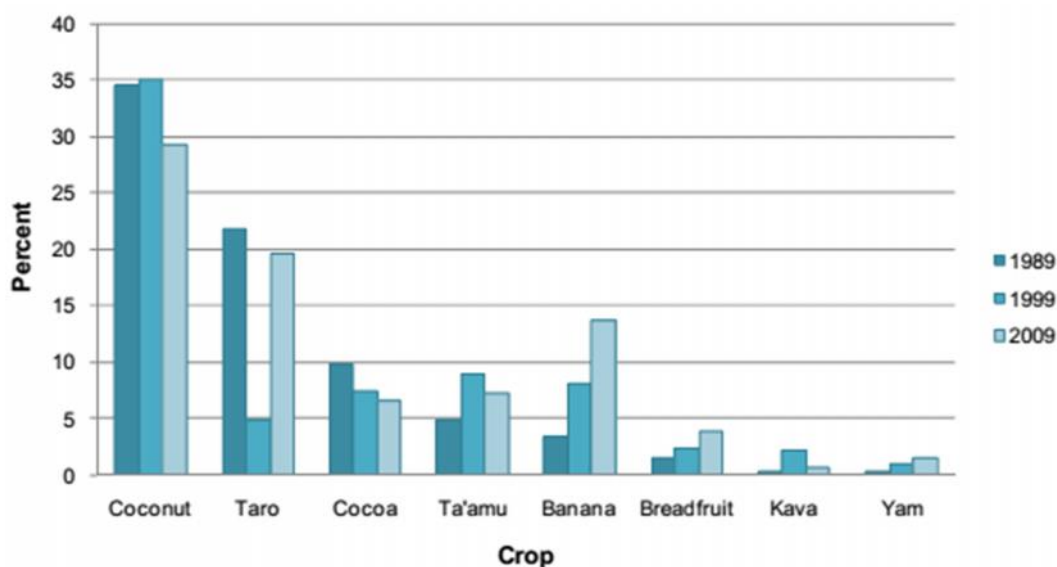
### 2.1.1. Crops

Traditionally the production of tree and food crops has dominated Samoa's agriculture. Samoa's population has relied on coconuts, banana, root crops, breadfruit and fish for much of their diet. However, the impact of natural disasters and the infestation by pests and diseases such as the taro leaf blight in 1993 have contributed to the decline in crop production in the past two decades.

The 2009 Agricultural Census reported a total land area of 92,310 acres covered by the 15,793 holdings in Samoa. Of this total area, 70,367 acres were used for crop cultivation. This represented a reduction of 39% in cropping land compared with the previous Census conducted in 1999.

In 2009, Coconuts, Taro and Bananas continued to be the main crops grown, accounting for almost 63% of the total land area occupied by major crops.

**Figure 2. Percentage Distribution of Total Cropped Area by Major Crops**



Source: Samoa Bureau of Statistics Census of Agriculture

### 2.1.2. Livestock

The livestock sub-sector is mainly village based and is composed of cattle, pigs and poultry. Sheep farming is a relatively new initiative with the first shipment of some 40 animals from Fiji in 2004. These were raised by the Ministry of Agriculture and subsequently distributed to some farmers.

**Figure 3. Number of Livestock Kept, by Region, 2009**

REGION	Number of Livestock	Type of Livestock						
		Cattle	Pigs	Chicken	Goats	Sheep	Ducks	Horses
Samoa	500,071	38,949	152,145	307,060	128	249	281	1,259
AUA	39,531	3,495	6,804	28,950	87	75	98	22
NWU	119,635	4,977	24,659	89,728	21	25	98	127
ROU	159,232	14,006	54,226	90,206	20	34	51	689
Savaii	181,673	16,471	66,456	98,176	0	115	34	421

Source: Samoa Bureau of Statistics Census of Agriculture

### 2.1.3. Fishing

Fishing is an important occupation in the village economy and provides a major source of protein in the diet and an important source of cash income. It also provides a source of foreign reserves through exports.

**Figure 4. Number of Households Engaged in Fishing by Main Purpose of Fishing and Region, 2009 compared with 1999**

Region	Total		Home Consumption Only		Home Consumption with Occasional Selling		Mainly for Sale		Occupation	
	1999	2009	1999	2009	1999	2009	1999	2009	1999	2009
Samoa	6,699	5,752	4,819	3,764	1,471	1,842	325	146	84	N/A
Upolu	4,149	3,608	2,781	2,365	1,023	1,119	265	124	80	N/A
AUA	385	243	217	182	70	45	62	16	36	N/A
NWU	1,199	1,062	730	674	361	336	83	52	25	N/A
ROU	2,565	2,303	1,834	1,509	592	738	120	56	19	N/A
Savaii	2,550	2,144	2,038	1,399	448	723	60	22	4	N/A

Source: Samoa Bureau of Statistics Census of Agriculture

### 2.1.4. Employment and Agriculture Household Activity

Employment levels in the agriculture sector have declined over the last two decades from 60% in the early 1980's to 37% in 2011, according to the latest Population and Housing Census conducted that year.

Household agricultural activity for home consumption also continues to be important. The 2009 Agricultural Census reported that 34% of households undertook subsistence agricultural activity purely for home consumption, compared with 19% in 1989. The proportion of households reporting some agricultural activity for sale has declined from 52% in 1989 to 34% in 2009.

**Figure 5. Household by Agricultural Activity 1989, 1999 & 2009**

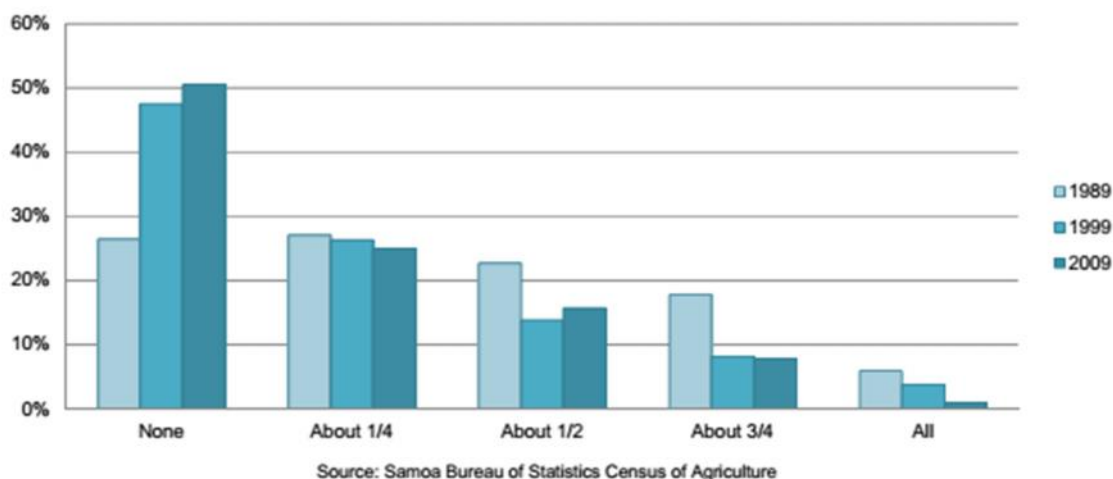
Level of Agricultural Activity	1989	1999	2009	Percentage		
	Number of Households	Number of Households	Number of Households	1989	1999	2009
Non agricultural	4273	4199	3,806	28%	20%	16%
Minor agricultural	317	1597	3,572	2%	8%	15%
Subsistence	2881	6216	7,776	19%	30%	34%
Mainly home consumption	7211	7549	7,282	47%	37%	31%
Mainly for sale	792	960	728	5%	5%	3%
<b>Total</b>	<b>15474</b>	<b>20521</b>	<b>23,164</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

Source: Samoa Bureau of Statistics Census of Agriculture

### 2.1.5. Agricultural Income

Income from agriculture has been a significant addition to households, but this has been reducing as a proportion of income over the period since 1989. More than half of households (51%) in 2009 reported earning nothing from agricultural activity. This reflects the growth in agricultural activity for home consumption only (26% of agriculturally active households in 1989, 42% in 1999 and 49% in 2009).

**Figure 6. Agriculturally Active Households, by Proportion of Income Usually Derived from Agriculture**



## 2.2. Agriculture Sector Development Strategy

The Agriculture Sector (including Fisheries) remains at the forefront of economic growth and a key to ensuring food security, income generation and enhancing export capacity.

The Government of Samoa's *Strategy for the Development of Samoa, 2012-16* (SDS), with its vision of "boosting productivity for sustainable development", recognised agriculture as one of the key productive sectors driving the economy.

Specifically, Key Outcome 2 of the SDS is to "Re-invigorate Agriculture". The Strategic Areas under this Key Outcome include:

1. Adopt an inclusive approach to promote and encourage investment in agriculture and fisheries through:
  - Provision of responsive advisory services in crops, livestock and fisheries.
  - Provision of planting materials and availability of fishing equipment,
  - Better access to financing and market information
2. Encourage priority investment in downstream value added processing of products utilizing research results available.
3. Support the development of organic products and an "Organic Samoa" brand. And
4. Enhance capacity building at the community and village level, secondary and tertiary level and vocational training.
5. Strengthen the policy, strategic planning and management capability to support sustainable agriculture development.

The Ministry of Agriculture and Fisheries (MAF) has prepared its first ever Agriculture Sector Plan (ASP) 2011–2015 with a vision of agriculture for food and income security.

The primary objectives of the ASP are: to strengthen policy, legal and regulatory frameworks for sustainable agriculture development; to improve national self-reliance in food production and nutritional security; to enhance private sector capacity in improving agricultural productivity, value adding and marketing; and to ensure sustainable adaptation and management of agricultural resources.

The government's policy objectives have a strong focus on commercialization through increased private sector participation and improved facilitation by the Ministry of Agriculture.

The ASP commits the government to:

1. The principle of agriculture-led growth as a key national development strategy;
2. The revitalisation of the agriculture sector to reverse its declining performance and to increase its overall contribution to GDP from 10% in 2010 to 20% by 2015; and

3. Increase funding resources into the sector including the share of the national budget allocated to the sector to increase from 5% in 2010 to 10% by 2015.

The implementation of the ASP is ongoing, supported by the US\$13 million World Bank funded Samoa Agriculture Competitiveness Enhancement Program (SACEP).

### **2.3. Recognition and importance of Agricultural and Rural Statistics**

One of the key issues identified in the Ministry's ASP relates to the availability of data, specifically:

“The availability and quality of agricultural statistics has declined over the years and is one of the key challenges now facing the sector. Decisions about aid and/or investment efforts to foster agricultural growth need to be based on sound information on land use, factors of agricultural production, and the prevailing economic and social situation faced by producers. These decisions need to be made under a broader framework that takes into account the different variables that affect the environment and influence global warming and the overall production systems. The overall impact of these factors can only be effectively measured and evaluated with appropriate statistics.”

The ASP further acknowledges the importance of key statistical data and the role of SBS in the monitoring and evaluation of progress against the Plan:

“The Samoa Bureau of Statistics is responsible for the collection and compilation of key statistical data that assists in the analysis of the performances of various sectors of the economy including agriculture. The provision of key income and expenditure, production and employment data will be vital to the measurement and subsequent monitoring and evaluation of the progress of key components and outcomes of the ASP.” (ASP 2011-15)

The *Samoa Strategy for the Development of Statistics, 2011–21* (SSDS) developed by SBS aims to provide the best quality statistical information to support the *Strategy for Development of Samoa, 2008-12* (SDS), and importantly lays out the path for the development of statistics across the whole system of official statistics in Samoa.

There are two key layers to the SSDS, namely:

- I. Delivering relevant, quality priority statistics for users
- II. Ensuring the strategic factors and environment are in place to enable efficient production and delivery of those statistics.

## CHAPTER 3

### INSTITUTIONAL ENVIRONMENT

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#### 3.1. Administrative Structure of Samoa

Politics of Samoa takes place in a framework of a parliamentary representative democratic state whereby the Prime Minister of Samoa is the head of government. Existing alongside the country's Western styled political system is the *fa'amatai* chiefly system of socio-political governance and organisation, central to understanding Samoa's political system.

From the country's independence in 1962, only *matai* title holders (customary title passed on land and kinship for most parts) could vote and stand as candidates in elections to parliament. In 1990, the voting system was changed by the Electoral Amendment Act which introduced universal suffrage. However, the right to stand for elections remains with *matai*.

The country has a legislative assembly of 49 members of parliament, elected by those 21 years and over. All 47 *Samoa*n Members of Parliament are *matai*, performing dual roles as chiefs and modern politicians, with the exception of the two seats reserved for non-Samoans. The Prime Minister is elected by the Parliament and he/she in turn appoints twelve cabinet members.

The country, which consists of about 330 villages for administrative purposes, is divided into 41 districts. These districts are further grouped into four census regions namely Apia Urban Area, North-West Upolu, Rest of Upolu and Savaii.

At the local level, much of the country's civil and criminal matters are dealt with by village chief councils, *Fono o Matai*, according to traditional law, a practice further strengthened by the 1990 Village Fono Law.

The SBS is headed by the Government Statistician reporting to the Minister of Public Enterprises. SBS is divided into seven Divisions, each headed by an Assistant Chief Executive Officer (ACEO). These include:

- Economic Statistics Division, which is responsible for most agricultural statistics including the Agricultural Census
- Finance Statistics Division
- Census and Survey Statistics Division
- Social Statistics and Environment Division
- Births, Deaths and Marriages Division
- Corporate Services Division
- Information and Communications Technology and Data Processing Services Division

The Ministry of Agriculture and Fisheries in Samoa comprises six Divisions, each also headed up by an ACEO reporting to the Chief Executive Officer:

- Crops Division
- Animal Production and Health Division (APHD)
- Fisheries
- Policy, Planning and Communications Division
- Quarantine Division
- Corporate Services

Although the Ministry's Crops, Animal Production and Health and Fisheries Divisions undertake occasional survey activities, none have designated officers with specific statistical responsibilities or expertise. There are no SBS personnel currently out posted to MAF or other Ministries.

### **3.2. Legal and Institutional Framework for collection of statistics**

The Samoa Bureau of Statistics (SBS) was re-established as an autonomous Agency in 2008 by an Act of Parliament - promulgation of the Statistics Act dates from 1971. The SBS will act as the Government agency for collection, processing, analysis and dissemination of statistical information related to socio-economic and demographic structure of the country.

The Agency took over all the functions of the earlier Department of Statistics which functioned as the National Statistics Office of Samoa. The lead role for agriculture statistics has also been transferred over to the SBS and the role of other contributing agencies has been defined more clearly.

The Statistics Act also makes provision for the establishment of a Statistics Advisory Board, but there is no board currently operating.

The Board's legislated function is to review regularly the statistical needs of Government, and those of commerce and industry, academic and research bodies, and other users of official statistics in Samoa, and in the light of such reviews to advise or direct the Statistician regarding annual and 5-yearly programmes of work and priorities in official statistics to be undertaken by the Department of Statistics (now SBS) to best serve the national interest.

### **3.3. Structure of the National Statistical System**

SBS is the Government agency responsible for the collection, processing, analysis and dissemination of statistical information related to socio-economic and demographic structure of the country. This includes the Population and Housing Census and Agricultural Census as well as regular national household surveys such as the Labour, Education and Skills Survey and the Household Income and Expenditure Survey (HIES).

It also collects other important national statistics and compiles Samoa's national accounts.

In agricultural statistics, SBS collects agricultural household, crop type and area planted/harvested and livestock data in the ten-yearly Agricultural Census. Data on farm forestry and household fishing activity, agricultural inputs (fertiliser and pesticide use) as well as farm equipment and machinery used are also collected in the Census.

Ministries and other government and private organisations do undertake their own statistical work to meet additional data needs. In the case of MAF, this is particularly during intercensal years, with support and guidance provided by SBS when this is sought.

MAF Divisions have collected crop production and livestock data on an ad-hoc and opportunistic basis, when donor funding has become available. Recent examples are the Ministry's 2012 Cattle Census and 2013 Fruit and Vegetable Survey both undertaken to collect base-line information for the Samoa Agriculture Competitiveness Enhancement Project (SACEP), financed by the World Bank.

Fisheries data are collected by the MAF Fisheries Division whilst forestry data are compiled by the Ministry of Natural Resources and Environment (MNRE).

FAO has previously compiled food balance sheets, which were last produced in respect of 2009. However FAO have advised that due to the lack of available data on both the input and output sides, i.e. production and consumption, compilation of an updated food balance sheet is not currently possible.

### **3.4. Coordination mechanisms in the National Statistical System**

There is currently no national statistics committee or other body to formally oversee the statistical work of SBS to ensure that the statistical system meets user needs and that statistical activities are coordinated. However, a number of informal statistical coordination mechanisms have occurred or are in place.

In recent years, development of the *Strategy for the Development of Samoa 2008-12 (SDS)*, the *Samoa Strategy for the Development of Statistics 2011-21 (SSDS)* and various ministry Sector Plans covering the five year period from 2011 to 2015 has necessitated close interaction and engagement of staff from across the various ministries, including MAF, MNRE, Ministry of Finance (MoF) and SBS. There are



regular Sector Co-ordinator meetings, facilitated by MoF, to review and assess performance against the 14 or so Sector Plans.

Various statistical coordination arrangements are also in place at lower administrative levels.

### **3.5. Review of National Strategy for the Development of Statistics (NSDS)/Strategic Plan for Agricultural and Rural Statistics (SPARS)**

SBS has developed the *Samoa Strategy for the Development of Statistics 2011-21*(SSDS). Whilst the strategy covers a ten year period, the current SBS focus is on an implementation plan covering the first five years in detail.

The Strategy is quite broad in terms of content, covering goals and improvement strategies for Macro-economic and Finance Statistics, Population, Demographic and Vital Statistics, Social and Environment Statistics and Sector Statistics as well as strategies to improve the statistics on environment and infrastructure, and the coordination, communication and dissemination of statistics. Human resources management, information technology infrastructure and physical infrastructure goals and actions are also included.

The SSDS acknowledges that there are gaps in some areas of statistics and a lack of capacity to conduct necessary surveys. It identified that some sectors of the Samoan economy needed specific statistical development, including the agriculture, fisheries and forestry and tourism sectors.

Further, that the development of Sector Plans has highlighted the need for statistics to support the planning process and subsequent monitoring and evaluation *"If we cannot measure, we cannot manage"*.

SSDS Goal 4 requires 'Relevant, reliable and accessible sector statistics to provide the information needed to monitor and support the achievement of the goals of the relevant sector plans, as well as MDG and other indicators.' Two priority actions relating specifically to Agriculture and Fishing were identified as follows:

4.1 The *Ministry of Agriculture and Fisheries*, working in partnership with SBS, to:

4.1.1 Develop and expand use of both Agriculture and Fisheries Statistics to meet needs of sector plans

4.1.2 Re-introduce regular Agriculture surveys

The SDSS goes further and proposes that an Agriculture Census or Survey be conducted at five-yearly intervals (currently every 10 years) with the next cycle (Agricultural Survey) planned for 2014, although it is unlikely this Agricultural Survey will occur before 2015.

There is currently no Strategic Plan for Agricultural and Rural Statistics (SPARS) to detail how it is proposed this will be achieved. The Global Strategy project presents as an opportunity to move forward and develop such a strategic plan.

The Ministry of Agriculture and Fisheries (MAF) is included as a member of the Steering Committee and the working group in that plan, and the role of those meetings include the development and implementation of agricultural sector statistics.

The SBS in close consultation with the MAF plans and prepares for both Agriculture and Fisheries Statistics to meet the needs of sector plans (2011-2015), and implements the surveys.

In a review of progress against the previous Strategy for the Development of Samoa 2008-12, the following observation was made regarding Statistical Development, "Slow progress had been achieved in improving data collection systems. The Bureau of Statistics started its institutional strengthening program in 2011 and had since completed the National Strategy for Strategic Data Development (should read Samoa Strategy for the Development of Statistics) for the next 10 years. The agriculture census was completed in 2009, the demographic survey in the same year and the Population and Housing census in 2011."

As both the SSDS and Sector Plans have only been in place for two to three years it would be premature at this stage to pronounce their success or otherwise. However, it was very clear during the IdCA process

that staff of the various Ministries and other organisations are well focussed on achieving the respective outcomes of their Sector Plans. The challenge for a number of Ministries and organisations was the realisation that relevant and timely information necessary to measure and evaluate progress against their agreed performance indicators may either not be available, or even possible to collect.

### **3.6. Stakeholder Analysis**

#### **3.6.1. Samoa Bureau of Statistics**

SBS is the main Government agency in terms of the collection, processing and publication of agricultural and rural statistics. It has the legislative authority and responsibility under the Statistics Act to undertake the five-yearly Population and Housing Census and the decennial Agricultural Census.

It provides most of the key agricultural data used to measure the contribution of agriculture to the Samoa economy, including Gross Domestic Product (GDP) and other Government Finance statistics, the Consumer Price Index (CPI) and terms of trade, as well as household data collected in both the above censuses and in the five-yearly HIES (Household Income and Expenditure Survey).

The Government Statistician expressed excitement with Samoa's involvement as the first Pacific Island country to participate in the Global Strategy and the prospect of improving the country's agriculture and rural statistics.

#### **3.6.2. Ministry of Agriculture and Fisheries**

MAF has key responsibility for agriculture development in Samoa through its planning and policy activities. The Ministry's Chief Executive Officer commented that MAF are main data collectors but not by choice, as they would prefer to be data users for analytical and policy development purposes.

The lack of regular data has meant that in recent times the Ministry has conducted livestock and fruit and vegetable surveys to obtain baseline data for the World Bank-sponsored Samoa Agriculture Competitiveness Enhancement Project (SACEP).

The preference for a data user role over collection activities was repeated by others within the Ministry's Executive, although there did still appear to be considerable interest by some MAF personnel in undertaking collection and survey activities, some with SBS assistance, or at other times independently of SBS.

However, the requirement for more regular crop production and livestock data was universally endorsed throughout the Ministry. Having access to regular and reliable data would perhaps negate or at least significantly reduce MAF's desire or need to undertake baseline data collections, as has been the situation in the past year or two.

#### **3.6.3. Other Line Ministries/Organisations/Community Boards**

##### Ministry of Finance

The Ministry of Finance is the main planning body within the Samoa Government and its CEO is the primary economic and financial adviser to cabinet and government. Some of the key activities and responsibilities of the Ministry include:

- Produce, implement and monitor the Annual Budget of the government.
- Monitor all state owned enterprises (such as the Water Authority and the Electric Power Corporation).
- Develop national economic strategies and plans.

Consistent with this economic strategic development responsibility, the Ministry has played a key role in the introduction of the various Agency Sector Plans. It uses data from various SBS and MAF economic surveys to assess performance of the 14 sectors of economy against their sector plans. It noted specifically the importance of reinvigorating the Agriculture Sector, as this is seen as key to the future, along with the Tourism Sector.

This programmatic or Sector approach to planning is in its early stages, but is moving forward. The need for data to support and assess performance will be important, particularly as the Ministry has plans to move to outcome-based budgeting for the Government sector.

#### Ministry of Natural Resources and Environment (MNRE)

MNRE is both a data user and data producer/collector. It uses data from various sources, including SBS, MAF and from other sources, such as forest harvesting reported under the Forest Management Act, in the monitoring and evaluation of its NESP (National Environment & Development Sector Plan). The data priority is to meet the Ministry's State of Environment (SOE) reporting requirements, which it noted has reporting gaps. It also acknowledged that relevant data may exist in other agencies, and is about information sharing and awareness of what data might be available.

Data relating to the relationship of agriculture sector to other sectors, impact of agricultural activities on environment, i.e. land use, cultivation, fertilizer use by type, forestry replanting, fruit trees etc. are priorities for MNRE. Also, ongoing data on water resource, including quality of drink water and household sanitation are important. As trend data is required, the regularity and sustainability of data is critical.

The Ministry's Disaster Management Office is conducting household surveys to determine factors that are likely to increase the vulnerability of each household to impacts of a disaster and their capacities to determine what households can do using their own resources and expertise. The survey is one of the key activities of the Community Disaster and Climate Risk Management Program. In future, DMO would like to see the parameters used in this survey to be considered and included in the next Population Census.

MNRE also require data by non-standard regions, i.e. topographical. GIS data is important from an environmental perspective.

#### Ministry of Women, Community and Social Development (MWCSO)

The Ministry is both a data user and data producer and through its Division of Internal Affairs oversees a network of village representatives, one for each village of Samoa, and these representatives collect and provide information to the Ministry on a monthly basis, through their performance management system (PMS). This is basically a set of indicators to guide data collection that will allow the Ministry to capture trends in a number of fields in line with the representatives' mandates, but mostly agriculture, such as patterns of agricultural production in rural areas (includes crop information by type, although no production or area planted information is collected).

The Ministry reported limitations in the capacity of village representatives to collect data and the need for capacity building on data management, including setting up central databases. The Ministry is currently looking to merge the PMS of all their divisions within a larger Ministry-wide Monitoring and Evaluation framework.

From a data user perspective, MWCSO specifically uses information from the MAF Fisheries Newsletter and Gender and Disability data from the SBS Population and Housing Census. It identified the need for annual village level data on agricultural produce, production of fruit and vegetables, livestock by owner, cattle numbers, number of informal agricultural workers, and the number of villages with tar sealed access roads (roads for access inland to plantations).

#### Ministry for Revenue (MfR)

The Ministry for Revenue is part of the Finance Sector and its main function is revenue collection, both Inland Revenue (GST/Tax/PAYE/Provisional Tax) and Customs (Import Taxes, excise duty etc.). The Ministry negotiates revenue targets annually with Ministry of Finance and has their own Revenue Management System (RMS), which is based on the NZ system.

Internally collected data is extracted monthly for management reports and quarterly for consideration by Cabinet. The Ministry conducted a survey of Taxpayer Compliance and Ministry Customer Service in October and November 2013 of approximately 350 small and medium enterprises. SBS assisted with the sample design for the survey, which utilized a 10% sample.

The Ministry uses various SBS and MAF economic surveys to assess the economic performance and coverage of potential revenue sources. From an agricultural and rural perspective, the Ministry is

interested in information on registered commercial fishers and farmers, noting that individuals engaged in agriculture and fishery activities are exempt for tax purposes.

The Ministry has a Memorandum of Understanding with SBS which includes providing personal details to SBS for National Account purposes. However, the Statistical legislation restricts SBS from releasing personal details obtained from MfR except in exceptional circumstances, i.e. national security or natural disasters.

#### Central Bank of Samoa (CBS)

The Central Bank is a major user of a wide range of economic data, including the Local Produce Market Survey (SBS), Import data (from SBS trade data), Export data (from their own Export License Form E), Commercial Banks and Non-Financial Institutions Lending (Development Bank of Samoa) by sectoral breakdown, National accounts and Agriculture contribution to GDP (SBS) and the Consumer Price Index (SBS).

Similarly CBS is both a major producer of data and well as reproducer of data from other data sources for their own purposes. The above data are used in the Bank's monthly reports such as Foreign Trade Report, Selected Economic Indicator Report, Inflation Review and Monetary Survey reports, its Quarterly Bulletins as well as ad hoc Economic Updates for Cabinet and other national meetings etc.

Information on lending statistics to agriculture are a priority for CBS. Even though commercial banks are not keen on lending to this 'risky' sector, there are avenues available through the Development Bank of Samoa for agricultural producers, where farmers can borrow at concessional rates (through a CBS credit line facility).

The Central Bank identified a number of data gaps which it considered needed addressing, including:

- Exports – Gaps are coverage issues like difference in CBS, Custom's and Quarantine sources
- Imports – Trying to marry the CBS exports table with the HS (Harmonized Commodity Description and Coding System) headings and codes.
- Market survey – the coverage of small road side stalls and whether the current market survey is a true indicator of overall agricultural production in the country.
- CPI – Underlying or core inflation measure. Current measure excludes almost 51 percent of the basket (seasonal and Government-controlled prices).
- National accounts - Need to update the methodology. IMF have highlighted that contribution of tourism (and agriculture possibly) are undervalued while 'Other manufacturing' are quite high.

In relation to the National Accounts issue, SBS advised that re-basing of the agricultural sector contribution to GDP, taking into account the 2008 HIES and 2009 Agricultural Census etc. was completed and formed part of a follow-up December 2013 quarter GDP release in May 2014. Also the December quarter GDP data was presented on both the old and new bases to provide an understanding of the impact of this re-basing.

#### **3.6.4. Data Users (Civil Society and NGOs)**

##### Samoa Chamber of Commerce and Industry Inc.

The Chamber of Commerce and Industry utilises information from the Population Census and Labour Market Survey to gain an understanding of demographics and labour market activity at a regional level as well as various economic updates released by SBS, MAF and the Central Bank of Samoa in understanding the economic implications for Samoa businesses. It uses these data to assist the Samoa Farmers Association in implementation of the Agriculture Sector Plan.

The Chamber conducts two annual surveys: a Business Conditions and Confidence Survey of approximately 300 Chamber members to ascertain economic confidence and own business conditions; and a survey of Chamber members to ascertain views on the Chamber's operations and services to member organisations. It also conducts other ad-hoc Surveys, which are generally sample surveys of members, which include Government Sector and private organisations, Women in Business Development Inc., Samoa Hotels Association, Samoa Manufacturers and Exporters Assoc. etc. These surveys are mainly conducted to assist with the Chamber's preparation of Budget and policy submissions, and are designed and conducted internally, with no SBS involvement.

Whilst not necessarily a data gap, the Chamber did suggest that the dissemination of data could be improved. An example provided was that Trade data should also be released in both Excel and pdf formats.

#### Small Business Enterprise Centre Samoa

SBEC is a semi-Government organization established to encourage the development of small business in Samoa. It provides financial incentives for new businesses, generally 1-2 years after set-up.

SBEC is both a data user and data collector. It regularly uses Population and Agricultural Censuses, Business Surveys and other available data from SBS and MAF in the assessment of small business lending applications and guarantees. It also analyses the links between data from the Agricultural and Population Censuses.

SBEC produces sector profiles, the last ones were done in 2010. Presently it surveys its current clients only, but has future plans to extend to others, i.e. Chamber of Commerce, Samoa Manufacturing Association.

It conducts surveys for every sector. The Agriculture Sector Survey questions small business clients about how other sectors rely on agriculture, i.e. the availability and quality of farm produce to restaurants, timber to furniture manufacturing etc.

#### Women in Business Development Inc.

Women in Business Development Inc. (WIBDI) is dedicated to strengthening village economies in Samoa in ways that honour indigenous tradition, use traditional and modern technology, and promote fair trade. The WIBDI Mission is to empower and equip rural families to cultivate sustainable businesses that maximize farm-based resources. WIBDI also facilitates trade with global and regional partners, including The Body Shop, All Good Organics and C1Espresso.

The organization works in 183 Samoan villages and nurtures certified organic agricultural enterprises that annually puts more than SAT\$600,000 into the hands of rural families, assisting families to participate in the cash economy.

Women in Business have become leaders in organic systems in the Pacific Islands. Currently more than 700 Samoan families, working on 33,000 hectares of land, are fully organically certified to international standards (NASAA, the National Association for Sustainable Agriculture Australia). Additionally, five processing companies and four entire villages have been organically certified.

### **3.6.5. Development/Resource Partners**

#### Development Bank of Samoa

The Development Bank of Samoa (DBS) was formed in 1974 to promote the expansion of the economy of Samoa by making loans and giving financial, technical and advisory assistance to enterprises in Samoa. It receives Capital funds from the Samoan Government as well as borrowing from local and foreign sources.

Development lending approvals for agriculture (including SACEP) in the year ending 30 June 2014 were SAT\$3.2 million, or 7.5% of total development loans approved. Recent years have seen the financing of livestock projects increasing dramatically due to efforts to raise animal production to meet food supply demand. In terms of the DBS overall lending portfolio, agriculture (including SACEP) totalled SAT\$14.3 million and accounted for 10.5% of total outstanding loans (SAT\$136.4 million) as at 30 June 2014.

DBS regularly uses existing data from various sources, including SBS, MAF, Central Bank of Samoa and the Samoa Tourism Association to gain an understanding of the market situation when assessing commercial development lending applications. Agricultural Census data are utilised for appraising agricultural applications.

The availability of timely data, with detailed agricultural data only available every ten years, was identified as a limitation to the Bank's assessment processes. Also that the data quickly becomes outdated

as the post-Census years progress. The Bank identified that livestock and rural/urban integration statistics would greatly assist their work.

## CHAPTER 4

### IN-DEPTH ASSESSMENT OF STATISTICAL ACTIVITIES

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#### 4.1. Censuses

##### Population and Housing Census

The Samoa Bureau of Statistics is the agency responsible for conducting the Population and Housing Census. The census is conducted every five (5) years with the last carried out in 2011. It was the ninth census conducted by SBS since Samoa gained political Independence in 1962.

The 2011 Population Census was undertaken in October/November 2011 to collect demographic, educational, labour force and other characteristics of the population as well as housing characteristics. The census included an agricultural component which collected information to identify agricultural households and numbers of key livestock i.e. cattle, pigs and chickens.

The census project preparations commenced in January 2010. The preparation for census 2011 was much more complex and complicated in nature and more expensive than any other census preparations previously undertaken. One of the major reasons was, for the first time, SBS opted to use scanners to capture and data process census information rather than the usual computer data entry technology. Secondly, SBS chose to use the GPS (Global Position Systems) devices and associated new mapping software to capture and map out the location of households on the field; and thirdly, SBS adopted the use of the IN-design-CS4 software to design the new scan census stickers and census questionnaire forms instead of using the usual Excel software for designing the layout of the census questionnaires.

All those new technologies and processes impacted greatly on all stages of census preparations in terms of training techniques, training materials, questionnaire design, printing requirements, fieldwork data collection, data compilation, data processing and dissemination of census results.

By July 2010, the census project finally received three sources of funding. The Government of Australia, via AusAID, donated more than two million Samoan Tala (approx. USD880,000) in two phases for the four year project (2010-2013); the government of Samoa via its annual budget allocated more than one million Tala (approx. USD440,000) to support the project personnel all throughout the project cycle; and UNPFA (United Nations Population Fund) contributed SAT\$300,000 (USD130,000) to support census publicity and awareness programs and technical personnel from 2010-2012.

Much of the technical assistance and support was provided by the different technical staff from the Secretariat of the Pacific Community (SPC), by either in-country visits or via internet correspondences. This included GPS and mapping technical advice, advice on scanning applications as well as the use of the In-Design software for questionnaire design, advice and support in data processing and editing using CSPro 4.1, and in the preparation of the census training materials as well as the compilation of the Population Census analytical report.

A Preliminary count report, which included population counts of regions, districts and villages was released on 16 December 2011, six weeks after the official Census enumeration date of 7 November 2011.

A Tabulation Report (version one) was released eight months after the preliminary count report in August 2012 and a detailed Population and Housing Census Analytical Report and Tabulation Report (version 2) in October 2012.

Population Census data were disseminated in both pdf and Excel formats on the SBS website. The Excel format file contains over 90 spreadsheets, which takes some time to download. Despite several attempts, this author was unable to satisfactorily open the complete Excel spreadsheet file whilst in Samoa. The Excel document has recently been updated to include a Tables of Contents which greatly simplifies the identification and access of specific spreadsheets. Previously this information was provided in a separate pdf document.

The next Population and Housing Census is planned for November 2016.



## Agricultural Census

SBS undertakes an Agricultural Census every ten years. The last census, conducted in 2009, was the third in the series, with previous censuses conducted in 1989 and 1999.

The 2009 Agricultural Census was based on FAO World Census of Agriculture guidelines using a multiple frame and a methodology involving two components: the first entailing a complete enumeration component; and secondly, a sample component.

All households were required to complete the Household form with those households identified as agriculturally active (i.e. Subsistence, Subsistence and Cash, or Commercial) then required to complete the Holding Form for every holding operated.

The sample component was designed to cover 25% of all agricultural holdings, with selections made on a systematic sample basis (every fourth holding selected). These sample agricultural households were asked to complete a Parcel form, which included details of crops grown and harvested by area or in the case of plantation crops, tree or plant number details were obtained.

Thus while the Household Form was canvassed in respect of all households in Samoa, the Holding Form was to be completed by agriculturally active Households only and the Parcel form was completed in respect of 25% of the agricultural holdings.

Data collected in the 2009 Agricultural Census included:

### Household Form (all households)

- household demographics;
- type of agricultural activity (i.e. produce for own use or sale etc);
- livestock numbers by type, including numbers slaughtered or sold;
- fisheries activity;
- farm equipment/machinery;
- consumption of major crops; and
- forestry plantings

### Holding Form (all agriculturally active households)

- land use and tenure;
- non-household labour inputs;
- household agricultural income and credit; and
- fertiliser and chemical use

### Parcel Form (25% sample of agricultural holdings)

- crop area grown and harvested by crop type; and
- tree and plant numbers by crop type (total of 38 crops identified plus other category)

The Agricultural Census was linked to the Population Census and used the cartographic material and administrative boundaries used for the population census in 2006.

Agricultural Census data were disseminated via the SBS website in the form of an Analytical Report and a separate Tabulation Report, both produced in pdf format. Microsoft Excel versions of the various Tables were also planned for release via the website, however this did not occur. Instead interested users requiring data in this format need to contact SBS to obtain the required spreadsheets.

The next Agricultural Census is planned for 2019, however the Samoa Strategy for the Development of Statistics, 2011-21 proposes that an Agriculture Census or Survey be conducted each five years with the next cycle (Agriculture Survey) planned for 2014. Although this now expected to occur in 2015.

In completing the Global Strategy Questionnaires, most stakeholders assessed the accuracy and reliability of the Agricultural Census data as either acceptable or workable. As expected with a ten-yearly census cycle, the major constraints identified related to the lack of regular crop production and livestock data in the intercensal years, and the limited use of census data after the first few post-census years.

## 4.2. Crop statistics

Traditionally the production of tree and food crops has dominated Samoa's agriculture. Of the total arable land utilised of 80,500 ha, it is estimated that 65% is for cultivation of plantation crops (53,000 ha) and 15% under mixed crops (10,000 ha). However, the impact of natural disasters, namely hurricanes and infestation by pests and diseases such as the taro blight in the late 1990's have contributed to the decline in crop production in the past two decades. The destabilising effects of external shocks have also affected the performance of Samoa's crop exports due to exchange rate movements as well as changes in the economic policies of major trading partners. The lack of institutional capacity to competently implement, monitor and evaluate the impact of previous investments as well as the failure of farmers and producers to respond to incentives provided have also contributed to the decline in crop production.

The 2009 Agricultural Census collected information on the area of crops grown and harvested or the number of plants and trees grown and harvested. This data was obtained from the 25% sample component of agricultural holdings enumerated. No standard errors, either sampling or non-sampling have been published for this data.

As no crop production data was collected in the census, only crop area or tree and plant numbers, it is not possible to determine crop yield data.

Prior to the 2009 Agricultural Census, sample surveys were conducted in 2000, 2002, 2004 and 2005. These surveys were designed to collect information from a 10% sample of households and have not been conducted since 2005 due to limited funding and consideration that the 1999 sampling frame was no longer valid after five years. Also, no regular surveys have been conducted even though the 2009 Agricultural Census provided an updated sampling frame.

The regular survey/census data has not always provided sufficient information for specific programme planning purposes and has to be supplemented with tailor-made surveys.

The 2013/14 Household Income and Expenditure Survey (HIES) collected information on agriculture, fishing and forestry activities, including income derived from main crop and vegetable production, horticulture and floriculture activities. Data from the HIES is currently being prepared ready for release in early December 2014. This will be a tabulation report with further analysis of the HIES to take place early in 2015. There are also plans to produce a Poverty Report based on the HIES results.

Whilst a number of stakeholders to the Global Strategy have strongly indicated a desire for regular crop production volume data, there remains a question around the ability of operators of agricultural holdings to accurately estimate their crop production over a twelve month period. This is particularly the case where crops are harvested predominantly for a household's own use, where harvesting occurs irregularly or where multiple cropping and harvesting occurs each year.

Land holders may be better able to estimate average yields for their specific crops, which together with information on area of crops or plant numbers harvested may enable some estimate of crop production volumes. However the accuracy of such yield estimates is also doubtful.

### 2013 Fruit and Vegetable Survey (F&V Survey)

In 2013, the Ministry of Agriculture and Fisheries' Crops Division conducted a Fruit and Vegetable Survey to gather base-line data about the current status of fruit and vegetable production, technologies, holdings and marketing aspects for the Samoa Agriculture Competitiveness Enhancement Project (SACEP), financed by the World Bank.

Approximately 1,700 holdings were surveyed out of a target sample population of 2,000 holdings, as recommended by SBS.

The survey used a frame compiled from information collected from Advisory Services / agents in Samoa, such as the Ministry of Women Community and Social Development (MWCSO), MAF (Crops Advisory Service, Agriculture Show registrations and competitions), Women in Business Development Inc. (WIBDI), Small Business Enterprise Centre (SBEC), Samoa Farmers Association (SFA) and Adventist Disaster Relief Agency (ADRA).

The F&V Survey collected a wide range of data including:

- Vegetable and fruit crops grown and sold
- Land area, tenure, use, method of cultivation, irrigation method and water source
- Production information, including source of seedlings, plants, cost and information sources
- Fertilizer and chemical use, volumes and expenditure
- Labour inputs
- Loans and credit
- Farm equipment owned, hired or borrowed

There have been data quality issues with this survey and data has not yet been released. A written report is expected late 2014. There are currently plans to repeat the Fruit and Vegetable Survey within the next few years under SACEP, however this may not be necessary if SBS are able to conduct the proposed Agricultural Survey in 2015.

Aside from the ten yearly Agricultural Census, there are currently no regular crop surveys undertaken in Samoa. Surveys such as the MAF 2013 F&V Survey are conducted on an ad hoc needs basis, generally when external donor funding is provided.

In the absence of a regular and reliable database on agricultural production, production estimates for some key crops are gauged through weekly local market surveys (Toleafoa and Vaai compounds, Taufusi and Vaitele Markets, FarmerJoe Saleimoa and Savaia market) and anecdotal evidence from previous studies.

### **4.3. Livestock statistics**

The main livestock animals raised for domestic consumption in Samoa are cattle, poultry (chickens), pigs, goats and more recently sheep.

The 2009 Agricultural Census collected information on the total number of cattle on the day of enumeration, including a breakdown of cows and heifers as well as bulls and steers aged 2 years and over, total number of pigs, chickens, goats, sheep, ducks and horses as well as domesticated animals.

The number of livestock by type slaughtered for sale, own consumption or for customary purposes during the reference period (2009 calendar year) were also collected along with the number of live animals sold by type during the period.

The 2013/14 HIES also collected information on livestock numbers (pigs, chickens, cattle, sheep and others) income from livestock sales and expenditure incurred. Initial tabular data are expected to be released early December 2014.

#### 2012 Cattle Census

In 2012, the Ministry of Agriculture and Fisheries' Animal Production and Health Division conducted a Cattle Census to gather base-line data for the Samoa Agriculture Competitiveness Enhancement Project (SACEP). The census was designed to collect crucial information from the maximum number of cattle farms which would better inform the development of programs for improving competitiveness in cattle production, including SACEP interventions addressing herd improvement, pasture development and an improved slaughter system as well as MAF services to cattle farmers.

Funding for the cattle census was provided through the World Bank-funded SACEP project as well as from the local budget of MAF/APHD, with some additional funding provided by SBS for the recruitment of outside enumerators.

Households reporting cattle in the 2009 Agricultural Census were targeted for the Cattle Census, with the following information collected from each cattle holding:

- Geographic coordinates of owners' homes and of their cattle holdings
- Number and breeds of cattle
- Herd structure
- Presence of cattle yards with loading ramps
- Condition of access roads
- Frequency of slaughter and markets to which slaughtered animals were sold

- Amount of money spent by farmers on slaughtering animals and transporting carcasses

The Cattle Census also included questions on farm management aspects such as pasture improvement and weed control, breeding management, access of animals to drinking water and farmers' utilization of, and satisfaction with APHD services.

The Ministry's Cattle Census estimated a total of 29,553 cattle in Samoa during the enumeration period of February to May 2012. This represented a significant reduction of 24% when compared with the numbers reported in the 2009 Agricultural Census (38,954 cattle) and even larger difference (34%) when compared with the more recent 2011 Population and Housing Census (44,987 cattle), which had been enumerated only three to six months earlier than the Ministry's Cattle Census.

These discrepancies certainly warrant further detailed investigation, as it has raised doubts in the minds of both SBS and the Ministry's APHD staff about the accuracy of the other Agency's data and survey methodologies.

This situation is most unfortunate, but is a good example of where a much closer or even joint survey operation between SBS and APHD, particularly during the enumeration, estimation and analysis phases, may have resulted in closer estimates, or at least provided both agencies with a better understanding of the reasons for any discrepancies and provided greater confidence in the final results produced. As it currently stands, neither organisation appears to have any confidence in the other's estimates, and this must also present difficulties for external stakeholders, SACEP, donors and other data users in understanding what is the true cattle situation in Samoa.

Data from the 2012 Cattle Census are not publicly available on the MAF website.

#### Village Livestock Consultation Survey

During 2012/13, APHD conducted a village consultation survey to:

1. Promote APHD core functions and services to the local farmers.
2. Disseminate new livestock technologies and methodologies to local stakeholders in order to improve livestock farming.
3. Collect livestock information's for improvement and future planning.
4. Enhance project initiation with the availability of donor assistance in which farmers can have access to funds for developing their livestock farms.
5. Identify problems face by the local farmers and for APHD to determine transparent solutions to the problems in order to achieve high livestock production.

Twelve (12) villages were selected based on their low level of livestock development and frequency of livestock technical support reported to APHD, with six (6) villages each from Upolu and Savaii Islands. A total of 298 households were enumerated.

It is unclear whether APHD proposes to conduct similar consultations in the same or other villages in the future.

Aside from the ten-yearly Agricultural Census and five-yearly HIES, there are currently no regular livestock surveys undertaken in Samoa.

Surveys such as the Ministry's 2012 Cattle Census are therefore conducted on an adhoc needs basis, generally when external donor funding is provided, in this case the World Bank's financial support of the Samoa Agriculture Competitiveness Enhancement Project (SACEP).

#### 4.4. Forestry statistics

Available data for Samoa's forests is dated to 2013/14.

A ground-truth survey through the National Forest Inventory (NFI) was conducted in the period September to December 2013. This NFI was carried out due to the need to create a forest and land cover change map for comparison with land cover maps that were created during the National Forest Inventory in 2004.

During the last three decades, Samoa's forests have been depleted to the point of near exhaustion. In 1989 it was estimated that 192,000 ha was under forestry, secondary forestry or scrub, equivalent to 70% of total arable land. However, remapping of the forest resource in 2003/04 provisionally concluded that there were very few areas of closed canopy forest remaining in Samoa. Efforts are much focused now on re-forestation of degraded areas, establishment of community base woodlots, and restoration and maintenance of land proposed as National Parks and Reserves under MNRE.

The National Forest Inventory (NFI) 2013 estimated that approximately 58.3% of Samoa's land area is covered by forest, therefore estimates are of a decrease of forest cover from 2004 to 2013 of 1.75%. This decrease in forest cover is basically due to a 0.56% increase in built-up and 2.7% increase in mixed crops plantations.

Of Samoa's total land area of 283,170 ha, the NFI 2013 shows that 83,536 ha (29.5%) is classified as Production Forest, 81,513 ha (28.8%) is covered by Protection Forest, while the remaining 118,121 ha (41.7%) is classified as Non Forest.

Logging, agricultural clearing, residential clearing, relocation due to tsunamis, rising sea level and cyclones have caused extensive damage and fragmentation to the once dense native forests, opening up the undergrowth to sunlight and creating conditions that favour, and were taken advantage of, by wind dispersed, light demanding and fast growing pioneer species, most of them non-native and invasive. The depletion of large tracts of tropical hardwoods which formed the basis of the commercial sawmills in the 1980s has led to increased focus on sustainable environmental management of the forest resources with selected targeted commercial forest plantations in high value tropical hardwoods.

The Forestry Division are now monitoring the operation of sawmills in the country as depicted in the Forest Management Act 2011. All sawmills in operation must be registered with the Ministry on an annual basis. In addition, all forest harvesting operations for commercial logging must be signed and approved by the Minister of Natural Resources and Environment with conditions of regeneration of land following clearing.

The forest sub-sector has developed a new logging code of practice, reviewed timber prices, undertaken resource inventory mapping, and has reviewed legislation, as part of its new forestry sub-sector plan. The aim is to develop new ways of protecting the remaining indigenous forest resources and accelerating reforestation so that a viable forest sector and stakeholder communities are sustained.

The first National Forest Policy was approved in 1994 aimed at restoring the balanced multi-use functions of forestry, strengthening forestry administration and encouraging customary owners to become more committed to the protection of the remaining indigenous forests and reforestation activity.

In 2007, the second Forest Policy (review of the first policy) was approved and published. The National Policy on Forestry for Sustainable Development 2007 takes into account the sustainable development of forests in Samoa for their combined environmental, economic, cultural and social benefits for the people of Samoa. The Policy discusses two main components that forestry in Samoa should focus on; firstly the native forests components and secondly the planted forestry component.

The Policy aims to benefit society as a whole in perpetuity. Implementation of the policy will enable local people to benefit directly from sustainable forest management, promote equitable distribution of costs and benefits and combine conservation and livelihoods.

The review of the National Policy on Forestry for Sustainable Development 2007 began in late 2013, to incorporate Climate change information.

## Forestry Surveys

The forestry component of the 2009 Agricultural Census collected information on whether households had planted forest trees during 2009 and if so, which of six (6) main species were planted and the expected uses of this timber.

The Government through the Ministry of Natural Resources and Environment unveiled a tree planting campaign that was launched during Environment Week in November 2009, with a target of 1 million trees to be planted within three years (by November 2012).

This Campaign was part of Samoa's response to minimize deforestation, to curb its negative impacts upon communities' resources as well as on the biophysical environment. The three-year campaign included tree crops and fruit tree species. Based on preliminary monitoring survey results, the target of 1 million trees planted was not only achieved but was exceeded by 250,000 trees for a total of 1.25 million trees planted out of 1.66 million seedlings distributed to local stakeholders on both Upolu and Savai'i. Not only was the target achieved, but it was also achieved well before the end of the programme's tenure.

The National Forest Inventory (NFI) comprised of an interview survey and forest survey in Upolu and Savaii. The purpose of the interview survey was to obtain complementary information related to land owners, land users, and the production and usage of non-timber forest products. The forest survey focused on tree biomass and non-tree biomass field surveys, field data entry processing and analysis, and reporting. Those surveys were carried out from August to December 2013. In total, 257 forest survey points and 310 households were collected and analysed.

Results of the interview survey showed that 304 households interviewed were settled on customary land, while six households were leasing government land. Generally, households are not using their forest for logging. Approximately 98% of the households use forests to harvest firewood. Around 86% of the households used various plant species for medication while 81% used the fruits and nuts available in the forest.

Prior to granting a forest harvesting license and permits for commercial logging purpose, a pre-harvesting survey is conducted to provide an indication of the available standing volume that can be harvested on the plantation, while the smaller diameter trees could be preserved for future utilization. This survey is conducted upon receipt of applications for a forest harvesting license and permits from the resource owners.

## **4.5. Fisheries and aquaculture statistics**

The Samoa fisheries sector relies mainly on its offshore and inshore reef and lagoon fish resources.

Some fisheries-related data was collected in the 2009 Agricultural Census. This included type of fishing activity undertaken by each household (inshore, offshore or both), capture methods used (i.e. long line, net, spear, trap etc.), frequency of fishing activity, number of households members engaged in fishing by gender and the main purpose of catch (i.e. own use, sale or combination of both). No aquaculture information was collected in the Census.

The 2009 Agricultural Census reported that approximately 25% of all households in Samoa were engaged in fishing compared with 32.6% of households reported in 1999. It also indicated that the vast majority of households fished mainly or entirely for home consumption, with only a small portion fishing for commercial purposes.

### MAF Fisheries Division Surveys

The Fisheries Division undertakes considerable ongoing survey activity, collecting regular fish market data (3 days surveyed each week) and weekly roadside stall data. In addition, Fisheries staff attend the wharves to record catch levels whenever a fishing vessel returns to port following an offshore fishing expedition. The Division compiles and supplies fisheries catch data on a two-monthly basis to the Commercial Fisheries Management Advisory Committee. This data is not published elsewhere.

The Fisheries Division's most important relationship is with the Secretariat of the Pacific Community (SPC), who provides technical advice, survey support and training and publishes fisheries data on behalf of the Fisheries Division on their SPC website and via hardcopy. Statistical support and assistance is also received from the Pacific Island Forum Fisheries Agency (FFA).

It was acknowledged by the Division that they should work more closely with SBS, particularly in the early survey consideration phase and design stage.

The Fisheries Division's conducted a Socio-Economic Survey in 2012 which was funded by the National Oceanic and Atmospheric Administration Fisheries Service (NOAA). The questionnaires were developed based on the SPC framework. Survey results are currently being finalised and printing.

There is some variability in the reported fish export data between MAF and the Central Bank of Samoa (CBS) which is attributed to the periodic pricing of fish used by MAF to estimate values while CBS utilises an annual average to value production. Therefore, although both agencies utilise the same provisional forms to record data, estimates for the value of fisheries differ due to the pricing methodology adopted.

### Aquaculture

The Strategy for Development of Samoa (SDS) recognises the potential role of aquaculture, and specifies that one of the activities is to 'increase the harvestable stocks of fish and other marine resources' by developing 'fish farming to supplement natural stocks'. Real commercial aquaculture has yet to be developed in Samoa, despite previous attempts to culture a range of species. High levels of inputs, specialised facilities and market development requirements contribute to its slow progress.

The Fisheries Division advised that there are currently 30-35 aquaculture farmers farming tilapia across both Upolu and Savaii. Divisional representatives visit these farmers on a quarterly basis and collect production and fish size information.

There are currently no regular aquaculture surveys conducted in Samoa. As this is a potential area of production development, the inclusion of basic aquaculture information could be considered for future Agricultural Surveys and Censuses.

## **4.6. Agricultural markets and price information system**

Samoa runs a significant balance of trade deficit, the value of imports being some sixteen times greater than exports. The real contribution of the export sector to Samoa's economy has generally deteriorated over the last decade which is cause for great concern. Facilitating trade and improving exports remains a key priority for Samoa.

In 2010, agricultural-based commodities made up 92% of total merchandise exports and other than fish exports, there are no other major commodities that can stem the decline on the export side. Import values of food-based products including fish, meat, fruit and vegetables increased by approximately 37% between 2006 and 2009. However, potential exists for substituting these with similar locally produced products which will have a significant impact on reducing Samoa's current trade imbalance.

A system for collecting and disseminating price and related information from the major local markets exists in Samoa covering fruit and vegetable crops and meat. Both SBS and MAF separately undertake various market surveys.

### Price Indices

SBS compile a monthly Consumer Price Index (CPI) which is published on their website.

The CPI reports important agricultural commodities, including Taro, Ta'amu, Bananas, Yam, Coconuts, Chinese Cabbages and Breadfruit, plus various meat and fish species as components of the Food and Non-Alcoholic Index.

### Annual Meat Marketing Report

The Annual Meat Marketing Report is produced as part of the Ministry of Agriculture and Fisheries APHD's requirement under its annual management work-plan. The report provides a basic marketing analysis of both locally produced beef and pork meat disposed at meat retail outlets located in the Apia town area, as well as imported meat data published by SBS over the same period.

The latest meat marketing report available on the MAF website relates to the twelve month period ending June 2012. This report estimated that about 98% of the total quantity of meat available for public consumption at retailing level was imported, with the vast majority being chicken meat (85%). From an estimated SAT\$60million (Samoa Tala currency) worth of total retailed meat, only 4% (SAT\$2million) was generated from locally produced meat, predominantly beef and pork.

#### **4.7. Water and environment statistics**

There is currently no specific survey activity relating to agricultural water use in Samoa. Irrigation of agricultural crops is not a common practice in Samoa, as most crops are rain fed.

The Livestock Sector Review 2004 identified the need to establish policies for rural water supply focused on agricultural use to assist the sector's development. Furthermore, the Water for Life 2008-11 document highlighted that this is not likely to compete with other water uses nor will it increase the stress on available water resources, whilst ultimately recommending that strategies be considered for irrigation provision to rural areas to assist in enhancing farming outputs and productivity.

A number of key emerging environmental issues in agriculture with significant implications on the future productivity and sustainability of the sector have been identified. These include:

- Land degradation including erosion, compaction and overuse;
- Agro-chemical pollution of ground and surface water;
- Loss of strategic forests and wetlands leading to loss of biodiversity;
- Increasing livestock numbers imposing pressure on ecosystems and watershed systems;
- Loss of biodiversity in agricultural landscapes through the introduction of non-native varieties.

The monitoring and evaluation of many of these environmental issues form part of the Ministry of Natural Resources and Environment's (MNRE) State of Environment Reporting responsibilities. MNRE, in collaboration with the SBS, is currently preparing to undertake a National Water, Sanitation and Hygiene (WASH) Baseline Survey during 2014.

#### **4.8. Rural development statistics**

As part of their Sector Plan monitoring and reporting responsibilities, several ministries have an interest in information relating to rural development. This includes village-level information on issues such as road infrastructure, market access, access to electricity, sources of drinking water, waste water and sanitation methods etc.

The five-yearly Population and Housing Census and Household Income and Expenditure Survey (HIES) collects household-level information on electricity, water and sanitation methods, however information requirements specific to agriculture rural infrastructure and development are not collected.

MNRE's Planning and Urban Management Agency conducts an Annual Urban Sanitation Survey which collects information around septic tank systems etc.

#### **4.9. Food security and nutrition**

Samoa has become increasingly dependent on food imports. Over the last decade, whilst agricultural exports have been falling, food imports have been steadily rising. Food and live animal imports amounted to almost SAT\$193 million in 2011, representing about 24 percent of total imports (SBS data) and are now approaching a level nine times the value of agriculture exports. The increasing reliance on imported food coupled with high food and oil prices puts a burden on foreign reserves and poses a risk to the stability of food supplies.

Traditionally, food security has always been achieved through sustainable agriculture and fishing practices relying mostly on traditional food crops. More recently, as demands continued to grow for more variety and quality, food imports were brought in to supplement these excess demands. However, the ever increasing reliance on imports, effects of climate change, decrease in agricultural activity and effort, migration and the attraction of other high yield sectors have resulted in the threatening of local food supply and questions about its ability to sustain local livelihoods and nutrition have become an issue.



Subsistence farming in traditional crops (taro, bananas, cocoa and cassava) and livestock (cattle, pigs and poultry) is primarily encouraged to enhance production for national food security and target poverty alleviation. The Samoa Government has continued to promote a targeted community based program “Talomua” to encourage people to go back to the land and ensure adequate access to traditional crops and livestock.

Despite having a large subsistence agriculture sector, households remain very vulnerable to increases in food and fuel prices, particularly when faced with the loss of cash income due to a reduction in remittances or loss of employment. Households in the lowest expenditure quintile spend about 55 percent of their total expenditures on food (HIES, 2008). These households are hardest hit when the cost of the food basket increases, such as it did in 2008. Rising food prices coupled with the challenges of rapidly increasing levels of food and nutrition-related diseases in Samoa, make it imperative that increased emphasis is placed on the production and consumption of nutritious local foods.

These food and nutrition related diseases, including Diabetes, hypertension, obesity, coronary heart disease etc impact negatively on the health system, families and the national economy. These diseases are now the leading cause of death in Samoa, as obesity rates have grown from 25.5% in 1978 to 67.5% in 2001, among the highest rates in the world.

Consequently, the government, through its Fruit and Vegetables Strategy is prioritizing the production and consumption of local food products with high nutritional value.

The 2009 Agricultural Census collected some information on household consumption of major crops and the 2013/14 Household Income and Expenditure Survey (HIES) collected information on household food production and consumption. This information is extremely important in terms of assessing the nutritional aspect of Samoan household diets and in preparing a Food Balance Sheet.

#### **4.10. Other domains**

Country level export and import data are obtained from Samoa Customs Services, collated and disseminated by SBS on a quarterly basis via their website.

##### Household Income and Expenditure Survey (HIES)

SBS conduct a Household Income and Expenditure Survey (HIES) every five years to collect data on both household income and expenditure, the production and consumption of home produced foods and other commodities, household demographics, employment/activity, education attainment, and household characteristics including access to water and sanitation, and energy utilisation for cooking and lighting.

The latest HIES is currently in data processing with preliminary tabulated results expected to be released in December 2014. This is the fourth HIES to be conducted in Samoa, with the previous surveys held in 1997, 2002 and 2008.

##### System of National Accounts

SBS is the responsible agency for compilation of National Accounts Statistics. The compilations of the national accounts are currently done quarterly under the UN SNA versions 1993 and 2008.

In the absence of regular agricultural surveys providing crop production and livestock counts, SBS calculate the Agriculture sector GDP share using the most recent HIES (2008) and Agricultural Census (2009) data as the benchmarks for crops and livestock respectively, with movement indicators based on volumes and values from a monthly Local Market Survey undertaken by SBS and Export trade data provided by Samoa Customs Services.

Fisheries Division data on ocean fisheries unloadings and inshore fisheries data obtained from the most recent HIES are used to calculate the Fisheries sector GDP.

## CHAPTER 5

### INTEGRATION OF AGRICULTURAL STATISTICS INTO NSS

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#### 5.1. Extent of integration in Agricultural data collections

##### 5.1.1. Use of standard concepts and definitions across censuses and surveys

Samoa has adopted international classifications as below:

- ISIC Rev. 4 (International Standard Industrial Classification)
- SITC Rev. 4 (Standard International Trade Classification) at 1 digit
- ISCO-08 (International Classification of Occupations)
- HS 2012 (Harmonized Commodity Description and Coding System) at 8 digits
- COICOP 2012 (Classification of Individual Consumption According to Purpose) at 9 digits

The need to clarify definitions of subsistence and commercial farming operations as well as agricultural households was identified by both SBS and the Ministry of Agriculture and Fisheries. The subsistence/commercial production delineation is most important as the two farming systems have quite different development objectives.

##### 5.1.2. Use of common frames (List/Area/Multiple Frames), remote sensing and cadastral maps

The 2009 Agricultural Census used the cartographic material and administrative boundaries used for the 2006 Population and Housing Census.

##### 5.1.3. Use of GIS to map households, agricultural holdings and land parcels

GIS information of agricultural households was not collected in the 2009 Agricultural Census. The lowest level of geography enumerated was the village level.

However, for the first time, GIS information was collected in the pre-listing process in the lead-up to the 2011 Population Census. This information, together with the most recent satellite images, were utilized to produce maps of a total of 878 enumeration areas throughout Samoa.

The Ministry of Agriculture and Fisheries' Animal Production and Health Division (APHD) also recorded GIS coordinates of both the household location and actual cattle holding location for all livestock households enumerated in their Cattle Census 2012.

##### 5.1.4. Existence of Master Sampling Frame for agricultural census/surveys

A list of households in respect of each enumeration block in the country was prepared in 2005 for the 2006 Population and Housing Census. The updated household list from this Population Census was then used as a frame for the 2009 Agricultural Census.

The frame of agricultural households from the 2009 Agricultural Census was subsequently used by the Ministry of Agriculture's APHD in their Cattle Census 2012 and by the Ministry's Crops Division in determining the sample population for their 2013 Fruit and Vegetable Survey. However, there is no mechanism in place to keep the frame updated.

##### 5.1.5. Existence of integrated databases

There are currently no integrated databases, although several Ministries have commenced projects to centralise their own respective data holdings. However, most of these data holdings are only accessible by individual agency staff, i.e. they are not shared across agencies.

There are currently no plans to integrate data across the various Ministries and SBS nor to provide a consolidated data holding for Samoa.

### **5.1.6. Other areas**

Whilst there is considerable agricultural and rural information collected and maintained by various organisations within Samoa, much of this data is not publicly accessible, and the existence of this data is not known or understood by other users. There is also no consolidated listing of all data that is currently available.

The MAF website, when available, contains minimal information about its survey operations or statistical reports, and what information is available is quite dated and inconsistent. For example, the most recent Annual Reports available relate to 2010/11 and only then for some of its Divisions. It was reported that, due to problems and delays in loading data onto the MAF website, the Ministry's Fisheries Division forwards its catch data to the Secretariat of the Pacific Community (SPC) for publication on their website. However, there is no advice or link to this information from the MAF website.

#### Statistical Software Capability

SBS used a variety of statistical programs in the 2009 Agricultural Census for its data entry, processing and analysis and dissemination operations. These included CSPro and Microsoft Excel for data processing and Microsoft Access and Excel and SPSS for data analysis.

Data are most commonly collected through personal interviews, with centralised manual data entry at a later date.

No scanning technology was utilised for the 2009 Agricultural Census, however scanning was introduced for the first time for the capture of questionnaires enumerated in the 2011 Population and Housing Census. The Population Census questionnaires were designed using In-design-CS4 software to meet scanning equipment requirements.

Databases are maintained in Microsoft Excel format.

## **5.2. Duplication in data collection**

As there are no regular, i.e. annual, agricultural data collections, duplication is not a large issue. The exception is agricultural commodity export data which is separately published by both the Central Bank of Samoa (CBS) and SBS and is also collected by the Ministry of Agriculture and Fisheries' Quarantine Division.

The export data reported by SBS and which is used in determining the agriculture sector's share of GDP, is actual export data provided by Customs Services. It is the most comprehensive and accurate export data available. SBS release the commodity export value data on their website ([www.sbs.gov.ws](http://www.sbs.gov.ws)) in their quarterly Merchandise Trade report.

Data published in the Central Bank's quarterly Bulletin are based on export registrations made directly to them by exporters. It was acknowledged that there may be some understating in these data, particularly as not all exporters register their export intentions with CBS, even though they are required to do this. Also, some exporters who register their intentions with the Bank may subsequently decide against exporting or defer their exports to a later date, and often this decision is not advised to the Bank.

There are also various market price and commodity throughput collection activities undertaken, including by SBS for their CPI and other financial accounts' deliberations and by some of the Ministry of Agriculture and Fisheries Divisions. It is possible that some of this activity could be reduced if more regular production data was available.

### **5.3. Scope for building synergies and partnerships**

The potential for closer working relationships and partnerships between SBS and MAF is identified in various other sections of this report.

This issue is addressed in more detail in section 8.1.

### **5.4. Other activities**

Given the difficult financial position in Samoa, and the previous reliance on external funding from AusAID for their previous Agricultural Census, conducting annual agricultural surveys appears neither achievable nor feasible.

It is therefore necessary to consider other data collection strategies which will not impose considerable additional costs on SBS. One possible option is the inclusion of an agricultural module, to collect minimum core agricultural data items, on existing and funded household collections such as the Population and Housing Census and the HIES Survey. This information would supplement the detailed agricultural and rural data collected each five years or so through either an Agricultural Census or Agricultural Survey.

It is acknowledged that this approach will present a number of challenges, particularly in relation to the HIES, where sample and sub-sample design, agricultural content, and reference period issues will need to be carefully considered. However, by utilising such an approach it may be possible to collect agricultural and rural data on a more regular basis than the current five or ten-yearly scenario.

The Secretariat of Pacific Community (SPC) has commenced work on developing a standard HIES content for adoption across the various Pacific nations, including an agricultural module which could be adapted to provide core data items relevant to each specific country. The SPC-developed HIES has recently been trialled in the Solomon Islands and is very similar in terms of agricultural content to the 2013/14 Samoa HIES questionnaire.

## CHAPTER 6

### MINIMUM SET OF CORE DATA

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#### 6.1. Accepted national minimum set of core data

Samoa currently does not have a regular (i.e. annual or biennial) agricultural survey program in place. The Population and Housing Census, Agricultural Census and HIES do collect key agricultural and rural information. However, the frequency of these activities, at five or ten-yearly intervals, is considered insufficient to meet the needs of Samoa's government ministries and other public and private organisations for reliable, accurate and timely information.

Under the Government Samoa Strategy Development 2012-16, most government ministries are required to have sector plans which require regular monitoring and evaluation of progress, usually on an annual or biennial basis. Similarly, many non-Government and private organisations have strategic or business plans which are monitored on an ongoing basis.

There is a clearly identified need to introduce some form of regular and sustainable statistical system within Samoa to produce the basic agricultural information needed to guide evidence-based decision making. This is consistent with the main purpose of the Global Strategy to Improve Agricultural and Rural Statistics.

Whilst regular information on crop production and livestock numbers are critical to any such agriculture statistical system, the Global Strategy provides guidance and suggestions on other areas of economic data, social data, environmental data and geographic references which are considered important to "complete the picture" and provide for informed planning and policy decision making across the agriculture sector.

The data items identified in Annex II have been identified as forming a minimum core data set for Samoa. For example, the six crop types identified, namely Coconut, Taro, Banana, Cocoa, Ta'amu and Breadfruit, are the main crops grown in terms of area, as reported in the 2009 Agricultural Census. However it is important that other considerations such as production value, export importance, food and dietary significance, secondary processing or value-adding potential etc. are also considered in determining what other crops should be included in any country core data set.

During the second Stakeholder Workshop conducted on 29 May 2014, another root crop, TaloPalagi, was identified as becoming increasingly important from a manufacturing perspective.

From the perspective of global crop production, none of the eight core crops identified as important globally, namely wheat, maize, barley, sorghum, rice, sugar cane, soybeans and cotton, are grown in Samoa. The country is therefore fully reliant on the importation of these products for its domestic consumption.

The story is different for livestock, where the main livestock categories in Samoa, namely cattle, pigs, chickens and sheep, all form part of the globally important core livestock groups.

#### 6.2. Data gaps and future requirements

The timely availability of accurate and relevant agricultural data and business statistics is critical to the formulation of policies and strategies as well as the monitoring and evaluation of sector performance. This baseline data required for quantitative analysis of sector performance and for setting quantitative targets for the subsectors is currently incomplete, out of date or not available at all. The lack of reliable data led to the discontinuation of the publication of key indicators of agricultural production by the Central Bank of Samoa (CBS) in 1997. The lack of regular production data has impacted on the capacity to compile annual Food Balance Sheets and has also led to the weakening of the MAF Management Information System (MIS).

The monthly market surveys conducted by SBS and MAF for agricultural and fisheries production are currently the primary basis for estimating national production. However, it seems that the number of markets surveyed changes greatly between months reporting unreliable results. As a considerable

amount of agriculture activity in the subsistence/informal sector occurs outside of markets, concerns were expressed regarding the National Accounts' coverage of this non-market activity, implying that current GDP figures may perhaps understate the importance of the sector.

A joint FAO/MAF Planning Workshop, convened in early 2011 to consider implementation of the Ministry's Agriculture Sector Plan, considered what data (evidence) was needed, how data could be used to assess the performance of interventions, how data could be captured (the balance between cost and representativeness) and the key data collecting institutions etc.

Having reviewed the practices at that time, workshop attendees concluded that a lack of priority (demand and use) and lack of resources and capacity still prevailed; that while merchandise trade data (imports and exports) were generally available and improving, data on production, labour markets, market prices and functionality and household characteristics were still weak or absent. Further, that the lack of analysis and value adding of agriculture data represents a serious weakness if policy making is to improve, and nationally driven data collection and management is to improve in a sustainable way. Also that there needed to be a strong partnership between the National Statistical Office (SBS), the Ministry of Agriculture and Fisheries and other data suppliers and users.

This In-depth Country Assessment concluded that the majority of these findings equally apply in late 2013/14.

It also suggested that there was a need to demonstrate the use and value (\$) of data for decision makers and that capacity building should focus on analysis and dissemination of policy relevant information as much as its collection. It was proposed that domestic market data could be used to measure the pulse of national agriculture production and the commercialization and impact of both domestic and external factors on this. To this end the Food and Agriculture Organisation of the United Nations, Sub-regional Office for the Pacific Islands (FAO SAP) initiated and published a series of domestic market studies in 2011 and 2012 to demonstrate the use and value of domestic market data in assessing key policy issues across the region, including Samoa. The findings of the Samoa study resulted in the widening of local fruit and vegetable markets surveyed on a regular basis.

As detailed in Annex II, most of the globally identified 'core' agricultural and rural data items have been or are currently collected in Samoa, however the regularity of the collections or surveys is much less frequent than is both required and recommended. For example, key data items such as crop area and livestock numbers are only collected each ten years in the Agricultural Census, or more regularly in the case of cattle numbers which are also collected in the five-yearly Population Census or HIES. The Global Strategy recommends that these and other core data be collected annually, where possible.

There are other important core data items which are currently not collected at all, including crop production (volumes) or yields, aquaculture fisheries activity, value of farm inputs, i.e. fertilizers, pesticides, seeds and animal feeds, as well as crop and livestock products used in agro-processing.

Also, some data items have been collected in what might be termed ad-hoc or opportunistic survey activities, usually where donor funding is provided. Recent examples include the 2012 Cattle Census and 2013 Fruit and Vegetable Survey both funded by the World Bank-initiated Samoa Agriculture Competitiveness Enhancement Project (SACEP). These are generally one-off survey activities to collect base line information to inform program initiatives.

Often, there is no funding provision to undertake future follow-up survey activities to assess program performance. This is where the proposed five-yearly alternating Agricultural Census/Agricultural Survey program is particularly important to collect data that is critical for monitoring and evaluation purposes.

It is clear from stakeholders and data user feedback that a sustainable statistical system within Samoa which produces more regular and timely agricultural information is needed. Ideally such a system should provide for the annual collection of the more important 'core' data items, with other data collected on a less regular basis, such as in the five-yearly Population and Housing Census or five-yearly Agricultural Census or Survey.

## CHAPTER 7

### ASSESSMENT OF CAPACITY TO PRODUCE CORE DATA

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#### 7.1. Overall capacity profile of Samoa

Samoa has conducted nine Population and Housing Censuses since 1962 and three Agricultural Censuses since 1989. It also produces a regular and ongoing system of national accounts and other finance, economic and social data.

In addition, SBS has conducted Agricultural Surveys in 2000, 2002, 2004 and 2005 which collected information from a 10% sample of households.

The challenge, particularly for SBS and MAF, will be to find the necessary resources, both financial and human, to enable it to deliver and maintain a regular and sustainable agricultural and rural statistics system into the future, including annual data collection activities.

#### 7.2. Financial resources

In the preface to the 2009 Agricultural Census Analytical Report, it was mentioned that the Census was conducted with financial support from the Government of Australia under the 'Samoa and Australia Partnership Arrangement'. The estimated cost of the 2009 Agricultural Census was SAT\$700,000 (US\$300,000 equivalent), with AusAID's contribution estimated at SAT\$400,000 and the Samoa Government contributing the remaining SAT\$300,000. It is likely that without significant external financial assistance the Census would not have been possible.

The Secretariat of the Pacific Community (SPC) also provided valuable technical support to the Census.

Given that external financial assistance is considered crucial to conduct a ten-yearly Agricultural Census, it does certainly raise the issue of how an annual (or even biennial) survey program can be facilitated without some form of external funding or in-kind assistance, at least in the initial stages.

The lack of funds available for field-oriented statistical activities and transport equipment for field activities was identified by SBS as a high level constraint to their ongoing statistical operations.

Whilst access to annual agricultural statistics, including crop production and livestock data would be the preferred outcome for Samoa, the introduction of any new survey activity would require additional financial resources, including sufficient budgets to ensure adequate statistical staffing levels in the relevant ministries, i.e. SBS and Ministry of Agriculture and Fisheries, as well as sufficient administrative funds to support field-based activities.

The cost of conducting an agricultural sample survey of some 10% of agriculture households is estimated by SBS at around SAT\$245,000. However, it should be noted that is primarily for stakeholder consultation, pilot testing, field enumeration, data entry and report dissemination, but excludes SBS staff costs.

Samoa currently has plans to conduct an agricultural census or agricultural survey every five years. However, a current lack of government funding means that external donor funding will be required to ensure that the 2014 agricultural survey occurs, which is now more likely to be in 2015, one year later than previously planned.

While it may be possible to secure donor funding in the short term to ensure that the agricultural survey can proceed, a commitment to provide appropriate levels of domestic funding to establish and maintain a regular agriculture statistics programme in Samoa will also be essential.

Very little information provided by SBS and MAF in relation to their financial resources situation, such as the level of budget currently being utilised for agricultural statistics, and future budget availability. This information is essential in determining future capacity to introduce a desired agricultural statistics system in Samoa.

## **7.3. Human Resources**

### **7.3.1. Staffing**

SBS currently has approximately 70 professional staff engaged in statistical activities. Two of these professional staff and five technical support staff are involved in the production of agricultural statistics, but not solely, as they also have trade, household income and expenditure as well as transport subject matter responsibilities.

SBS has assessed the number of professional and technical support staff available for statistical activities as a significant constraint to their ongoing operations, with the turnover of professional staff a relevant constraint.

The Ministry of Agriculture and Fisheries has approximately 70 staff in each of their Livestock-APHD and Fisheries Divisions, 214 staff including casuals in their Crops Division and 11 staff in their Policy, Planning and Communications Division (PPCD). The Fisheries Division has six professional level staff and eight technical support staff involved in the production of fisheries statistics, whereas the Crops and Livestock-APHD Divisions have very few people whose specific role is to produce agricultural statistics. The Ministry does not support an extension officer program, so has no field staff.

The Ministry's PPCD identified the number of professional and technical support staff available for statistical activities as a dominant constraint (the highest level reportable) to the Division's ongoing operations.

The need for closer cooperation and collaboration between the various MAF Divisions and with SBS was acknowledged, as was the need for increased funding and capacity building in both SBS and line ministries.

The turnover of professional staff was identified as a relevant constraint for SBS and a dominant constraint for the Ministry's Crops Division, but was less of an issue for the other MAF Divisions.

### **7.3.2. Training**

SBS have identified the technical skills of statistical staff as a dominant constraint to the Bureau's operations, and in particular the need for increased technical capacity in selecting sample for agriculture surveys.

The turnover of professional staff was assessed as a relevant constraint, as is maintaining subject matter knowledge and competence in agricultural survey operations and statistics given the current ten year periods between agricultural censuses.

MAF have specifically identified training in statistical and survey techniques as well as analytical skills as a priority need.

In the past three years, both SBS and MAF have received funding support and important technical assistance from Development Partners and Donor Agencies such as the World Bank, SPC, FAO, AusAID, NZAid, United Nations Development Program (UNDP) and the Statistical Institute for Asia and the Pacific (SIAP).

Other Pacific Regional Organisations including the Pacific Island Forum Fisheries Agency (FFA) and Secretariat of the Pacific Regional Environment Programme (SPREP) also support the sector through specific programs for capacity building in fisheries, crops, livestock and forestry.

## **7.4. Use of ICT in data process**

SBS has approximately fifty (50) personal computers, two of which are available for agricultural statistics. Both have internet connectivity.

The Ministry's Crops, Livestock-APHD and Fisheries Divisions have around fifty-five (55) personal computers in total, of which 80% are connected to the internet and ten (10) are used for agricultural statistics.



#### **7.4.1. Data collection**

Agricultural censuses and surveys conducted by SBS or MAF are most commonly collected through personal interviews, with responses recorded on paper forms requiring manual data entry into computer systems.

Scanning technology has not as yet been adopted for the collection of agricultural information, however, with scanning introduced for the first time for the data capture of questionnaires enumerated in the 2011 Population Census, the introduction of scanning for future agriculture census/surveys is an option for consideration.

However, given the relatively small number of households to be enumerated in Samoa, estimated at 26,200 in the 2011 Population Census, the use of hand-held electronic devices such as tablet computers or smart phones may be a better data collection option. Such a device provides for real time editing and correction of information entered whilst at a household, with data then uploaded to a central server via the internet each evening.

#### **7.4.2. Data processing**

Technologies adopted by SBS and MAF for data processing of the agricultural census/surveys have included CSPro and Microsoft Excel with Microsoft Access, Excel and SPSS used for data analysis.

Databases are maintained in Microsoft Excel format.

#### **7.4.3. Data dissemination**

The Bureau of Statistics has a website at <http://www.sbs.gov.ws> for hosting official statistics for the country, which is accessible to external users. SBS has undertaken considerable redevelopment of its website in the past year, including establishing a new Document Library page from where all released data can be accessed.

However, the vast majority of data is provided in pdf format only, with only the 2011 Population Census supported by tabular data in Microsoft Excel format. Providing information in spreadsheet format would greatly assist users to import data into their own systems for analysis and reporting purposes.

Data estimates from the 2002 Agricultural Survey were released in Excel format via the SBS website, but this was discontinued and data from the subsequent 2004 and 2005 surveys and 2009 Agricultural Census were released in pdf format only.

The Ministry of Agriculture and Fisheries' new website (as at November 2014) is currently under construction. Whilst the previous website provided copies of both volumes of the Agriculture Sector Plans 2011-15, there was, and still is, very limited information about its survey operations or statistical reports, and what little information is available is often dated and inconsistent. For example, whilst previously the most recent Annual Reports available were for reference year 2010/11 and not for all Divisions, these are no longer available.

As a result of problems and delays in loading data onto the MAF website, the Ministry's own Fisheries Division has resorted to publishing its catch data on the Secretariat of the Pacific Community (SPC) website. However, there is no information to this effect on the MAF website or any links provided to the SPC-loaded data.

A check of other Ministry websites and those of public and private organisations revealed that most have operational websites where their annual plans, annual reports and other publications are generally accessible.

## 7.5. Physical Infrastructure

SBS staff are based on two floors of the Government Office building in the capital, Apia, another office in the Development Bank of Samoa Building and a field office in Savai'i. The office facilities are quite basic in terms of accommodation, space, furniture, and limited access to other facilities such as Meeting and Conference Rooms. Not every employee has a personal computer and internet access is variable and at time unreliable. SBS has a very small vehicle fleet (four vehicles including one four wheel drive vehicle). Transport equipment for field activities has been identified as a dominant constraint to Bureau operations.

Ministry of Agriculture and Fisheries staff are located in several different Head Office locations and field offices, where the standard of accommodation ranges from extremely basic and run down to very modern. Staff in the Fisheries, Crops, Livestock-APH and Policy, Planning and Communications Divisions are all located in separate buildings, up to 20 minutes travelling time from each other. This physical dislocation is certainly neither ideal nor preferable and potentially lends itself to Divisions operating individually and independently in terms of processes, systems, data storage and accessibility.

## CHAPTER 8

### STRENGTHS, WEAKNESSES, OPPORTUNITIES AND THREATS (SWOT)

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#### 8.1. Overall agricultural statistical system

The SWOT matrix for the Samoa agriculture sector, including fisheries and forestry statistical program is presented in Annex III. The matrix provides a summary of the key issues, strengths and weaknesses which are currently having an impact on the agricultural statistics system in Samoa, as well as several opportunities which may influence efforts to address these weaknesses. It will be important that strategies developed build on the existing strengths whilst grasping the opportunities to improve the statistical methods and practices used to produce regular (preferably annual or at least biennial) estimates of households, crops, livestock and other important agriculture-related social and economic data.

It will also be important to mitigate against the identified threats, which although few in number, have the potential to stall or even prevent adoption of a workable agricultural statistical system in the country.

Samoa has developed a sound foundation for its National Statistical System (NSS) with the Government's overarching *Strategy for the Development of Samoa, 2012-16*, underpinned by the Ministry's *Agriculture Sector Plan 2011-15* and the SBS *Samoa Strategy for the Development of Statistics, 2011-21* and other ministry Sector Plans.

The Ministry of Agriculture and Fisheries and other ministries are focussing much attention on their respective Sector Plans. The requirement for ongoing monitoring and evaluation of activities and outcomes presents as an ideal opportunity to develop an agricultural statistics system which closely aligns with and meets the key information needs of the sector.

A major weakness identified through the In-depth Country Assessment phase was the lack of available information and evidence upon which to base sound planning and policy decisions. This weakness is primarily due to the lack of regular collection and survey activity. Whilst some aspects of agricultural activity may not change greatly from one year to another, irrigation or cultivation methods for example, there are various production and other data which are required at least annually, i.e. crop production and yields, livestock counts, impact of climatic events etc.

The lack of available information is further compounded by the fact that some collected data is not publicly available. A critical component of any statistical system is the adoption of an effective dissemination methodology which ensures that information is available and accessible to policy makers and users. The internet provides one such medium for this dissemination, therefore it was disappointing that some ministry and organisation websites appeared to not being maintained or effectively utilised to disseminate important information that was collected or is held by that agency.

Samoa is a small Pacific nation with a population of approximately 188,000 people, 80 per cent who are rural population, comprising 26,000 households and with over a third of the employed population engaged in subsistence activity (agriculture, farming and fishing). The smallness of the country, presents challenges in terms of limited funding and human resources to support and sustain an ongoing agriculture and rural statistical system for the country.

Financial resources, including an adequate budget to both introduce and sustain an ongoing agriculture statistical system will be critical. This includes the provision of adequate statistical staffing levels in both SBS and MAF, and administrative funds to support field activities.

Capacity building and the up skilling of technical staff in agriculture subject matter, sample survey operations and analytical skills has been consistently identified as a current weakness and a significant constraint to the operations of several agencies. There is a real opportunity to garner support from FAO and SPC to assist both key agencies in building their respective expertise in the areas of weakness.

While it may be possible to secure donor funding in the short term to establish a regular agriculture statistics programme, a commitment to provide appropriate levels of domestic funding to maintain such a system will also be essential.

Relationships and partnerships, particularly between SBS and MAF, as well as with other data suppliers and users need to be further developed and strengthened. There are a number of strategies which could assist this partnership strengthening and are worthy of consideration, including joint survey and project collaborations, staff exchanges between organisations, and the out posting of experienced SBS statisticians to MAF and other ministries to provide advice and assistance with survey activities and statistical analysis.

The ability to generate agricultural survey or census data for non-standard geographical regions, other than the standard administrative regions generally used, would also be a valuable development. Organisations such as MNRE have reporting responsibilities for various topographical or geographic regions, which at present are not accommodated by the standard administrative statistical regions.

## **8.2. Major sub-sectors**

In terms of the SWOT analysis, most of the issues identified relate to the whole agriculture sector, rather than being specific to any sub-sectors.

Data on production, labour markets, market prices and functionality and household characteristics are considered weak or absent. The lack of analysis and value adding of agriculture data represents a serious weakness if policy making is to improve and nationally driven data collection and management is to improve in a sustainable way.

Fishery surveys are for the most part conducted by the Ministry of Agriculture and Fisheries with some information of household fishing activity collected in the ten-yearly Agricultural Census and five-yearly HIES.

Forestry surveys are for the most part conducted by MNRE.

## CHAPTER 9

### PRIORITY AREAS FOR TECHNICAL ASSISTANCE AND TRAINING NEEDS

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#### 9.1. Technical Assistance

In terms of technical assistance required, it will be critical that any strategy to improve agricultural and rural statistics in Samoa considers not only the short term but also the ongoing sustainability of the system.

##### 9.1.1. Filling data gaps

As previously identified, the lack of regular agricultural statistic's activity has meant that there are significant data gaps that need to be addressed. The current collection and release of important agriculture production and activity information every ten years simply clearly does not meet the need for regular and ongoing data to enable effective policy and planning decision making.

The challenge therefore is not only determining the important data gaps to be filled, but also the components of an effective and efficient agriculture and rural statistical survey program to address the identified shortfalls.

It will also be important to develop a sustainable survey strategy covering a ten to fifteen year cycle which can be considered by the various Government agencies and sector organisations. Such a strategy should consider linkages with the Population and Housing Census and other programmed survey activities, such as the Household Income and Expenditure Survey (HIES) and Labour, Education and Skills Survey, each conducted at five-yearly intervals.

The possible inclusion of an agriculture module on the five-yearly HIES will present a number of challenges which may require technical assistance and support from FAO, SPC or other organisations. These include sample and sub-sample design issues, agricultural content design, and consideration of reference period issues (i.e. the HIES is conducted over four quarters with four independent household samples).

However, these challenges could be more than offset by the significant benefits of collecting supplementary agricultural and rural data on a more regular basis than the current five or ten-yearly scenario.

##### 9.1.2. Development of master sample frame

SBS have previously developed master sample frames following the Population and Agricultural Censuses, which have been used by both SBS and MAF for subsequent survey activities. However, the ten year interval between Agricultural Censuses resulted in agricultural survey activity halting after a few post-Census years, as confidence in the quality of the frame diminished.

Technical assistance will be required around maintaining a suitable frame as the post-Census years pass, and how the agriculture frame may be revitalised by the five-yearly Population Census, particularly if the ten-yearly Agricultural Census cycle is retained.

##### 9.1.3. Development of road map for SPARS

As there is currently no strategic plan for agricultural and rural statistics in Samoa, technical support and advice in preparing such a plan will be essential. Critical to this will be the challenge of garnering stakeholder agreement on both the strategy to deliver the required agricultural and rural data, as well as the range of data required for monitoring and evaluation of Government agency sector plans and associated planning and policy activities.

The Global Strategy project can commence this development, however the fairly short project timeframe (5-6 months) will mean that ongoing support and assistance will be required. Again FAO, and perhaps SPC are best placed to provide this ongoing support and assistance.

FAO has committed resources through its Technical Cooperation Programme to provide capacity building support to improve sector data collection and management systems, policy analysis and economic analysis of farming systems and value chains. FAO has also identified policy work and strategic planning as focus area for the fisheries and forestry subsectors.

#### **9.1.4. Preparing country proposals**

The IdCA process aims to assess the agricultural statistics system in the country and the national capability to produce the required statistics, as a means to determining what national and international capacity building efforts are needed to improve the statistics. In many countries, it is recognized that international support will be needed in the technical assistance, training and research.

In this report, the agricultural statistics system in Samoa has been documented and data collection methodologies evaluated, with attention given to the need for more regular agricultural and rural statistics, integration of statistics into the national statistics system and the minimum set of core data required for international comparisons. A capacity assessment is also provided including staff resources and the use of information technology. The aim has been to provide the information necessary to design and deliver the required support to carry out the necessary improvements to the agricultural statistics system.

The report has highlighted the weaknesses in the existing agricultural statistics system in Samoa: lack of regular data collections; sample surveys are not widely used; the degradation of master sample frame given current Census infrequency; data collection activities between agencies are not always coordinated; doubts surrounding accuracy of ad hoc survey data, methodologies are not always sound; agro-environmental statistics are unavailable, data sources for National Accounts are weak in some areas; information and communication technology is not fully utilized; and statistical staff lack skills in techniques such as sampling and data analysis.

Addressing these weaknesses will take time and will be part of the PARIS21, NSDS and SPARS initiatives. In the short-term, a Country Proposal will be prepared, based on this IdCA report, to seek support in priority areas, especially improving data availability and quality for the minimum set of core data provided under the Global Strategy.

## **9.2. Training**

SBS has identified the technical skills of statistical staff as a dominant constraint to improving agricultural statistics. The current infrequent nature of agriculture statistical activities presents difficulties in both developing staff and retaining both the necessary subject matter skills and often agriculture staff are subsumed into other areas of statistics. The introduction of a more regular system of agriculture statistical collections will help address the subject matter knowledge gaps and build expertise in agricultural statistics.

Although SBS has successfully conducted several Agricultural Censuses, the most recent in 2009, supplemented by a number of annual surveys following the 1999 Agricultural Census, it specifically identified improving the technical capacity in selecting sample for agriculture surveys as a priority.

Responses from the Ministry's four Divisions, whilst often quite varied in terms of the assessment of levels of constraints specific to their operations, did generally indicate issues around the number of professional staff for statistical purposes, their technical skills and the turnover of professional staff.

### **9.2.1. In basic statistical methods**

The current level of basic understanding is weak and needs significant improvement across staff in a number of areas related to collection and use of statistics.

### **9.2.2. Methods used in agricultural statistics**

SBS identified the need to implement a sound methodology for agricultural surveys as a significant constraint to their operations. As it has been several years since SBS last conducted a sample agricultural survey, specific development in sample design methods will be important.

### **9.2.3. In advanced statistical methods**

Any introduction of sample survey methodologies will require the measurement and publication of standard error rates, both sampling and non-sampling. This will assist users in both understanding and having confidence in the final data outcomes. As error rates have not previously been produced, even for the Agricultural Census sample component, SBS staff will require training in associated practices and estimation software systems.

Training for key stakeholders and their staff in understanding the relative merits of estimates produced from sample surveys versus a census should also be considered.

### **9.2.4. In specialised techniques**

The need to develop the analytical skills of their statistical staff was identified by both SBS and MAF. For example, the Ministry's Policy, Planning and Communications Division identified the need to be able to analyse and assess overall agricultural performance, including cross-sectorial issues, i.e. livestock grazing v crop production (taro plantings).

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## MAJOR AGRICULTURAL DATA COLLECTION ACTIVITIES

### 1. Agricultural Census

Data collecting agency	SBS
Data collection frequency	Each ten years: last census in 2009; next census planned for 2019.
Data collection methodology	Data collected directly from all households, using face to face interviews.
Data collection staff	SBS and temporary enumerator workforce
Sample size (if applicable)	Detailed crop information collected from 25% sample of cropping households.
Sample selection (if applicable)	Systematic sample basis (every fourth holding selected).
Variables	Household demographics; type of agricultural activity; livestock numbers by type, including numbers slaughtered or sold; fisheries activity; farm equipment/machinery; consumption of major crops; forestry plantings; land use and tenure; non-household labour inputs; household agricultural income and credit; fertiliser and chemical use; crop area grown and harvested by crop type; tree and plant numbers by crop type
Data processing	Computer processing by SBS.
Data dissemination	Analytical Report and Tabular Report, both in pdf format, published on SBS website ( <a href="http://www.sbs.gov.ws">www.sbs.gov.ws</a> ).
Level of disaggregation available	National; Census Region and District.
Timeliness of data release	The detailed Analytical and Tabulation Reports were both released in January 2012, approximately 26 months after data collection in November 2009.
Latest data available (at October 2014)	2009 data available.

## 2. Population and Housing Census

Data collecting agency	SBS.
Data collection frequency	Each five years: last census in 2011; next census planned for November 2016.
Data collection methodology	Data collected directly from all households, using face to face interviews.
Data collection staff	SBS, Ministry of Education, Sports and Culture (MESC) and temporary enumerator workforce
Sample size	n.a.
Sample selection	n.a.
Variables	Household demographics, including education level, literacy, employment (occupation and industry), land tenure, water and sanitation, household facilities, transport and livestock totals (cattle, pigs, poultry).
Data processing	Computer processing by SBS.
Data dissemination	A detailed Census Analytical Report and Tabulation Report (version 2) in October 2012. Tabular data were disseminated in both pdf and Excel formats on the SBS website.
Level of disaggregation available	National; Census Region and District.
Timeliness of data release	A Preliminary count report, which included population counts of regions, districts and villages, was released on 16 December 2011, six weeks after the official Census enumeration date of 7 November 2011. A Tabulation Report (version one) was released eight months after the preliminary count report in August 2012. Final data released October 2012, 11 months after data collection.
Latest data available (at October 2014)	2011 data available.
Comments/Evaluation/Issues/Potential for expansion or linking with other programmes:	Regular Census activity and potential to expand range of agricultural information collected to complement ten-yearly Agricultural Census.

**3. Household Income and Expenditure Survey (HIES)**

Data collecting agency	SBS.
Data collection frequency	Each five years: last HIES conducted in 2013/14; next planned for 2018.
Data collection methodology	Face to face interviews and self-enumeration diary completion over 14 day period.
Data collection staff	SBS workforce
Sample size	Approximately 2,800 households selected, 10% sample of all households.
Sample selection	Data collected directly from approx. 700 households (25% sub-sample) per quarter over four quarters. Independent sub-sample each quarter. The sampling technique used for the 2013 HIES was a stratified single stage cluster design. The first stage involved the selection of the Enumeration Area (EA) using Probability Proportional to Size (PPS) while the second stage involved the selection of a fixed cluster size.
Variables	2013 HIES included household demographics, primary and secondary activities, dwelling details, household expenditures and overseas remittances, individual expenditures, income and loans, information on agriculture, fishing and forestry activities, including income derived from main crop and vegetable production, livestock, horticulture and floriculture activities.
Data processing	Computer processing by SBS.
Data dissemination	2013 HIES currently (at June 2014) in data entry mode.
Level of disaggregation available	National; Census Region.
Timeliness of data release	2013 HIES tabulated data expected to be released in December 2014.
Latest data available (at October 2014)	2008 data available.
Comments/Evaluation/Issues/Potential for expansion or linking with other programmes:	The HIES is a regular survey activity and potential to expand range of agricultural information collected to complement ten-yearly Agricultural Census.

## 4. Cattle Census 2012

Data collecting agency	MAF Animal Production and Health Division
Data collection frequency	Ad hoc: last survey in 2012.
Data collection methodology	Data collected directly from households with cattle.
Data collection staff	MAF
Sample size (if applicable)	2,903 households with cattle enumerated
Sample selection (if applicable)	Sample selected from 2009 Agricultural Census list frame of all households with cattle.
Variables	Geographic coordinates of owners' homes and location of cattle holdings, number and breeds of cattle, herd structure, presence of cattle yards with loading ramps, condition of access roads, frequency of slaughter and markets to which slaughtered animals were sold, amount of money spent by farmers on slaughtering animals and transporting carcasses.
Data processing	Computer processing by MAF.
Data dissemination	Data analysis report in pdf format. Not available from MAF website.
Level of disaggregation available	Released at National; Census Region and District levels.
Timeliness of data release	Data released May 2013, approx. 12 months after end of data collection.
Comments/Evaluation/Issues/Potential for expansion or linking with other programmes:	Known discrepancies with 2009 Agricultural Census and 2011 Population Census cattle data. Suggest that future surveys of this nature be jointly undertaken by SBS and MAF, particularly the enumeration phase.

**5. Fruit & Vegetable Survey, 2013**

Data collecting agency	MAF Crops Division
Data collection frequency	Ad hoc: last survey in 2013.
Data collection methodology	Data collected directly from households.
Data collection staff	MAF
Sample size (if applicable)	1,700 households (recommended sample 2,000 households)
Sample selection (if applicable)	Mixed frame, collected from Advisory Services / agents in Samoa, such as MWCSD, MAF (Crops Advisory Service, Agriculture Show registrations and competitions), Women in Business Development Inc. (WIBDI), SBEC, SFA (Samoa Farmers Association), Adventist Disaster Relief Agency (ADRA).
Variables	Vegetable and fruit crops grown and sold, land area, land tenure, land use, method of cultivation, irrigation method and water source, production information, including source of seedlings, plants, cost and information sources, fertilizer and chemical use, volumes and expenditure, labour inputs, loans and credit, farm equipment owned, hired or borrowed.
Data processing	Computer processing by MAF.
Data dissemination	Data not yet disseminated (as at November 2014).
Level of disaggregation available	Expected at National; Census Region and District levels.
Timeliness of data release	Data was initially expected to be released early 2014, approx. 12 months after data collection, but was still not available in November 2014.
Comments/Evaluation/Issues/Potential for expansion or linking with other programmes:	Used of mixed (random?) sample frame casts some doubt on the validity of final data.

**6. Fisheries Market Survey**

Data collecting agency	MAF Fisheries Division
Data collection frequency	Weekly (3 days per week from markets and weekly from roadside stalls between Apia and Airport).
Data collection methodology	Data collected directly from market and roadside stallholders.
Data collection staff	MAF
Sample size (if applicable)	Unknown
Sample selection (if applicable)	All market and roadside stallholders.
Variables	Catch levels for both offshore and coastal fisheries.
Data processing	Computer processing by MAF, with assistance from SPC.
Data dissemination	Advised that monthly reports are disseminated via SPC website, however this author was unable to locate any catch data post-2007.
Level of disaggregation available	National
Timeliness of data release	Monthly
Latest data available (at October 2014)	To be confirmed
Comments/Evaluation/Issues/Potential for expansion or linking with other programmes:	

## PROPOSED CORE DATA FOR SAMOA

Statistical Domain	Items	Geographical coverage	Units collected	Frequency	Source	Remarks
<b>ECONOMIC DATA</b>						
<b>Production</b>	<b>Crops</b>					
	Coconut	District	Area, production, yield	Annual	Agri. Survey or Census (SBS)	Production and yield are current gaps, as not collected. Area data collected each 10 years.
	Taro	District	Area, production, yield	Annual	Agri. Survey or Census (SBS)	ditto
	Banana	District	Area, production, yield	Annual	Agri. Survey or Census (SBS)	ditto
	Cocoa	District	Area, production, yield	Annual	Agri. Survey or Census (SBS)	ditto
	Ta'amu	District	Area, production, yield	Annual	Agri. Survey or Census (SBS)	ditto
	Breadfruit	District	Area, production, yield	Annual	Agri. Survey or Census (SBS)	ditto
	TaloPalagi	District	Area, production, yield	Annual	Agri. Survey or Census (SBS)	ditto
	<b>Livestock</b>					
	Meat	National by cattle/pigs/chickens/sheep	Production, yield?	Annual	Agri. Survey or Census (SBS); MAF APHD	Limited meat data currently collected.
	Other Livestock Products	Bee hives/honey/Eggs/milk	Number, production	Five-yearly	Agri. Survey or Census (SBS)	Identified by MAF APHD as a current data gap.
	<b>Fisheries</b>					
	Marine fisheries	National	Production	Annual	MAF Fisheries	Quarterly



Statistical Domain	Items	Geographical coverage	Units collected	Frequency	Source	Remarks
<b>Production</b> (cont.)	<b>Aquaculture</b>					
	Inland/aquaculture fisheries	National	Area cultured, Production	Five-yearly	Agri. Census (SBS)?	Current gap. Is 5 yearly adequate?
	<b>Forestry</b>					
	Forestry: wood	National	Area under forests, Production of wood	Annual	MNRE	Data currently available
	Forestry: non-wood	National	Production of Non-wood products	Annual	MNRE	Data currently available
<b>External Trade</b>	Exports of crop, livestock and fisheries products	National	Quantity and value	Monthly	Samoa Customs	Data currently available
	Imports of meat, fruit and vegetable products	National	Quantity and value	Monthly	Samoa Customs	Data currently available. MAF APHD have queried whether possible to identify intended purpose of imported meat, i.e. for commercial sale or own consumption.
<b>Stock of capital resources</b>	Land cover and use	National	Area	Annual	Agri. Survey or Census (SBS) and MNRE	Land cover is a data gap, some land use information collected each 10 years.
	Economically active persons	District (rural areas)	Number of persons	Five-yearly	Pop. Census (SBS)	Is this needed more regularly?

<b>Statistical Domain</b>	<b>Items</b>	<b>Geographical Coverage</b>	<b>Units collected</b>	<b>Frequency</b>	<b>Source</b>	<b>Remarks</b>
<b>Stock of capital resources (cont)</b>	Cattle, pigs, chickens and sheep	District	Number of animals	Annual	Cattle - Pop. Census (SBS), Other livestock – HIES (SBS)	Total cattle numbers collected each 5 years, detailed cattle demographics and other livestock 10 yearly. MAF APHD have stated that a breakdown of pig and chicken breeding stock (gender and age) is required.
<b>Agricultural Inputs</b>	Agricultural machinery: tractors, harvesters seeders	District	Numbers of machinery items; numbers of farm households using the machinery.	Decennial	Agri. Census/Survey (SBS)	Currently 10 yearly – needed more regularly?

<b>Statistical Domain</b>	<b>Items</b>	<b>Geographical Coverage</b>	<b>Units collected</b>	<b>Frequency</b>	<b>Source</b>	<b>Remarks</b>
<b>Agricultural Inputs (cont.)</b>	Water used for agricultural purposes	National by source (District level preferred?)	Quantity	Decennial	Agri. Census/Survey (SBS)	Quantity a current gap. Is data needed more regularly?
	Fertilizer use	National by crop type and fertilizer type (District level and non-standard geographies preferred?)	Quantity and value	Decennial	Agri. Census/Survey (SBS)	Value a current gap. Is data needed more regularly?
	Pesticide use	National by pesticide type (District level and non-standard geographies preferred?)	Quantity and value	Decennial	Agri. Census/Survey (SBS)	ditto
	Seeds	National by crop type and seed type	Quantity and value	Decennial	Agri. Census/Survey (SBS)	Current gap
	Animal feed purchased	National by animal type and feed type	Quantity and value	Decennial	Agri. Census/Survey (SBS)	Current gap
<b>Agro-processing</b>	Crop products used in processing food	National by crop type	Quantity	Annual	?	
	Livestock products used in processing food	National by livestock type	Number	Annual	?	
<b>Prices</b>	Farm-gate prices	National by core crops/livestock/fisheries	Average price	Monthly	?	Current gap
	Consumer prices	National by crop/livestock/fisheries products	Average price	Monthly	SBS, MAF (AHPD), MAF (Fisheries Div.)	Currently available
<b>Final expenditure</b>	Government expenditure on agriculture and rural development	National by sub-sector	Amount	Annual	Budget documents	Check with Ministry of Finance

<b>Statistical Domain</b>	<b>Items</b>	<b>Geographical Coverage</b>	<b>Units collected</b>	<b>Frequency</b>	<b>Source</b>	<b>Remarks</b>
<b>Final expenditure (cont.)</b>	Agricultural subsidies	National by sub-sector	Amount	Annual	Budget documents	Ditto
	Government expenditure on fisheries	National by sub-sector	Amount	Annual	Budget documents	ditto
	Household consumption of core crops/livestock/fisheries products	National	Quantity and value	Three-yearly	HIES (SBS)	Currently collected five yearly
<b>Rural infrastructure</b>	Area equipped for irrigation	National (District level preferred?)	Area	Annual		Current gap. Is it needed annually?
	Rural roads	National (District level preferred?)	km	Annual		Current gap. Is it needed annually?
<b>International transfer</b>	Official development assistance for agriculture and rural development	National	Value	Annual	Budget documents	Check with Ministry of Finance
<b>SOCIAL DATA</b>						
<b>Demographics of urban and rural population</b>	Sex by age	District	No. of persons	Five yearly	Pop. Census (SBS)	Currently available
	Household composition by sex	District	No. of persons	Five yearly	Pop. Census (SBS)	ditto
	Highest level of education	National by sex	No. of persons	Five yearly	Pop. Census (SBS)	ditto
	Labour force status (employed, unemployed, not in labour force)	National by sex	No. of persons	Annual		Current gap – Labour Force Survey undertaken each 5 years
	Status in employment (self-employed, employee)	National by sex	No. of persons	Annual		ditto

Statistical Domain	Items	Geographical Coverage	Units collected	Frequency	Source	Remarks
<b>Demographics of urban and rural population</b> (cont.)	Economic sector of employment	National by sex	No. of persons	Annual		Current gap – no Labour Force Survey. Collected in 5 yearly Pop Census
	Occupation of employment	National by sex	No. of persons	Annual		ditto
	Household income	District	Value	Three-yearly	HIES (SBS)	Currently five yearly
	Number of hired workers on farm holdings	National by sex	No. of persons	Decennial	Agri. Census (SBS)	Currently available
	Housing conditions	District	No. of dwellings	Five yearly	Pop. and Housing Census (SBS)	ditto
<b>ENVIRONMENTAL STATISTICS</b>						
<b>Land</b>	Soil degradation	National (District level and non-standard geographies preferred?)	Area		Special studies	
<b>Water</b>	Water pollution due to agriculture	National (District level and non-standard geographies preferred?)	Pollution parts per million (ppm)		Special studies	Fertilizer /chemical use in catchment regions – Agri. Census?
<b>Air</b>	Emissions due to agriculture	National	GHG		Special studies	
<b>GEOGRAPHIC LOCATION</b>						
<b>GIS coordinates</b>	Administrative units	National, District, Village		Five yearly	Population /Agri. Census (SBS)	Current gap?
	Parcels			Five yearly	Population /Agri. Census (SBS)	ditto
<b>Degree of urbanization</b>		Classification of Districts by urban and rural		Five yearly	Pop. Census (SBS)	Currently available, check how often revised

## SWOT MATRIX - STRENGTHS WEAKNESSES OPPORTUNITIES THREATS

STRENGTHS	WEAKNESSES
Samoa has developed a sound foundation for its NSDS with the Ministry's <i>Agriculture Sector Plan</i> and the <i>SBS Samoa Strategy for the Development of Statistics, 2011-21</i> , all linked to the Government's overarching <i>Strategy for the Development of Samoa, 2012-16</i> .	No regular agricultural survey program currently exists to collect crop production, livestock numbers, inputs to production, environmental impacts of agricultural activity etc. Ten yearly intervals is totally inadequate.
There is general stakeholder support and enthusiasm for the Global Strategy project.	The lack of analysis and value adding of agriculture data represents a serious weakness to evidence-based planning and policy making.
SBS has a well-established decennial Census of Agriculture (years ending in '9') and five-yearly Population and Housing Census (years ending in '1' and '6').	Weak data for monitoring food and nutrition security.
Population Census frames have been used for subsequent Agricultural census and surveys.	SBS has a well-structured <i>System of National Accounts</i> , however inputs for the agriculture sector are often based on limited or dated information.
Due to the lack of regular survey activity, there are no apparent duplication of efforts in data collection.	The lack of financial resources in SBS is a serious constraint to improving the agriculture statistical system in Samoa, specifically a regular and sustainable survey program.
	The technical skills of both SBS and MAF agricultural statistics staff need further development, particularly in the areas of survey methodologies, sample survey design and conduct and analytical skills.
	Some of the recent agriculture surveys conducted by the Ministry of Agriculture lack the rigour of sound sampling methods and enumeration practices.
	Differences in data results have impacted on organisation and user confidence, i.e. cattle numbers.
	Data dissemination is generally poor. SBS data is generally released in pdf format only, with no accompanying tabular spreadsheets (i.e. Excel). MAF website contains little data and what is released is quite dated. MAF survey data are not publicly released; hence there is a lack of awareness and understanding of survey results in other agencies and organisations.
	Working relationships between SBS and some MAF Divisions are not operating as cooperatively or effectively as they could. Whilst generally respectful, partnerships are not considered strong and there is a need for clarification on roles and responsibilities, particularly in regard to survey activity.
	Lack of field staff in MAF
	Fishery surveys are mostly conducted by the Ministry of Agriculture and Fisheries. Could be over-surveying in terms of their market and roadside stall survey activities.

OPPORTUNITIES	THREATS
Build on the genuine support of SBS and the various Divisions in the Ministry of Agriculture and Fisheries for the Global Strategy to improve agricultural and rural statistics and to adopt sound statistical practices and methodologies for estimating crop and livestock production and other related information.	Heavy reliance on donor financial support and a lack of domestic funding will significantly inhibit the implementation and sustainability of a regular agricultural statistical system in Samoa.
To develop stronger partnerships between SBS, MAF and other data suppliers and users.	MAF or SBS may be unwilling to work cooperatively in future survey activity, instead preferring to work independently.
Consider staff exchanges between SBS and MAF or out-posting of experienced SBS staff to MAF when undertaking any survey activities. Similarly MAF people could be out-posted to SBS to assist with Agricultural Census/Survey planning and operations, including analysis and dissemination phases.	Relevant ministries may not have the staff capacity and expertise to successfully implement or manage any proposed agricultural statistics system.
FAO has committed resources through its Technical Cooperation Programme to provide capacity building support to improve sector data collection and management systems, policy analysis and economic analysis of farming systems and value chains in Samoa. FAO have identified policy work and strategic planning will also be a focus area for the fisheries and forestry subsectors.	FAO or SPC technical assistance and support may be directed to other issues or focussed on other countries.
Samoa continues to receive World Bank and non-bank financial support for the Samoa Agriculture Competitiveness Enhancement Project, through to 2017. Opportunity to secure some of this funding for SACEP monitoring and evaluation.	
Opportunity to develop a strategic long-term vision for agricultural and rural statistics, which incorporates a viable calendar of statistical collection activities to support improved availability and quality of data.	
Opportunity to introduce new technologies which may reduce survey operation costs, i.e. hand-held devices to record household responses.	
The ability to generate agricultural survey or census data for non-standard geographical regions would be a useful development. Agencies such as MNRE have reporting responsibilities for various topographical or geographic regions, which are not consistent with the standard census regions or administrative districts.	

## LIST OF MAIN STAKEHOLDERS IN SAMOA

Stakeholder	Interest	Perception of Problem	Resources	Mandate
<b>Samoa Bureau of Statistics - National Statistical Office</b>	Key data producer, currently undertakes all regular Census and Survey activities, including Population and Housing Census, Agricultural Census, Household Income and Expenditure Survey, Labour Force Survey. Also produces National Accounts, Government Accounts, CPI.	<ul style="list-style-type: none"> <li>• Limited professional and technical support staffing resources available for statistical activities a significant constraint.</li> <li>• Turnover of professional staff identified as a relevant constraint.</li> <li>• Limited resources to undertake any additional survey activity.</li> <li>• Requires assistance with sample survey design and conduct</li> </ul>	<ul style="list-style-type: none"> <li>• Has approx. 70 professional staff engaged in statistical activities.</li> <li>• Two professional statistical staff and five technical support staff allocated to agricultural statistics, but also have trade, household income and expenditure as well as transport subject matter responsibilities.</li> <li>• Limited administrative resources to support field survey activities</li> </ul>	<ul style="list-style-type: none"> <li>• SBS was re-established as autonomous Agency in 2008 by an Act of Parliament.</li> <li>• Statistics Act 1971 requires that SBS will act as the Govt. agency for collection, processing, analysis and dissemination of statistical information related to socio-economic and demographic structure of the country.</li> </ul>
<b>Ministry of Agriculture and Fisheries (as data producer)</b>	<p>MAF is the peak agricultural policy making body in Samoa responsible for the formulation and implementation of national agricultural policies and development plans. Has four main Divisions:</p> <ul style="list-style-type: none"> <li>• Crop Division;</li> <li>• Animal Production and Health Division;</li> <li>• Fisheries Division; and</li> <li>• Policy, Planning and Communications Division (includes SACEP)</li> </ul> <p>Statistical activities are carried out in the respective Divisions.</p>	<p>Require more frequent and timely enumeration of livestock and fruit and vegetable data as ten year period between Agricultural Censuses is far too long.</p> <p>PPCD identified following constraints to agricultural statistics in the following areas:</p> <ul style="list-style-type: none"> <li>• Transport equipment for field activities (dominant constraint);</li> <li>• Number of professional staff for statistical purposes (dominant constraint);</li> <li>• Number of technical support staff (dominant constraint);</li> <li>• Information technology hardware (dominant constraint);</li> <li>• Information technology software (dominant constraint);</li> <li>• Availability of funds for field-oriented statistical activities vis-à-vis plans (dominant constraint);</li> <li>• Low level of demand for</li> </ul>	<ul style="list-style-type: none"> <li>• Heavily reliant on donor support to undertake statistical activities.</li> <li>• Has approx. 70 staff in each of their Livestock-APHD and Fisheries Divisions, 214 staff including casuals in their Crops Division and 11 staff in their Policy, Planning and Communications Division.</li> <li>• Fisheries Division has six professional level staff and eight technical support staff involved in the production of fisheries statistics.</li> <li>• Crops and Livestock-APHD Divisions have very few people whose specific role is to produce agricultural</li> </ul>	<ul style="list-style-type: none"> <li>• MAF has key responsibility for agriculture development in Samoa through its planning and policy activities.</li> <li>• MAF has lead responsibility for delivery of strategies outlined in the Agriculture Sector Plan 2011-2015.</li> </ul>



		<p>statistics (significant constraint);</p> <ul style="list-style-type: none"> <li>• Technical skills of statistical staff (significant constraint);</li> <li>• Sound methodology implemented for agricultural surveys (significant constraint); and</li> <li>• Office equipment (significant constraint).</li> </ul> <p>Crops Division identified the turnover of professional staff as the only dominant constraint, with other constraints considered of less impact. The Division also requested a review of the legal framework to authorize relevant ministries and organizations for the implementation of agriculture statistics. The Crop Division identified improved collaboration with SBS, availability of funding and capacity building in SBS and line ministries and the importance of awareness &amp; utilization of accurate agriculture statistics for decision makers and overall economic developments.</p> <p>The Livestock-APHD Division did not assess any issues as having a greater impact than 'somewhat' of a constraint, however it identified that there should be adequate funding available at the divisional level in order to facilitate more livestock and meat statistical work. Also training should be provided for key personnel in statistical techniques and analytical capacity.</p> <p>Fisheries Division did not complete the Constraints section in their questionnaire response.</p>	<p>statistics.</p>	
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<p><b>Ministry of Natural Resources and Environment (MNRE)</b></p>	<p>MNRE both a data user and data producer/collector. It uses data from various sources, including SBS, MAF and other sources in the monitoring and evaluation of its NESP (National Environment &amp; Development Sector Plan).</p>	<p>State of Environment (SOE) reporting gaps, although some data may be available in other agencies but not released publicly.</p> <p>Require trend data, therefore regularity and sustainability of data is critical.</p>	<p>Not provided</p>	<p>Data priority is to meet the Ministry's State of Environment (SOE) reporting requirements, assessment of relationship between agriculture sector and other sectors and impact of agricultural activities on environment, i.e. land use, cultivation, fertilizer use by type, forestry replanting, fruit trees etc.</p> <p>The Ministry's Forestry Division is responsible for the sustainable development and management of forest resources across Samoa.</p>
<p><b>Ministry of Women, Community and Social Development (MWCSO)</b></p>	<p>Both a data user and data producer and through its Division of Internal Affairs oversees a network of village representatives who collect and provide information on a monthly basis, through their performance management system (PMS).</p>	<p>The Ministry reported limitations in the capacity of village representatives to collect data and the need for capacity building on data management, including setting up central databases. The Ministry is currently looking to merge the PMS of all their divisions within a larger Ministry-wide Monitoring and Evaluation framework.</p> <p>From a data user perspective, MWCSO specifically uses information from MAF Fisheries Division and Gender and Disability data from the SBS Population and Housing Census.</p> <p>It identified the need for annual village level data on agricultural produce, production of fruit and vegetables, livestock by owner, cattle numbers, number of informal</p>	<p>Not provided</p>	<p>Ministry captures trends in several areas of village representatives' mandates, but mostly agriculture, such as patterns of agricultural production in rural areas (includes crop information by type, production or area planted information is not collected).</p>

		agricultural workers, and the number of villages with tar sealed access roads (access roads inland to plantations).		
<b>Ministry of Finance</b>	<p>Key activities and responsibilities of the Ministry include:</p> <ul style="list-style-type: none"> <li>• Produce, implement and monitor the Annual Budget of the government.</li> <li>• Monitor all state owned enterprises (such as the Water Authority and the Electric Power Corporation).</li> <li>• Develop national economic strategies and plans.</li> </ul> <p>Ministry has played a key role in the introduction of the various Agency Sector Plans. It uses data from various SBS and MAF economic surveys to assess performance of the 14 sectors of economy against their sector plans. It noted specifically the importance of reinvigorating the Agriculture Sector, as this is seen as key to the Samoa's economic future, along with the Tourism Sector.</p>	The Sector approach to planning is in its early stages, but is moving forward. The need for data to support and assess performance is important, particularly at the Ministry has plans to move to outcome-based budgeting for the Government sector.	Not provided	Main planning body within the Samoa Govt. and its CEO is the primary economic and financial adviser to cabinet and government.
<b>Ministry of Revenue</b>	<p>Internally collected data is extracted monthly for management reports and quarterly for consideration by Cabinet.</p> <p>Uses data to assess economic performance and coverage of potential revenue sources.</p>	The Ministry is interested in individual data on registered commercial fishers and farmers from SBS, but aware of confidentiality provisions which prevent disclosure of this information.	Not provided	The Ministry is part of the Finance Sector and its main function is revenue collection, both Inland Revenue taxes and Customs taxes, duties etc.

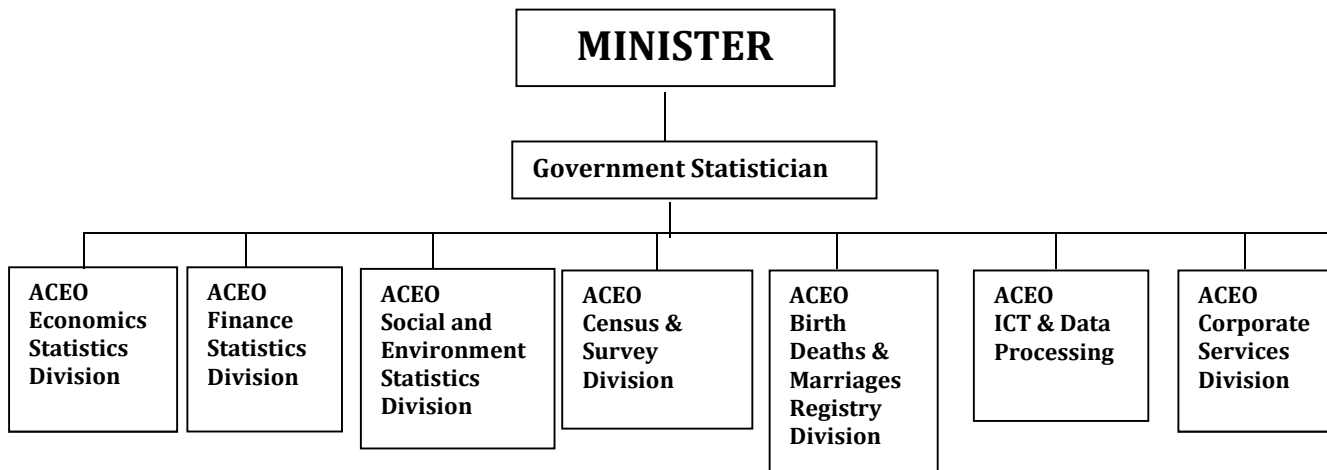
<p><b>Central Bank of Samoa (CBS)</b></p>	<p>Major user of economic data, including the Local Produce Market Survey (SBS), Import data (from SBS trade data), Export data (from their own Export License Form E), Commercial Banks and Non-Financial Institutions Lending (Development Bank of Samoa) by sectoral breakdown, National accounts and Agriculture contribution to GDP (SBS) and the Consumer Price Index (SBS).</p> <p>CBS is also a major producer of data, using own and external data sources. Produces monthly Foreign Trade Report, Selected Economic Indicator Report, Inflation Review and Monetary Survey reports, as well as Quarterly Bulletins and adhoc Economic Updates for Cabinet and other national meetings etc.</p>	<p>The Central Bank identified a number of data gaps which it considered needed addressing, including:</p> <ul style="list-style-type: none"> <li>• Exports – Gaps are coverage issues like difference in CBS, Custom’s and Quarantine sources</li> <li>• Imports – Difficult to align CBS exports table with the HS (Harmonized Commodity Description and Coding System) headings and codes.</li> <li>• Market survey – coverage issues and whether current market survey is a true indicator of overall agricultural production in the country.</li> <li>• CPI – Underlying or core inflation measure. Current measure excludes almost 51 percent of the basket (seasonal and Government-controlled prices).</li> <li>• National accounts - Need to update the methodology. IMF have highlighted that contribution of tourism (and agriculture possibly) are undervalued while other sectors are quite high.</li> </ul>	<p>Not provided</p>	<p>CBS is responsible for formulating and implementing monetary policy.</p>
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<p><b>Samoa Chamber of Commerce and Industry Inc.</b></p>	<p>The Chamber utilises information from the Population Census and Labour Market Survey to gain an understanding of demographics and labour market activity at a regional level.</p> <p>Also uses various economic updates released by SBS, MAF and the Central Bank of Samoa in understanding the economic implications for Samoa businesses. It uses these data to assist the Samoa Farmers Association in implementation of the Agriculture Sector Plan.</p>	<p>Issue with age and relevance of data was identified, as usefulness diminishes after 2 – 3 years following collections.</p> <p>The Chamber also suggested that the dissemination of data could be improved. An example provided was that Trade data should also be released in both Excel and pdf formats.</p>	<p>Not provided</p>	<p>The Chamber of Commerce and Industry is an association of businesses, corporations, industry associations and business people representing in the very broadest sense, the Private Sector Business Community in Samoa.</p> <p>By presenting the collective views of its members to Government, the Chamber seeks to contribute to and, in a constructive way, influence the formulation of national economic policies which lead to:</p> <ul style="list-style-type: none"> <li>•the promotion of sustainable growth</li> <li>•the creation of new investment and employment opportunities</li> <li>•an environment that supports business growth</li> </ul>
<p><b>Small Business Enterprise Centre Samoa (SBEC)</b></p>	<p>SBEC is both a data user and data collector. It regularly uses Population and Agricultural Censuses, Business Surveys and other available data from SBS and MAF in the assessment of small business lending applications and guarantees. It also analyses the links between data from the Agricultural and Population Censuses.</p> <p>It conducts surveys for every sector. The Agriculture Sector Survey questions small business clients</p>	<p>Infrequency and age of data was identified as a limitation.</p> <p>Up to date business data is critical to their work.</p>	<p>Not provided</p>	<p>SBEC is a semi-Government organization established to encourage the development of small business in Samoa. It provides financial incentives for new businesses, generally 1-2 years after set-up.</p>

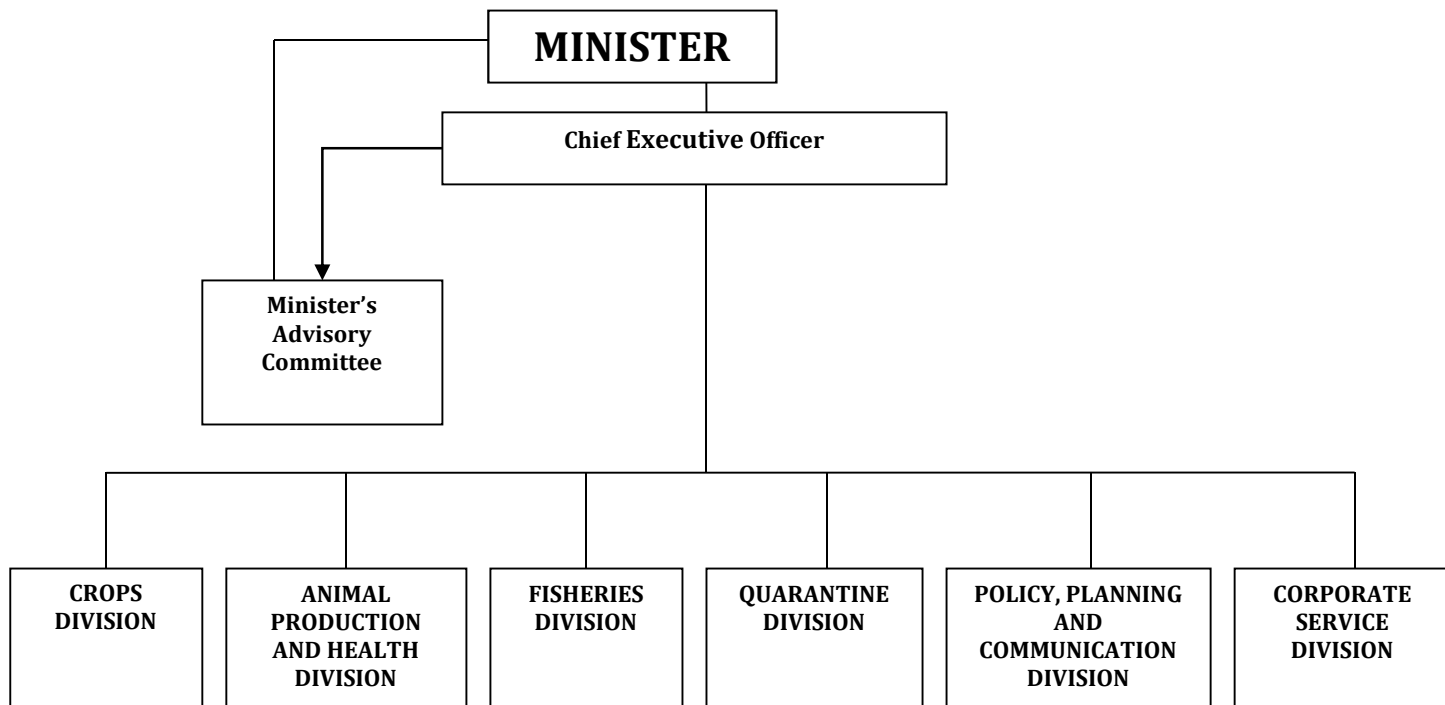
	about how other sectors rely on agriculture, i.e. the availability and quality of farm produce to restaurants, timber to furniture manufacturing etc.			
<b>Development Bank of Samoa (DBS)</b>	DBS regularly uses existing data from various sources, including SBS, MAF, Central Bank of Samoa and the Samoa Tourism Association to gain an understanding of the market situation when assessing commercial development lending applications. Agricultural Census data are utilised for appraising agricultural applications.	<p>The availability of timely data including detailed agricultural data every ten years, was identified as a limitation to the Bank's assessment processes.</p> <p>The Bank identified that livestock and rural/urban integration statistics would greatly assist their work.</p>	Approximately 110 personnel are located in the Bank's Head Office in Apia.	DBS was formed in 1974 to promote the expansion of the Samoan economy by making loans and giving financial, technical and advisory assistance to enterprises in Samoa.

**ORGANOGRAMS OF MAJOR STAKEHOLDERS**

**Samoa Bureau of Statistics**



**Ministry of Agriculture and Fisheries**



### Samoa Country Capacity Indicators – July 8, 2014

Note: Indicator scores are calculated on a scale of 0 – 100, where a score of 100 meets all the defined criteria.

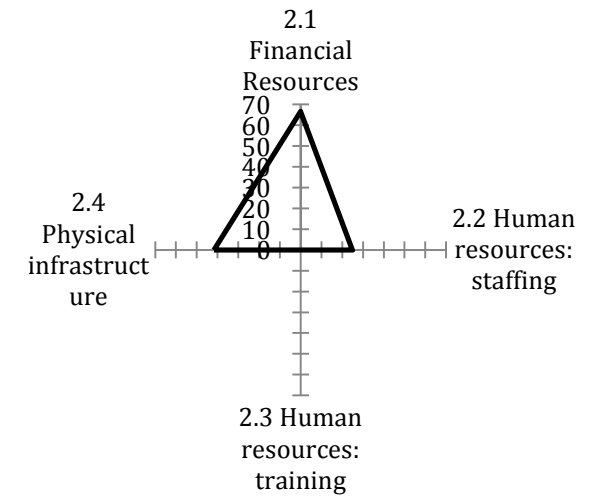
	Score	Notes	Graph
<b>Indicator I: Institutional Infrastructure</b>	<b>76</b>		
1.1 Legal Framework	100	The Statistics Act of 1971 provides the legal basis for statistical activities in the country in general. The executive agency for statistical activities in general is Samoa Bureau of Statistics and the legal basis is operational.	
1.2 Coordination in the NSS	0	There exists no legal mechanism for coordination of agricultural and rural statistics.	
1.3 Strategic Vision and planning for agricultural statistics	100	There exists an Agriculture Sector Plan 2011-2015 that is integrated into the NSDS.	
1.4 Integration of agriculture in the NSS	90	Samoa has developed an Agriculture Sector Plan 2011-2015 that covers crops, livestock, fisheries, forestry and cross cutting issues in land use, gender, youth, environment and climate change adaptation.	
1.5 Relevance of Data	90	There exists an official forum for dialogue between suppliers and users of agricultural/fisheries statistics in which bi-annual (coastal) and quarterly (offshore) meetings are conducted. There also exists a well-established channel for receiving feedback through regional websites and emails. These channels of communication between data suppliers and users of agricultural statistics are deemed to be adequate to moderate depending on the use of data.	



**Indicator II: Resources<sup>3</sup>**

**33**

2.1 Financial Resources	67	Both SBS and MAF have their own line budgets.  The SBS also noted that 80-100 percent of their activities related to agricultural statistics were funded from the government budget; while the only 0 – 20 percent was funded by the government budget at the Crops Department of the MAF.
2.2 Human resources: staffing	25	The SBS noted a total of seven professional and technical staff covering statistical activities in general. Under MAF, there are also 14 professional and technical staff involved in Fisheries Statistics.
2.3 Human resources: training	0	Under SBS, it was reported that there exists no official government program or training policy for agricultural statistics. It was however reported that there does exist a training program under MAF (PPCD) and five professional and technical staff were trained in the previous 12 months.
2.4 Physical infrastructure	42	The availability of transport equipment for field statistical activities is rated as a dominant constraint for physical infrastructure. Office space was also noted as a relevant constraint.

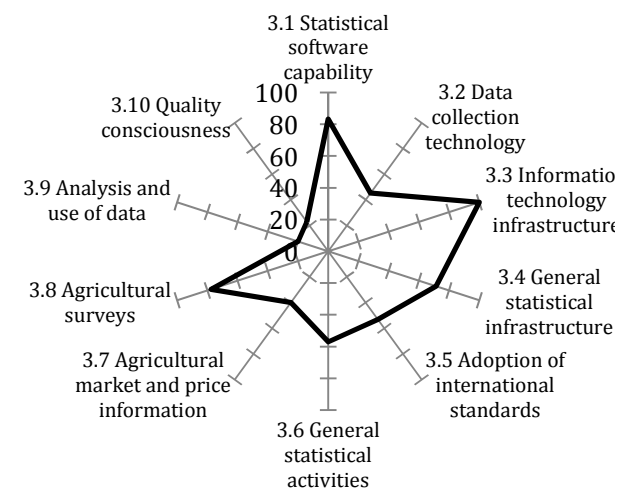


<sup>3</sup> The resources indicator is representative of the situation in the Samoa Bureau of Statistics (SBS)

**Indicator III: Statistical methods and practices**

**55**

3.1 Statistical software capability	83	Various Statistical software packages are utilized for processing, analysis, and databases activities including: SPSS, ACCESS, CSPRO, and EXCEL. However, producers under the MOA were more likely to use EXCEL for data processing and analysis.
3.2 Data collection technology	45	The SBS relies on paper based personal interviews and is either entered manually into the computer or scanned for archiving purposes. GPS technologies are also used where relevant.
3.3 Information technology infrastructure	100	The computer to staff ratio is higher than 1 in the SBS. 2 computers are available in SBS for agricultural statistics.
3.4 General statistical infrastructure	71	To support statistical activities, the following services are available: up-to-date digitized topographical maps, up-to-date lists of large active agricultural farms, enumerators are provided with a printed map for data collection, and geo-coded statistical units.
3.5 Adoption of international standards	53	ISIC (Rev4, 4 digits), SITC (Rev4, 1 digit), HS (HS12, 8 digits), COICOP (2010, 9 digits) classifications are used.
3.6 General statistical activities	57	A variety of statistical activities are conducted including: a Population census, a consumer price index, a wholesale price index, and estimates of rural household income are published/ available. Up to date National Accounts and estimate of quarterly production from the agricultural sector are however not available.
3.7 Agricultural market and price information	40	An index of wholesale or producer prices are published. Agricultural market prices are also collected and disseminated covering crops, and livestock according to the MAF.
3.8 Agricultural surveys	78	A variety of agricultural surveys are carried out in the country relating to crops, livestock, fishery, and water.
3.9 Analysis and use of data	20	The production account is used for the compilation of economic accounts for the agriculture sector. Estimates of quarterly production from the agriculture sector are also prepared and published.
3.10 Quality consciousness	23	The probability sample, sampling errors, metadata, and micro data are compiled for some fishery surveys. Quality data is not available for other sub-sectors, i.e. crops and livestock.



<b>Indicator IV: Availability of statistical information</b>		<b>55</b>
4.1 Core data availability	51	30 items of the minimum set of core indicators are covered with deficiencies in the availability of data for aquaculture, agricultural inputs, agro-processing, rural infrastructure, and the environment.
4.2 Timeliness	0	The modal year of availability of all items produced from the minimum set of core indicators is 2009
4.3 Overall data quality perception	100	The modal quality score of all items produced from the minimum set of core indicators is "Highly Reliable" among items asked. For items covered by the mandate of MAF Crops however, it is noted that the modal quality score was deemed "Acceptable" or "Workable". Concerns on the quality of livestock data were also raised by MAF Livestock Division.
4.4 Data accessibility	100	The SBS has a website for hosting official statistics and is accessible to external users on the internet.

