Samoa Country Paper

"Second Regional Training Course on Sampling Methods for producing Core Data Items for Agricultural and Rural Statistics"

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2015

CHAPTER 1: INTRODUCTION

Geography

Samoa is the larger and westerly part of the 300 miles long Samoan islands archipelago situated in the central Polynesia and the South Pacific Ocean. Its geographic position lie between latitudes 13° and 15° south of the equator and between the longitudes 168° and 173° west. The Samoan group is located 2,600 miles southeast of Hawaii, 1,800 miles from New Zealand and 2,700 miles from Australia. Its nearest neighbour is American Samoa that is located at about 80 miles away. Samoa has the largest group of full-blooded Polynesian people when compared to its Polynesian members like Tonga, Cook Island, American Samoa, Tuvalu and Niue.

The islands are of volcanic origin with most of the coastal area surrounded by coral reefs. Samoa consisted of ten islands of which four are inhabited namely: Upolu, Savaii, Manono and Apolima. Other islands are: Namu'a, Nu'utele, Nu'ulua, Nu'usafee, Nu'ulopa and Fanuatapu. The total land area of Samoa is 1,100 square miles (2,830 square kilometers) with Savaii as the biggest island with 600 square miles (1,700 square kilometers) with the highest point about 1,859 meters (6,100 feet). Uplou island is the second largest island where the capital of Apia is located with a total land area of 430 square miles or 1,110 square kilometres and the highest point of about 1,097 meters (3,600 feet).

The climate of Samoa is tropical (tropical rain forest climate) with two main seasons namely the wet season from November through April and a relatively drier season from May through October. The average monthly temperature ranges from 22° to 30° with very limited seasonal variation. The mean daily relative humidity in the Apia area ranges from about 80 to 85 percent during the year. The rainfall varies considerably with location and time. The northwest receives less rainfall compared to the southeast side of the country.

Upolu's population of 143,418 persons represents 76 percent of the total Samoan population of 187,820 persons. The rest of Samoan population is currently residing in Savaii totalling 44,402 persons or 24 percent of the population (Population and Housing Census, 2011). The official languages are Samoan and English, and Samoa has a high literacy rate for women and men age 15-49 (99 percent each, respectively)

As Samoa is in the centre of the Pacific region**,** the island is prone to natural disasters. The country was the site of a devastating tsunami in September 2009 that hit the coastal areas of the south-eastern part of the island of Upolu and claimed 147 lives. The tsunami was triggered by an 8.1 magnitude earthquake, which struck the islands minutes before the tsunami (MOH, 2009). More recently, in December 2012, Samoa was hit by cyclone Evans which was considered the worst tropical cyclone to affect the country since 1991. The cyclone caused widespread destruction around the capital of Apia. Many of the roads were blocked by flood waters and houses and crops were badly destroyed. Two people were confirmed dead as a result of that cyclone.

However, despite a number of strong natural disasters that struck the islands in the past years, Samoa managed to recover and build its way up again and able to adapt to global changes as well as taking up new initiatives of its own. For the first time in the South Pacific Region, Samoa was made headlines worldwide by becoming one of the first countries in decades to require its citizens to drive on the left side of the road. This mandated change came into effect on 17th September 2009 (www.parliament.gov.ws). The bold road switch was initially a controversial issue because concerns that it would increase the road accident rate. The main reason behind the road switch was economic; Samoans have access to cheaper, imported right hand drive cars from its nearest economically developed neighbours, New Zealand and Australia.

On the 29th of December 2011, another huge milestone that also put Samoa on media as the main story where the government of Samoa moved the location of its international dateline to further to the eastern side just between Samoa and American Samoa which placed Samoa within the same international dateline as its neighbouring countries like Fiji, Tonga, New Zealand and Australia. The main motive behind the move was to make trading and travelling much easier between Samoa and its main destination countries of New Zealand and Australia. The government managed to make the change of days and dates by skipping the date of 30th of December 2011 after the 29th and leaped straight to the 31st of December 2011 and immediately started the New Year of 2012 with the new international dateline.

History

The Samoan Islands are believed to have been discovered and settled around 1,000 BC. The Samoans originated from Austronesian predecessors from Southeast Asia and Melanesia. The Austronesian migration started in south-eastern Asia and moved eastward, reaching the Fiji islands around 1,000 BC. By 200 BC Samoa was the centre of a flourishing Polynesian community with trade taking place among Tonga, Fiji and Samoa.

Samoan language belongs to the Austronesian family, said to be the world's largest (Evans, 2010). Samoa was first named the Navigator Islands by the French explorer Louis de Bougainville because of its people's impressive navigating skills (Field, 1984 & 1991).

The first notable "agents of change" were the missionaries. After the arrival of John Williams of the London Missionary Society in the 1830's the Samoans were rapidly converted to Christianity. Methodist and Roman Catholic missionaries established missions in following years. As a predominantly Christian society, Samoa has a Congregational Christian Church of Samoa, a Roman Catholic Church, Latter Day Saints and Methodist church with 32 percent, 19 percent, 15 percent and 14 percent of the population belonging to these denominations, respectively (Samoa Bureau of Statistics, 2012).

Samoa was ruled by Germany during the late 19th century until 29th August 1914 when New Zealand troops landed in German Samoa and established a period of colonial rule that was to last for almost 50 years (Field, 1984, 1991). Samoa officially became independent on 1st June 1962 after the successful Mau movement, which ended a period of New Zealand administration. The Mau movement (or opinion movement), established in 1908, was a declaration of pacifism and non-violence and a commitment to democracy. In 1953 preparations started for the transition to independence which was finally obtained in January 1962, making Samoa the first South Pacific Island nation to attain such status. Upon gaining its independence, the country was officially known as Western Samoa until it was renamed Samoa by a change to the constitution in 1997 (www.parliament.gov.ws).

In the first five days of June 2012, Samoa celebrated its 50 years of peaceful political independence with a lot of colourful festivities and religious celebrations as Samoa is one of the strong adherents to the Christian faith. This faith is well-recognised in Samoa's constitution which stated that "Samoa is founded on God". This motto is symbolised in the national emblem of the government of Samoa.

Samoa is a parliamentary democracy. The parliament consists of the head of state and the legislative assembly. There are 49 members in the legislative assembly and they are chosen through an electoral vote every five years. The next election is to be held in March 2016. To be able to run for the election, candidates have to be holders of Matai (Chiefly) titles.

The Head of State holds supreme authority and is elected by the members of parliament for a five-year term. The current Head of State, Tuiatua Tupua Tamasese Efi succeeded the late MalietoaTanumafili II in 2007. The Cabinet has the responsibility to provide general direction and control of the executive government of Samoa and reports to the parliament. The Prime Minister is chosen by the Cabinet. Since 1998, the position of the Prime Minister is being held by Tuilaepa Sailele Malielegaoi.

Economy

The Samoan economy over the past 5 years (2010-2014) was growing at a moderate rate with an average annual growth of 1.5 percent. The main contributors to growth in the last 5 years were commerce (1.4 percentage points) and public administration (0.4 percentage points). Total GDP at constant 2009 prices in 2014 amounted to ST$1,711.7million; an increase of 1.6 percent over that of 2013.

In nominal terms, the economy generated a total GDP of $1,920.7million, increasing by 3.3percent over the year 2013. GDP per capita was equivalent to ST10, 185[1], the highest GDP per capita ever achieved by the economy. It went up by 3.1percent compared to 2013. The Samoan economy has recovered following the global economic crisis in 2008/2009, the tsunami in 2009 and more recently cyclone Evan which struck the country in late 2012, all of which affected economic activities in the years concerned.

[1] ST = Samoan Tala (GDP per capita = 10,185SAT ≈ USD4121 (2014)

The improved performance in some industries (i.e. commerce) in the year 2014 was fuelled by the activities related to the preparation and hosting of the UN Small Island Developing States (SIDS) conference[2] by the country as well as the recovery and rehabilitation efforts put forward by the government, the private sector and the international organizations following the global economic crisis and natural disasters. Moreover, the recent growth also reflects structural changes in the economy and generally good weather conditions which have boosted economic activities in almost all the industries during the year.

In terms of GDP composition, the tertiary sector[3]remains the largest contributor to total GDP at current prices in 2014 with a share of 57.8 percent. Commerce is the leading contributor to total GDP having a share of 32.4 percent. Secondary Sector[4] became second largest contributor to aggregate GDP with a share of 25.2 percent. The sector continues to decline due to the poor performance from the other manufacturing industry. Construction was the second largest contributor to overall GDP having a share of 10.2 percent; this was equivalent to 40.6 percent of the Secondary Sector. Primary Sector[5] share to total GDP was 9.4 percent in 2014 declining by 4.1 percent compared to 2013 (Samoa Bureau of Statistics, 2015).

Farming systems

Samoa's farming systems are characterized by closely independent production activities that cut across the crops, livestock, fisheries and forestry sub-sectors. The latest Agricultural Census in 2009 reported that 32 percent of the total households were Non Agriculturally Active (Non Agricultural and Minor Agricultural households) and 68 percent were Agriculturally Active (including Subsistence (Home Consumption only), Mainly for Home Consumption and Mainly for Sale Households). The majority of households in Samoa are engaged in agriculture in one form or another. In 2009, 84 percent of households were engaged in crop growing, 69 percent kept livestock, and 25 percent were engaged in fisheries.

Although the contribution of the agriculture sector to GDP has declined from 19 percent in 1999 to just over 10 percent in 2009, agriculture production remains a very important source of food security and provides income to meet other basic needs. The challenge therefore is to reverse this decline and to restore agriculture to its former prominent role as the main driver of Samoa's sustained growth, food security, trade development and employment creation.

Traditionally the production of tree and food crops has dominated Samoa's agriculture. Samoa's 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. (Samoa Bureau of Statistics, 2012)

[2]The SIDS conference was held early September 2014 and commerce industries show an increase of 8.3 percent from the same quarter of the previous year.
[3]Tertiary sector consist of 8 industries (Commerce, Accommodation& Restaurant, Transportation, Communication, Financial Services, Business Services, Ownership of dwellings, Personal and other services)
[4] Secondary sector consist of 4 industries (Constructions, Electricity & Water, Food & Beverages, Other manufacturing)
[5] Primary Sector consist of 2 industries (Agriculture and Fishing)

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 (Fantastic sheep) from Fiji in 2004 and its interesting to note that this initiative shows a steady increase in terms of number of farmers that are interested to take-up the project as well as the steady increase of sheep production. These were raised by the Ministry of Agriculture and have been distributed to some farmers.

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

Samoa Bureau of Statistics

The vision for the Samoa Bureau of Statistics is "to strengthen the statistical services for the development of Samoa". This miraculous initiative has become the solid foundation of statistical services aimed at improving not only the quality of outputs in terms of data quality but also setting a new benchmark for SBS in the coordination, communication and dissemination, statistical standards and best practices in providing their services. This has also act as the main driving tool for the *Samoa Strategy for Development of Statistics* which is a framework aimed at rebuilding statistical capacity and strengthening coordination across the agencies responsible for collecting data. It specifically seeks to strengthen the capacity of the central statistics organisation in carrying out its mandated function of collecting, compiling and disseminating official statistics as well as coordinating and integrating all statistical activities within the national system

Our mission is to incorporate best practices in providing quality official statistics for all stakeholders. The SBS is now looking ahead in investing reliable and more effective infrastructure through enhanced partnerships, that provides and promotes the most cost effective and efficient production, management and use of quality statistical information and services for evidence based policy, decision making, monitoring development programs and meeting international commitments.

Samoa Bureau of Statistics Current Status

The Samoa Bureau of Statistics developed under a **decentralized statistical system,** meaning that the SBS is not the sole agency that's responsible for the collecting, compiling and disseminating of official statistics. It has a branching network with other ministries and corporations in accordance with each respective mandates under their jurisdiction.

The decentralisation of statistical collection is considered as being advantageous for expeditious responses to individual administrative objectives as well as the accumulation of specialized knowledge with the hope that each ministries and corporations must developed their official statistics as an information infrastructure in a friendly manner that can be used broadly and effectively by various major entities, rather

than solely being used for individual administrative objectives. However, it is believed that this decentralised statistical system can lead to inefficiencies, duplication and a tendency for some agencies to be over-protective of their data if not properly managed and monitored.

Divisional Mandated Functional Structure

Within the SBS there are 4 major divisions plus 2 operational divisions making up the backbone of Samoa Statistics Services. Each division have their own unique mandated functions and responsibilities within the bureau. The highlighted activities are the main sources of Agricultural Statistics implemented by the Statistics Bureau in given timelines and executing divisions.

Following are the Divisions **mandated deliverables** and scheduled timelines:

1. **Census and Survey Division:**
   - ***Census of Population and Dwelling*** — ***5 year period***
   - Demographic Health Survey — 2.5 years – 3 yearly in the future
   - Population related report — continuous
   - GIS maps and household lists — continuous
   - ***Sampling Frame and Data collection*** — ***on needs basis***
2. **Economic Statistics Division**
   - Trade (imports and exports) — monthly basis
   - CPI — monthly
   - International Comparison Programme (ICP) — quarterly
   - Infrastructure statistics — 6 monthly
   - Household Income and Expenditure Survey — 5 years
   - ***Agriculture census*** — ***10 year census***
   - ***Agriculture survey*** — ***annual***
   - Producer Market Survey — every Friday
3. **National Account and Finance Statistics Division:**
   - National Accounts Report — quarterly
   - Employment statistics — quarterly
   - Government Finance statistics — quarterly and annually
   - ***Business Activity Survey*** — ***5 yearly***
4. **Social Statistics Division**
   - Migration Report produced — monthly, quarterly, annual basis
   - Statistical Abstract Publication — annual
   - Tourism Expenditure Survey — 3 yearly

CHAPTER TWO: SAMPLING METHODOLOGY AND PROCEDURES

SBS Statistical Division

The island of Samoa is divided into four statistical regions namely Apia Urban Area (AUA), North West Upolu (NWU), Rest of Upolu (RoU) and Savaii for statistical purposes. These four regions are further sub divided into 43 political districts, which are further sub divided into 330 villages. Villages are further sub divided into Enumeration Area (EA) or cluster, 876 in total.

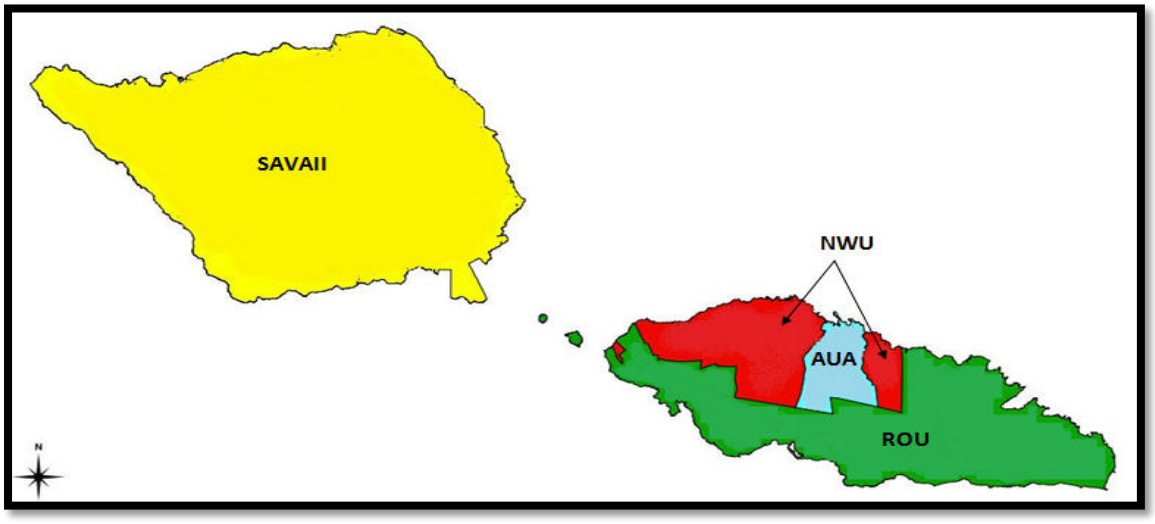
Summary of Samoa's main domains

Region	AUA	NWU	ROU	SAV	TOTAL
Districts	2	8	14	19	43
Villages	63	54	111	102	330
Enumeration Areas	167	218	237	254	876
Households	5388	8777	5925	6115	26205

The Census of Population and Housing is the most important source of statistical information for planning and policy making purposes. It provides a complete coverage of the total population and it entails a great deal of information relating to social, economic and demographic characteristics of the population. The last Population and Housing Census conducted in 2011 recorded a total population of 187,820 people and 26,205 households.

This census frame 2011 is the basis for the **sampling frame** to select a representative sample of the target population for any surveys within the five years period until the next census is conducted. The rationale behind this was that Samoan households do not move frequently as experienced in other countries as well as other major reasons such as time limitations and cost implications of the listing procedures; which will take at least another three months to carry out, which therefore a fresh household listing is not deemed necessary to conduct before any sample surveys.

Map of Statistical Regions



Sampling Design

In stratified sampling by SBS, the four statistical regions have always been treated as the four **strata;** with the AUA region representing the **urban population,** and, the other three regions to represent the **rural population** in Samoa.

In order to achieve unbiased survey results and to provide confidence intervals of estimates, it is essential to use **scientific probability sampling**. Probability sampling is the only method by which sampling errors can be determined for selecting a "sample population" instead of the total population (census) to derive population estimates.

The sampling design used by SBS to select sample surveys is called a **"2-stage cluster sampling procedure"** without replacement**.** A **cluster** is a group of adjacent households which is served as the **primary sampling units (PSU)** for field work efficiency. At SBS, **the cluster is the enumeration area (EA**) with a measure of size equal to the number of households, or, the total population in the EA.

In the *2-stage cluster sampling*, the **first stage** of selection is: a stratified sample of EAs will be selected with *probability proportion to size (PPS*): in each stratum (region), a sample of predetermined number of EAs is selected independently with probability proportional to the EA's measure of size. We normally prefer 10 percent of the household count as a recommended sample size for most survey however; this size can be changed based on specific requirements of each surveys.

In the **second stage** of selection, a fixed number of households are selected by *equal probability systematic sampling* in the selected EAs. In SBS we normally allocate a fixed number of 5 households in the Urban Area (AUA) and 10 households for all the rural regions due to the higher transportation costs in those regions.

Agriculture Survey Practice (with reference to Agriculture Survey 2015)

The above sample design is suitable for a general household survey such as HIES and many other household based surveys conducted by the Bureau. It could also be used for the planned agricultural survey however, because the survey is focussed on agricultural activities, a consultation between the FAO representative and the Ministry of Agriculture and Fisheries and the Samoa Bureau of Statistics have come to a decision to make use of the available agriculture-related information in the sample design. This would provide more reliable survey estimates. Thus, households reporting agricultural land or livestock in the census could be sampled more heavily than those without agricultural land or livestock and also, households with large land or livestock holdings could be sampled more heavily than those with little land or livestock.

The survey covers both households and institutions engaged in agriculture and a list of institutions provided from the Ministry of Agriculture and Fisheries (MAF) is used for this part. For the household sector the Population Census 2011 framework is used to draw the appropriate sample of households.

Sample design issues were discussed during the consultation with core partners and there was general agreement on the approach to be used. The initial thinking is that the sample will be selected using stratified sampling along the following lines (Annex 1):

Stratum 1: Households with: more than 100 cattle; or 200 pigs or more; or 500 chickens or more (or with 20 or more acres of crops in AUA): *all unit identified will be enumerated.*

Stratum 2: Households with between 51 and 100 cattle were systematically sample with every second household selected. This stratum was defined based on size criteria for number of cattle that were identified from the Population Census 2011 (livestock numbers)

Stratum 3: Households with 10 or more acres of crops (except in AUA), this stratum was defined based on size criteria of agricultural land that were identified from the Agricultural Census 2009 (area of agricultural land)

Stratum 4: Households with between 31 and 50 cattle were systematically sample with every fourth household selected.

Stratum 5: All other households with a sample size of 10% from the master sample frame using the same procedures of stratified sample of selected EAs with *probability proportion to size* (*PP*S), and households selection by *equal probability systematic sampling* in the selected EAs with a fixed number of 5 households in the Urban are and 10 households in all other regions.

Stratum 6: Institutional holdings that were identified by the Ministry of Agriculture and Fisheries and all unit identified will be enumerated.

Agricultural Census 2009 Practice and Methodology

The Agricultural Census 2009 was conducted by SBS in collaboration with MAF. Funding was provided by the Government of Samoa and the Australian Agency for International Development (AusAID). Technical support in data processing was provided by the Secretariat of the Pacific Community (SPC). Enumeration was conducted over a five-week period in November/December 2009. Data collection was done by specially recruited enumerators, supervised by officers from SBS and MAF. The frame for the census was the list of households from the Population Census 2006.

The methodology was a combination of **complete enumeration** and **sampling**. There were three components:

- All households were enumerated to collect data on household composition, livestock, fisheries, farm equipment, consumption of major crops, and forestry. Questions were asked to determine whether the household was an agricultural household; that is, whether they were engaged in crop production. Data for this component were collected using the *Household Form*.

- No further data were collected for non-agricultural households. Agricultural households were further interviewed using the *Holding Form*. On this form, agricultural holdings were first identified, and then data were collected for each agricultural holding on: land parcels, labour inputs, agricultural income, farm credit, use of fertilizers and other inputs, and crops grown. The agricultural holding was defined as an economic unit of agricultural production, in accordance with FAO definitions[6].

- A sample of **25 percent** of all agricultural holdings as identified in the household form was selected using the **systematic sample** basis (***every fourth holding selected***) to collect more detailed crop data using the *Parcel Form*. For each parcel, all crops grown were identified and data collected on the area, number of trees or plants, age of tree crops, and proportion of produce sold.

Sampling Tools

The Samoa Bureau of Statistics use a programmed excel template specifically for sampling procedures created by a sampling specialist Dr. Rullin Ren from ICF Macro International. This template consists of several steps that need to be completed in order to reach to the final selection of sample households.

[6] See *A System of Integrated Agricultural Censuses and Surveys, Volume 1, World Programme for the Census of Agriculture 2010,* FAO Rome. 2005.

The first stage is to detect the sample size and the 95 % confident limits. After obtaining the required sample size with its expected response rate, the next step is to transfer the sample size to the second template where the allocation of clusters/EAs among four statistical regions based on their proportion of household count. As mentioned earlier, a cluster size of 10 is always allocated for the rural regions and 5 for the urban area. The third stage is where the sampling method of stratified systematic sampling with probability proportional to size is used to select the final districts, villages and enumeration areas. The final stage is the systematic sampling with equal probability method and this is to process the final household selection needed for the sample size selected.

Constraints and Way forward

The only problem that we encountered when using the sampling template technique is that there is a high probability for households in bigger Enumeration Areas to be selected over and over again compared to households in smaller EAs. In some villages, we have EAs that have less than 10's, 20's or 30's households however the requirement of the sampling techniques is that EAs must have 50 or more households per EA so that there is a low chance of selecting the same household in a number of surveys. The sampling unit of the Census and Survey Division is now taking positive measures as advised by Mr Rullin Ren to merge adjacent EAs within the same village so that all EAs have the same chance of getting selected.

MAF Background

The Ministry of Agriculture and Fisheries (MAF) is the principal organisation which provides regulatory and technical advice, training, and support for subsistence farmers, commercial farmers, agri-processors, and exporters to effectively manage and use the potential in agriculture and fisheries for food security, income generating opportunities, commercial development, and sustainable management of resources. MAF's vision is: Self sufficiency in food and increased income generating opportunities in farming.

MAF's long term goals are:

1. Improved Food Security
2. Improved Commercial Development
3. Sustainable Agricultural Production

The Ministry plays an important role in the economy of Samoa through the implementation of positive measures in monitoring and improving the status of agricultural practices within the country. The Ministry roles are as follows:

- To conduct research, provide advisory services, and undertake development to improve crop production for subsistence and commercial producers, processors and marketers.
- To conduct research, provide advisory services, and undertake development to improve livestock production for subsistence and commercial producers, processors and marketers.
- To conduct research, provide advisory services, undertake development, and conduct monitoring to encourage and promote community involvement in in-shore fisheries, aquaculture, private sector investment in commercial fisheries, and adoption of sustainable fisheries practices.
- To conduct research, provide advisory services, undertake development, and conduct monitoring to prevent the introduction and spread of unwanted agricultural pests and diseases, whilst facilitating the import and export of commodities, in compliance with international agreements and obligations. This Division also regulates and monitors the importation and use of pesticides.
- To conduct research, provide advisory services, publish information newsletters and coordinate radio talk back shows for the public on issues faced by the agricultural and fishery sectors, and coordinate and facilitate development projects to improve these sectors.

Sampling framework and procedures

The Ministry host an annual event called the "Samoa Agriculture Show" where farmers and vegetable growers from all around the country are invited to show case products and their hard work throughout the year. The initiative primarily target local farmers and growers at large with the aim to improve and sustain the agriculture practices and production within the country. The Ministry also use this show as the best and only way to capture vital information and compile a frame of all farmers in the country through a registration system and this practice is a continuous effort of the ministry every year. This registration will assist the ministry with their future surveys and other monitoring activities.

The methodology used by the Ministry of Agriculture and Fisheries is a combination of both full enumerations of all the registered farmers as well as random sampling method depending on the scope of each survey.

Constraints

The main issue encountered by the ministry in collecting agricultural statistics is obtaining a good and reliable frame of agricultural households and farmers for them to collect reliable and more representative statistics. It has been noticed by the ministry that some farmers that were registered in the previous agriculture show did not turn up in the recent activity and the ministry have to change the list over and over again.

CONCLUSION

Samoa has a rich tradition of Agriculture census and survey taking in the past years and collecting and compiling of these statistics become quite challenging in many ways because Samoa have a very fragile environment and it is prone to natural disasters. However massive commitments put forward by various government ministries with the Ministry of Agriculture and Fisheries as the leading agent, private communities as well as the public in general in shaping to what the agriculture sector it is today in terms of development as well as its progress in achieving most of its goals. The Samoa Bureau of Statistics is conducting the Agriculture Survey at the moment and it is the high hope of the Bureau that this milestone survey will reveal great improvement in most areas of the Agriculture and Fishing in the country.

It is the hope that participating in this second regional training course on sampling methods for producing core data items for agricultural and rural statistics will help elaborate and strengthen my knowledge and skills in all aspects pertaining to sampling methodology and procedures as well as gaining fresh ideas on some of following areas which I personally believe that requires a lot of improvements:

- Determine suitable strategies in terms of sampling frame and sampling techniques in producing of agricultural statistics and conducting of Agriculture Surveys in Samoa
- Experiences from other countries sampling techniques for Agriculture survey
- Types of data collection tools used for the ease of data collection

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ANNEX 1

Samoa Agricultural Survey - Sample Design

Region	Household sector													Institutions	
	Stratum 1		Stratum 2		Stratum 3		Stratum 4		Stratum 5			Total		Stratum 6	
	No. of h'holds	Sample h'holds	No. of h'holds	Sample h'holds	No. of h'holds	Sample h'holds	No. of h'holds	Sample h'holds	No. of h'holds	Sample clusters	Sample h'holds	No. of h'holds	Sample h'holds	No. of units	Sample units
Apia Urban Area	4	4	14	7	-	-	14	4	5,333	113	560	5,365	575	6	6
North West Upolu	5	5	8	4	11	6	15	4	8,723	92	916	8,762	935	-	-
Rest of Upolu	3	3	25	13	4	2	38	9	5,876	62	617	5,946	644	-	-
Savaii	6	6	23	12	-	-	36	9	6,066	64	637	6,131	664	-	-
TOTAL	**18**	**18**	**70**	**36**	**15**	**8**	**103**	**26**	**25,999**	**331**	**2,730**	**26,205**	**2,818**	**6**	**6**

Stratum 1. Households with: more than 100 cattle; or 200 pigs or more; or 500 chickens or more (or with 20 or more acres of crops in AUA).
Stratum 2. Households with between 51 and 100 cattle.
Stratum 3. Households with 10 or more acres of crops (except in AUA).
Stratum 4 . Households with between 31 and 50 cattle.
Stratum 5. All other households.
Stratum 6. Institutional holdings.