CHAPTER 1 – METHODOLOGY

1.1 Introduction

This was the second Agricultural Census to be conducted in Niue since the last one in 1989. As well as collecting information on agriculture, the census also included some detail information on the population to provide the Government with up-to-date information on some important population parameters.

Although this as only the second agricultural census to be conducted in Niue, the country has a long history of Population activities and has gained experiences in data collection. Nevertheless, Food and Agricultural Organization of the United Nations (FAO) provided technical assistance under TCP/Niue/3101 through the services of an Agricultural Census Expert and a Data Processing Expert.

1.2 Census Administration

The Agricultural Census was conducted by the Statistic Niue (SN) in close collaboration with the Department of Agriculture, Forestry and Fisheries (DAFF). The Niue Government Statistician assumes responsibility for the day-to-day activities of the census including the supervision of the fieldwork and the checking, editing and coding of the completed questionnaires.

The Agricultural census was taken under the authority of the Niue Census Act 2009.

1.3 The Questionnaires

The questionnaire was designed by the FAO Agricultural Statistics Expert in consultation with SN and DAFF. The design followed closely that used in the Samoa Agricultural Census, 1999, with some modifications taking into account the differences in agricultural emphasis in the two countries.

Altogether, three questionnaires were used.

1 Household Form

2 Holding Form

3 Parcel Form.

The following information was required from all households.

(i) Location of household

(ii) Date of birth, sex, Age, Decent, Country of Residence for all persons

(iii) Educational Attainment, Main Activity, Hours worked in the Holding and Operator Status for persons 10 years and over

(iv) Level of Agricultural Activity

(v) Livestock, Poultry and Domestic Animals

(vi) Household Fishing Activities (fishing methods, Number of fishing trips, persons involved in fishing, proportion of catch sold, number of canoes ,dinghies and outboard motors owned or hired.

(vii) Number of Uga caught and method of Catching

(viii) Consumption of Major crops(drinking Nuts, Matured Coconuts, Green and Ripe Bananas, Taro, Cassava and Papaya

(ix) Number of Coconuts for Feeding Animals.

Additionally, the households identified as 'agriculturally Active, these information were collect.

(x) Number of Holdings, Number of parcels and method of Operation.

(xi) Total Area of Holding, Land Tenure, Land Use and Proportion of crops Damaged by wild Pigs.

(xii) Labour Inputs by Non-Household Members (wages and Other Benefits)

(xiii) Agricultural Income and Credit

(xiv) Use of Fertilizers and Chemicals (Insecticides, Herbicides and Fungicides)

(xv) Equipment owned, hired or Borrowed (knapsack Sprayer, Wheelbarrow, Chainsaw, Electric Generator, Brush Cutter, Planting Stick and Rotary Hoe)

(xvi) Land clearing Using Bulldozer

(xvii) Crops Grown and Crops Main Use

(xviii) Crop Grown in a Plot, Plot Area, Method of Sowing, Proportion of Mix and Number of Trees/Plants)

(xix) Crops Planted and harvested in 2009 (Area and/or Number of Plants Harvested and Proportion Sold)

The questionnaires were design such that households with no or very little agricultural activities (Non and Minor agricultural households) completed only the Household form.

An Enumeration Manual was also prepared as a reference document.

1.4 Recruitment and Training of Enumerators

Recruitment: The recruitment of census enumerators and other census workers were mainly of government employees from different government departments but more from the Department of Agriculture, Forestry and Fisheries (DAFF) and former employees (now retired) of DAFF. The consideration of their recruitment was based on their:

- experience as enumerators of previous censuses project so the concept was not new to them,
- basic knowledge of the content of the census, the definitions of crops, livestock and others; and
- basic knowledge of their prescribed area of enumeration, the residents and land of use making easy for them to relate to the householders and land they use for agricultural production.

Training: Training was conduct over a period of two weeks in three different days. Day one was in September 2009 for a full day with the census expert from FAO and Day two for the Field Supervisors and Data Operators and Day three for everyone in the team with the Government Statistician and Senior officials from DAFF.

The first training session with the enumerators concentrated on the concepts and definitions employed in the census. The enumerators also conduct mock interviews amongst themselves and completed sample copies of the questionnaires. This not only gave them some necessary practical experience in completing the questionnaires but also served to highlight those aspects of the questionnaires that were not fully understood by all the enumerators.

The second training session was divided into two sections; the first with the field supervisors and the second for the data operators. With the field supervisors, the training at first was similar to that of the above in term of familiarizing with the concepts and definitions and gradually more on the supervisory and management of the interviewers out in the field doing the interviews and filling of questionnaires. There was a concentration of 'checks' to filled questionnaires and handling of hard cases and /or refusals. With the data operators, there was familiarization with the questionnaires and the flow of questions and codes used in the census.

The third training session served to bring the whole team together so they will know who they are working with and to highlight any aspect of the census that were not fully understood by enumerators, supervisors and data operators.

1.5 The Enumeration

The country was divided to 21 Enumeration Areas (EAs) for the enumeration purposes. This division was based on the Population and Household Census 2006. There were 30 EAs in the first Agriculture Census in 1989 and the decline of number of EAs to 21 this time was the direct result of the declining population and number of households.

The household list of the 2006 census was update and used for this Agriculture census. The final updating of the household lists was carried out by the statistics office staff and the enumerators on the evening of the 4th of November 2009 and the pre-census count of the population and households was done. However the 'Census Night' for the count of the population and households was set for the weekend of 21 November 2009.

The enumeration and filling of questionnaires of households began on the 9th November and concludes 22nd November 2009 for period of 2 weeks. This period of the survey was thought to be necessary as the enumerators were expected to work 2 to 3 hours in the evenings considering the appropriate time respondents of households returned home from their normal day activities.

There were 3 different questionnaires: The Household form, The Holding form and The Parcel form to be completed for each of the households depending on the level of Agricultural activity of the household. The enumerator is expected to take about up to an hour to complete the three questionnaires. No major problems were experienced with the enumeration and all households were covered during the allotted time.

The tasks of the enumerators were undoubtedly facilitated by the fact that not only they were selected from the EAs there were familiar with but with less than 500 households in Niue most individuals knew each other and their activities. The field supervisors were tasked to make regular checks with the enumerators about the progress of their work and report to the Census manager (Government Statistician) on a day to day basis.

Overall the standard of enumeration was very high. The enumerators and field supervisors have ensured not only to collect from respondents of households' accurate and complete information but also to observe and uphold the legal provisions of taking the census.

1.6 Checking, Editing and Coding.

It is standard practice that as each enumeration area was completed the forms were first checked by the field supervisors for missing information and obvious inconsistencies. Omissions and errors identified at this stage were corrected by the enumerators.

The next stage was for the field supervisors to go through the completed forms again in the office to check in more detail for omissions and logical inconsistencies. Where they were found, the supervisors were responsible to take the necessary action.

Once the questionnaires had been thoroughly checked and edited, they were then coded in preparation for data processing.

Checking, editing and coding of the questionnaires in office were done after normal working hours as to ensure that the confidentiality of the survey is well observed.

1.7 Data Processing.

The data was entered using two office computers of Statistics Niue with a custom designed CSPro database software by a computer programmer from The National Statistics office of the Philippines . Data entry was successfully done in a week.

The next stage of processing, on line editing and cleaning in preparation for tabulation was not straight forward as expected because of these issues: the programmer assigned by FAO for the census was based in the Philippines and was only available on part time basis, the census expert (consultant) was based in Samoa and was also available on part time basis while the rest of the team was in the Niue office. The 'distance' between the parties, the day and time differences had became a hurdle to the smooth running of the final stages of data processing, cleaning and tabulation of the data and not to mention the difficulties in the communication systems. The progress was very much depended on the availability of internet communications and they were times it has broken down. These composite issues have delayed the final stages of data processing dramatically.

1.8 The Post-Enumeration Survey.

As with all major fieldwork exercises it is important to conduct an independent assessment of the quality of the information gathered. In the case of the Agriculture Census, the most important component to be evaluated was the estimates of land area and root crops sown.

Whilst the census was conducted on an interview basis it was felt desirable that the post-enumeration survey should use objective measurement techniques (compass and tape-measure) to measure the physical area of the selected parcels of land. The office was very aware of the timing involved in conducting such survey so it was decided to enumerate only 20 parcels and plots contained therein, 10 parcels with crops currently growing in, 5 fallow parcels and 5 new parcels. Both the total area of the parcel and the area of plots were measured. A count of crops was done to 3 parcels with crops growing on it.

The results of the survey revealed some differences between the areas recorded in the census interview and the physical area as measured. This was very obvious on the areas that were slashed and burnt, and areas where there were bush or wild fires. The areas cleared by a bulldozer were fairly accurate.

On the basis of the results of this small post-enumeration survey it can be concluded that whilst individual area estimates may differ considerable from the actual physical area, within the country as a whole, and to a lesser extent individual village areas, these differences can be expected to balance each other out with little overall effect on the results. There is a slight exception in the cases of fallow parcels/land and new parcels where there were some evidence to conclude that the areas were probably underestimated.