NATIONAL STATISTICAL OFFICE

# Household Selection

## 2009 HIES Sampling Methodology

**February 2009**

**2009 Household Income & Expenditure Survey**

National Statistical Office
P.O. Box 337, Waigani
National Capital District

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## 1.0 INTRODUCTION

The purpose of this guide is to assist supervisors, quality controllers and interviewers understand the sampling methodology involved in the selection of households for the 2008-09 Household Income & Expenditure Survey.

### 1.1 <u>Objectives of the HIES</u>

The principal objective of the 2008-09 HIES is to generate household consumption data that could be used to rebase the Consumer Price Index (CPI) and also to collect data on important socio-economic and living standard indicators and behaviors which are crucial for informing policy in the country.

The sampling plan to meet these objectives was developed by consultant Juan Munoz, from Sistemas Integrales (Santiago, Chile), who was closely assisted by the NSO staff.

This sampling plan uses the NSO's 2000 census unit register as the sampling frame on which to apply the CU selection processes. Before this register is used, some CUs are excluded from it because of their inaccessibility or insecurity.

The plan is to visit **4320 households** during the main enumeration. The selection process is in two stages and uses several sampling methods:

- Stratified sampling
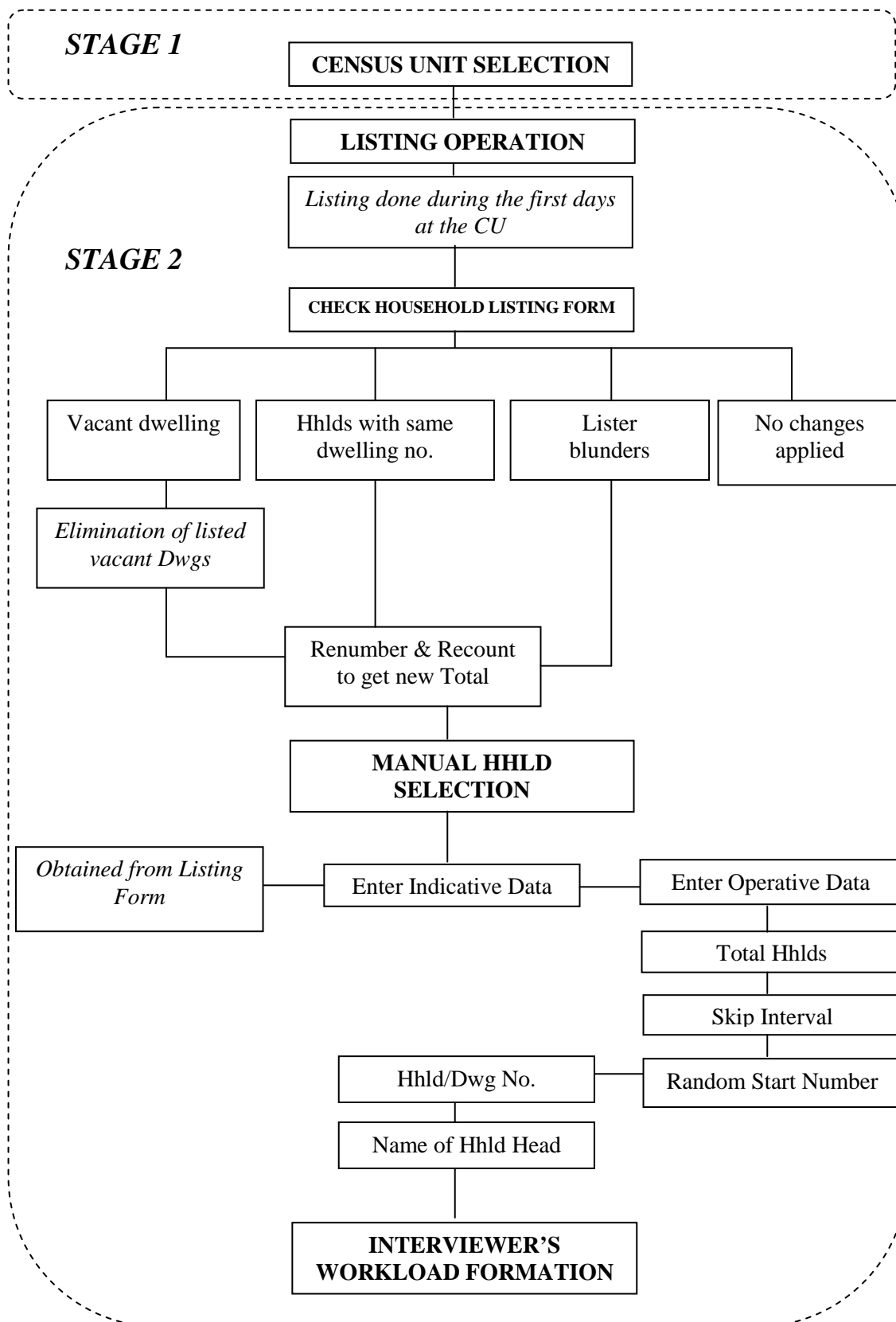- Probability Proportional to Size (PPS)
- Systematic Sampling

**Stage One:** The first stage of selection involves the random selection of census units (CUs). Before the CUs are selected the country is divided into strata (or regions): the Southern, the Highlands, Momase, and the Islands. This method is known as **Stratified sampling**.

In these strata there will be a combination of metropolitan, other urban and rural households interviewed. The CUs will be selected as **clusters** from these strata with **probability proportional to size (PPS)**. For example, in Southern 24 rural CUs will be selected, and in Islands 12 urban CUs will be selected, etc.

**Stage Two:** Once the CUs are selected, the second stage will be to select 18 households from the CUs. Household listing has to take place before the selection process is done. The 18 households will be randomly selected (**systematically**) from the household listing form.

There will be 4-6 (i.e. more in urban areas) replacement households selected for each CU in case originally selected households cannot be interviewed (refusal, absence, illness in family, etc), so that the total interviewed should be 4320 households.

# 2008-09 HIES SAMPLING METHODOLOGY FLOW CHART

*STAGE 1*

**CENSUS UNIT SELECTION**

**LISTING OPERATION**

*Listing done during the first days at the CU*

*STAGE 2*

**CHECK HOUSEHOLD LISTING FORM**

| Vacant dwelling | Hhlds with same dwelling no. | Lister blunders | No changes applied |
|---|---|---|---|

*Elimination of listed vacant Dwgs*

Renumber & Recount to get new Total

**MANUAL HHLD SELECTION**

*Obtained from Listing Form* — Enter Indicative Data — Enter Operative Data

Total Hhlds

Skip Interval

Hhld/Dwg No. — Random Start Number

Name of Hhld Head

**INTERVIEWER'S WORKLOAD FORMATION**

## 2.0    2008-09 HIES HOUSEHOLD SELECTION

**Household Selection** is the Sampling process of selecting households from a selected census unit so that by studying these households we may fairly generalize our results back to the population from which they are chosen. A **sample** (i.e. the selected households) is a group that is selected to study as a representative of the true population for a given experiment. The study is often conducted to understand how the population will react to an item by first testing it on a sample that represents the population that the item will target.

The 2008-09 HIES aims to select 18 households from each selected census unit throughout PNG, to carry out questionnaires that will try to satisfy the main objectives of the survey.

As shown in the flow chart in the previous page, household selection is the last phase of the sampling methodology for this survey. This process alone requires certain operations in order for it to be effective successfully.

One major operation is the **Household Listing**. The purpose of the listing operation is basically to collect a list of households and household head names within the selected CU, on which to perform the household selection. This operation is carried out after CUs are selected prior to the main enumeration.

The listing of households is recorded on the **Household Listing Form**, which is an important instrument on which to perform the household selections.

When the listing is complete, your task will be to

**1.**    Check the Household Listing Form to have it ready for household selection

**2.**    Apply the necessary sampling method to come up with the selected households.


## 2.1    <u>Checking the completed household listing form</u>

This operation is purposely to prepare the household listing form for the actual household selection operation.

This operation requires you to

1.    Eliminate any errors made during listing

2.    Renumber after elimination of errors (i.e. if one or more dwellings are omitted due to duplication, etc)

3.    Allocate numbers to households in same dwelling, i.e. if two or more households are found in the same dwelling

4.    Renumber when two CUs are merged due to the initial selected CU having households less than or equal to the sample size (18 households).

**IMPORTANT:** In relation to the Listing procedures, the listing form is correct as it is, except for those mistakes made during listing/recording (*section 2.1.3*). The renumbering of the dwelling numbers in the listing form is purposely to get the exact number of households that are potential for the household selection.

The allocation/renumbering of dwelling numbers in the listing form due to more than one household found within a dwelling, is because of the emphasis on the sample target of exactly 4320 households to be visited nationwide. Therefore, only one household has to be selected within a particular dwelling.

Listed below are examples of what you are going to do when you come across some of these problems;

## 2.1.1. Vacant Private Dwellings

- You will find that some forms will have dwelling numbers for dwellings which are vacant.

- You are going to cross them out, that is eliminating them from the list. Therefore they should have no chance of being selected.

- You are also going to renumber after crossing out all vacant private dwellings.

- Referring to the example below, dwelling numbers **009, 10,11,12,13**, and **015** will become **008, 09,10,11,12,** and **013** respectively.

*Example showing part of a completed household listing form with vacant dwellings being crossed out and renumbered:*

| LOCALITY | PORTION | | | HOUSE | DWELLING | FURTHER IDENTIFICATION | USUAL RESIDENTS | | | HH |
| Street/Area | or SECTION | LOT | FEATURE | TYPE | NUMBER | Name of Head of the Household / Description of Feature | (Last 6 months) | | | No. |
| | | | | | | | P | M | F | |
| POINCIANA | 4 | 12 | PD | 01 | 001 | FEKORAI SEISEN - HC FB | 6 | 2 | 4 | 1 |
| STREET | | 24 | PD | 01 | 002 | PENE WAI - HC | 5 | 3 | 2 | 1 |
| KALIBOBO | | 25 | NPD | 06 | 901 | TOMASINO GUEST HOUSE | (10) | | | |
| DRIVE | | 13 | PD | 04 | 003 | MATU GREEN - DUPLEX LHS | 4 | 2 | 2 | 1 |
| | | 13 | PD | 04 | 004 | MOKI RED - DUPLEX RHS | 5 | 2 | 3 | 1 |
| | | 14 | PD | 01 | 005 | BALA TOGO - HC FB | 7 | 4 | 3 | 1 |
| | | 15 | PD | 01 | 006 | SIPI GALA - HC | 8 | 4 | 4 | 1 |
| | | 15 | PD | 05 | 007 | SERU MAITI - DQ REAR | 4 | 1 | 3 | 1 |
| | | 16 | VD | 01 | ~~008~~ | DJON DENVA - VACANT | 0 | | | |
| | | 16 | PD | 05 | **008** ~~009~~ | GNIAI GNIAI - DQ REAR | 3 | 2 | 1 | 1 |
| | | 17 | PD | 01 | **009** ~~010~~ | KIRISI ATAM - HC | 10 | 6 | 4 | 1 |
| | | 18 | PD | 01 | **010** ~~011~~ | KEKS LEWA - HC WB | 9 | 4 | 5 | 1 |
| | | 19 | PD | 04 | **011** ~~012~~ | NAKI TAH - DUPLEX LHS | 8 | 5 | 3 | 1 |
| | | 19 | PD | 04 | **012** ~~013~~ | BITA BITA - DUPLEX RHS | 6 | 4 | 2 | 1 |
| | | 20 | PD | 01 | ~~014~~ | KURUNI ABIDO - HC VACANT | 0 | | | |
| | | 21 | PD | 01 | **013** ~~015~~ | SODI MAILU - HC | 6 | 2 | 4 | 1 |

### 2.1.2. Households with Same Dwelling Number

- You will also find in the forms that households belonging to one dwelling have the same dwelling number.

- This listing is not wrong. In regard to the household selection, the two household's are going to be given separate numbers (i.e. dwelling numbers).

- As shown in the example below, Matu Bada and Elias Wambo are two head of households living under one structure (or dwelling).

- You are therefore going to renumber. The dwelling number for Elias Wambo will become **020**, while dwelling number for Guran Dure is going to be **021**. Matu Bada's dwelling number will remain the same.

*Example of a completed household listing form (form 2 of 2) showing households with the same dwelling number being renumbered.*

| | | | | | | HOUSEHOLD LISTING FORM | | | | Form 2 of 2 |
|---|---|---|---|---|---|---|---|---|---|---|

PROVINCE: MADANG **13**    CENSUS UNIT: KALIBOBO DRIVE **150**
DISTRICT: MADANG **02**    CENSUS UNIT TYPE: HIGH COST RESIDENTIAL **41**
LLG: MADANG URBAN **05**    VILLAGE NAME: _____
WARD/URBAN AREA: MADANG URBAN **81**    *Name of Councillor:* _____

*Name of Lister:* OGGY SOGAE    Date (Started): 19 / 04 / 07    (Completed): 19 / 04 / 07

| LOCALITY Street/Area | PORTION or SECTION | LOT | FEATURE | HOUSE TYPE | DWELLING NUMBER | FURTHER IDENTIFICATION Name of Head of the Household / Description of Feature | USUAL RESIDENTS (Last 6 months) P | M | F | HH No. |
|---|---|---|---|---|---|---|---|---|---|---|
| CORALITA | 4 | | PD | 01 | 016 | JOKONI PUKI - HC BRICK | 7 | 5 | 2 | 1 |
| STREET | | | PD | 05 | 017 | SUKU BORO - DQ REAR | 4 | 2 | 2 | 1 |
| ↓ | ↓ | | PD | 01 | 018 | SANAI WAWA - HC | 6 | 4 | 2 | 1 |
| | | | PD | 01 | 019 | MATU BADA - HC | 3 | 2 | 1 | 1 |
| | | | PD | 01 | **020** ~~019~~ | ELIAS WAMBO - HC | 4 | 2 | 2 | 2 |
| | | | PD | 02 | **021** ~~020~~ | GURAN DURE - LC FB | 4 | 1 | 3 | 1 |
| | | | NPD | 06 | 902 | MALELE GUEST HOUSE | (15) | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | Total Persons for this form ⇨ | 28 | 16 | 12 | |

### 2.1.3. Lister's Blunders

- Here you should check for miss-recording or over-recording. Sometimes the lister may give dwelling numbers to vacant lots or features like trade store, church building, abandoned structure, etc.

- You are going to cross them out, that is eliminating them from the list. Therefore they should have no chance of being selected.

- You are then going to renumber after crossing out these features.

## 2.2    Selecting the households

This section will show you how the households are selected from the edited household listing form. The example of the edited list below will be used as the base on which to show how this is done.

*Example of a completed household listing form edited and ready for the household selection:*

**HOUSEHOLD LISTING FORM**   | Form 1 of 1

| PROVINCE: | MADANG | 13 | CENSUS UNIT: | KALIBOBO DRIVE | 150 |
|---|---|---|---|---|---|
| DISTRICT: | MADANG | 02 | CENSUS UNIT TYPE: | HIGH COST RESIDENTIAL | 41 |
| LLG: | MADANG URBAN | 05 | VILLAGE NAME: | | |
| WARD/URBAN AREA: | MADANG URBAN | 81 | *Name of Councillor:* | | |

*Name of Lister:* OGGY SOGAE        *Date (Started):* 19 / 04 / 07        *(Completed):* 19 / 04 / 07

| LOCALITY Street/Area | PORTION or SECTION | LOT | FEATURE | HOUSE TYPE | | DWELLING NUMBER | FURTHER IDENTIFICATION Name of Head of the Household / Description of Feature | USUAL RESIDENTS (Last 6 months) P | M | F | HH No. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| POINCIANA | 4 | 12 | PD | 01 | | 001 | FEKORAI SEISEN - HC FB | 6 | 2 | 4 | 1 |
| STREET | | 24 | PD | 01 | | 002 | PENE WAI - HC | 5 | 3 | 2 | 1 |
| KALIBOBO | | 25 | NPD | 06 | | 901 | TOMASINO GUEST HOUSE | (10) | | | |
| DRIVE | | 13 | PD | 04 | | 003 | MATU GREEN - DUPLEX LHS | 4 | 2 | 2 | 1 |
| | | 13 | PD | 04 | | 004 | MOKI RED - DUPLEX RHS | 5 | 2 | 3 | 1 |
| | | 14 | PD | 01 | | 005 | BALA TOGO - HC FB | 7 | 4 | 3 | 1 |
| | | 15 | VD | 01 | | ~~006~~ | ~~SIPI BALA - HC VACANT~~ | | | | |
| | | 15 | PD | 05 | 006 | ~~007~~ | SERU MAITI - DQ REAR | 4 | 1 | 3 | 1 |
| | | 16 | PD | 01 | 007 | ~~008~~ | DJON DENVA - HC | 6 | 3 | 3 | 1 |
| | | 16 | PD | 05 | 008 | ~~009~~ | GNIAI GNIAI - DQ REAR | 3 | 2 | 1 | 1 |
| | | 17 | PD | 01 | 009 | ~~010~~ | KIRISI ATAM - HC | 10 | 6 | 4 | 1 |
| | | 18 | PD | 01 | 010 | ~~011~~ | KEKS LEWA - HC WB | 9 | 4 | 5 | 1 |
| | | 19 | PD | 04 | 011 | ~~012~~ | NAKI TAH - DUPLEX LHS | 8 | 5 | 3 | 1 |
| | | 19 | PD | 04 | 012 | ~~013~~ | BITA BITA - DUPLEX RHS | 6 | 4 | 2 | 1 |
| | | 20 | PD | 01 | 013 | ~~014~~ | KURUNI ABIDO - HC | 8 | 6 | 2 | 1 |
| | | 21 | PD | 01 | 014 | ~~015~~ | SODI MAILU - HC | 6 | 2 | 4 | 2 |
| | | 22 | VL | | | | VACANT LOT | | | | |
| CORALITA | | 23 | PD | 01 | 015 | ~~016~~ | JOKONI PUKI - HC BRICK | 7 | 5 | 2 | 1 |
| STREET | | 24 | PD | 05 | 016 | ~~017~~ | SUKU BORO - DQ REAR | 4 | 2 | 2 | 1 |
| | | 25 | NPD | 06 | | 902 | SLUMBER GUESTHOUSE | (15) | | | |
| | | 26 | PD | 04 | 017 | ~~018~~ | JIMMY NARU - DUPLEX LHS | 4 | 1 | 3 | 1 |
| | | 27 | PD | 04 | 018 | ~~019~~ | TONY HANS - DUPLEX RHS | 6 | 3 | 3 | 1 |
| | | 28 | PD | 04 | 019 | ~~020~~ | FLIEL KUL - DUPLEX LHS | 3 | 2 | 1 | 1 |
| | | 29 | PD | 04 | 020 | ~~021~~ | NATHAN POLTY - DUPLEX RHS | 5 | 3 | 2 | 1 |
| | | 30 | PD | 01 | 021 | ~~022~~ | MARTIN LINIX - HC | 5 | 1 | 4 | 1 |
| | | 31 | PD | 01 | 022 | ~~023~~ | TOM WARI -HC FB | 8 | 4 | 4 | 1 |
| | | 32 | PD | 01 | 023 | ~~024~~ | MARK KOSKI - HC | 11 | 6 | 5 | 1 |
| | | 33 | PD | 01 | 024 | ~~025~~ | GRAYSON TAU - HC | 9 | 6 | 3 | 1 |
| | | 34 | PD | 01 | 025 | ~~026~~ | MALI HONEA - HC | 10 | 3 | 7 | 1 |
| | | 35 | VD | 01 | | ~~026~~ | ~~LEONARD BASSE - HC~~ | | | | |
| | | 36 | PD | 01 | 026 | ~~027~~ | JASPER WILLIAM - HC FB | 5 | 4 | 1 | 1 |
| | | 37 | PD | 01 | 027 | ~~028~~ | EDLEY NAMBA - HC | 2 | 1 | 1 | 1 |
| | | 38 | PD | 01 | 028 | ~~029~~ | SANAI WAWA - HC | 6 | 4 | 2 | 1 |
| | | | | | | | **TOTAL PERSONS** | 172 | 91 | 81 | |

The **systematic sampling** method will be used to obtain the 18 households from this list and there are three basic steps to it:

**1.**     Determine skip interval

**2.**     Choose random starting point

**3.**     Apply the necessary calculations to choose the households

### 2.2.1   Determining the Skip Interval

- At this point you are going to determine the sampling interval (or constant, **k** being the systematic skip). This formula is used to find the skip interval:

- **k = N/n**

  where, **k** = the skip interval,  **N** = the population size (i.e. the total number of households in the selected cluster), and        **n** = the sample size (i.e. number of households to be selected).

- *Referring to the list above,     N = 28, n =18, and therefore k = 28/18 = 1.6*

- This means that every 1.6th house is chosen after a random starting point between 1 and 1.6 is determined.

### 2.2.2   Choosing a Random Start Number

- **Random start number** is a value chosen between 1 and **k**. The skip then runs through the list from this start.

- The random start number is extracted from a random number table produced from the random number generator tool in Microsoft Excel.

- The random table that you will be using to get the random start values was produced in 2006 for the 2006 Demographic Health Survey (DHS). An example of the Random Number table is shown in page 8.

- *Example:*

  - You know that the skip interval (**k**) is 1.6. The value that you will get from the random number table is between 1 and 1.6.

  - You will start by looking down the table from the first column to find the first value that is greater than 1 and less than 1.6. If it is not in the first column, then you will check column 2, column 3 and so on until you find the appropriate value.

  - *Therefore the value you will get is in the third column, **1.55** (see example in page 8).*

*Example of a Random Number Table being used to obtained a Random Start Number*

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.06 | 28.18 | 9.67 | 40.44 | 29.25 | 23.99 | 17.51 | 44.80 | 41.14 | 37.33 | 8.71 | 42.95 | 35.53 | 25.68 | 15.20 | 0.75 | 4.57 | 18.22 | 7.37 | 8.29 |
| 49.43 | 22.28 | 5.95 | 0.23 | 0.45 | 18.89 | 26.58 | 28.56 | 30.09 | 30.36 | 8.31 | 33.15 | 22.54 | 17.61 | 2.85 | 30.38 | 39.17 | 40.13 | 25.99 | 15.10 |
| 43.80 | 36.33 | 47.80 | 46.29 | 26.97 | 7.12 | 23.10 | 11.77 | 43.11 | 10.48 | 38.98 | 42.18 | 49.84 | 49.98 | 30.57 | 19.62 | 13.31 | 14.86 | 42.01 | 1.19 |
| 18.79 | 4.63 | 33.86 | 2.81 | 0.44 | 45.94 | 13.79 | 13.64 | 29.40 | 34.56 | 41.88 | 36.32 | 24.25 | 10.27 | 37.19 | 23.42 | 22.90 | 47.46 | 37.22 | 5.41 |
| 29.95 | 19.26 | 36.75 | 30.45 | 28.62 | 18.07 | 7.58 | 11.26 | 21.26 | 40.14 | 25.86 | 49.50 | 37.58 | 17.28 | 8.45 | 32.87 | 24.59 | 3.18 | 34.99 | 25.24 |
| 7.37 | 47.48 | 7.08 | 45.26 | 34.64 | 15.15 | 21.33 | 3.52 | 48.33 | 34.16 | 7.66 | 43.86 | 41.08 | 29.10 | 9.57 | 8.89 | 40.86 | 23.76 | 7.78 | 25.20 |
| 36.60 | 20.28 | 13.98 | 28.44 | 34.11 | 37.79 | 36.10 | 23.76 | 6.15 | 18.39 | 41.73 | 1.75 | 25.85 | 33.15 | 21.31 | 5.23 | 47.47 | 46.07 | 27.48 | 17.30 |
| 23.59 | 18.75 | 42.35 | 15.84 | 22.80 | 13.59 | 49.15 | 14.89 | 36.96 | 28.36 | 9.80 | 38.07 | 41.97 | 19.88 | 25.05 | 44.51 | 1.37 | 49.73 | 28.63 | 2.53 |
| 26.57 | 9.70 | 42.15 | 31.34 | 32.88 | 9.89 | 42.11 | 6.17 | 5.50 | 37.16 | 15.70 | 47.05 | 14.30 | 16.82 | 7.01 | 36.65 | 41.73 | 35.40 | 30.01 | 37.36 |
| 12.64 | 7.22 | 0.08 | 3.05 | 40.31 | 42.63 | 10.53 | 5.78 | 27.66 | 0.71 | 5.69 | 22.73 | 37.61 | 34.31 | 27.17 | 3.69 | 21.84 | 10.10 | 34.81 | 14.52 |
| 21.83 | 11.62 | 28.89 | 26.63 | 31.43 | 8.01 | 25.21 | 48.15 | 34.79 | 46.24 | 9.50 | 16.80 | 8.92 | 49.76 | 22.87 | 49.90 | 4.88 | 31.26 | 4.72 | 21.89 |
| 46.58 | 2.42 | 44.73 | 14.50 | 11.37 | 38.45 | 20.54 | 10.10 | 31.40 | 30.21 | 22.58 | 23.32 | 29.89 | 31.74 | 42.74 | 41.44 | 31.24 | 36.05 | 28.29 | 18.76 |
| 9.21 | 36.90 | 27.76 | 45.25 | 12.14 | 9.45 | 30.24 | 34.93 | 29.23 | 17.56 | 24.72 | 4.02 | 37.04 | 30.60 | 31.02 | 34.56 | 40.23 | 7.46 | 28.80 | 43.39 |
| 45.58 | 30.74 | 36.38 | 2.16 | 33.39 | 48.83 | 15.75 | 28.46 | 15.29 | 8.70 | 5.43 | 43.45 | 42.56 | 37.22 | 7.74 | 16.35 | 3.97 | 3.83 | 32.05 | 41.00 |
| 27.25 | 22.41 | 20.45 | 14.94 | 23.28 | 25.06 | 7.63 | 16.15 | 36.90 | 15.69 | 41.33 | 47.95 | 43.67 | 36.25 | 15.00 | 47.20 | 6.36 | 3.29 | 39.25 | 26.23 |
| 30.48 | 47.81 | 3.61 | 43.78 | 32.69 | 16.11 | 5.24 | 25.25 | 11.35 | 14.51 | 46.00 | 27.56 | 33.14 | 5.73 | 24.63 | 18.96 | 24.84 | 39.67 | 25.46 | 19.12 |
| 34.41 | 26.61 | 30.31 | 19.76 | 0.29 | 35.39 | 5.03 | 31.15 | 43.16 | 24.58 | 37.37 | 24.85 | 19.01 | 39.27 | 27.64 | 17.85 | 47.79 | 31.54 | 8.83 | 18.71 |
| 6.58 | 37.16 | 47.59 | 30.60 | 1.39 | 16.49 | 2.80 | 31.96 | 6.58 | 42.35 | 43.22 | 29.84 | 36.08 | 42.70 | 0.73 | 6.32 | 35.40 | 30.86 | 10.88 | 3.30 |
| 8.45 | 31.21 | 17.05 | 15.97 | 18.38 | 33.05 | 40.12 | 40.34 | 26.33 | 30.56 | 39.91 | 45.03 | 7.24 | 31.51 | 20.12 | 12.69 | 6.83 | 42.76 | 3.31 | 21.39 |
| 28.67 | 15.11 | 27.40 | 11.28 | 15.57 | 5.53 | 40.40 | 6.74 | 14.21 | 39.41 | 44.76 | 39.48 | 37.19 | 30.76 | 18.06 | 42.83 | 11.42 | 43.18 | 11.47 | 12.48 |
| 27.12 | 49.24 | 2.69 | 4.07 | 26.23 | 21.34 | 4.73 | 12.94 | 44.58 | 11.64 | 7.33 | 6.25 | 46.58 | 4.01 | 2.35 | 2.94 | 16.82 | 45.74 | 19.93 | 21.64 |
| 47.31 | 41.86 | 26.71 | 42.10 | 34.68 | 19.88 | 12.96 | 0.22 | 26.28 | 47.74 | 19.93 | 12.05 | 29.28 | 12.76 | 34.20 | 47.26 | 21.77 | 44.51 | 0.36 | 47.05 |
| 30.08 | 39.31 | 22.83 | 7.12 | 11.12 | 19.15 | 0.21 | 20.90 | 4.11 | 33.00 | 42.75 | 3.24 | 40.55 | 33.10 | 34.57 | 40.13 | 26.51 | 34.28 | 7.14 | 34.48 |
| 36.39 | 38.89 | 1.55 | 43.43 | 32.23 | 35.33 | 4.27 | 27.60 | 47.40 | 2.94 | 13.75 | 7.26 | 49.09 | 31.00 | 14.61 | 46.12 | 18.38 | 34.73 | 10.93 | 7.80 |
| 12.03 | 26.07 | 45.11 | 5.32 | 45.13 | 22.09 | 4.01 | 39.10 | 8.59 | 48.72 | 38.79 | 43.52 | 10.53 | 22.83 | 0.19 | 37.53 | 5.70 | 20.24 | 15.56 | 49.63 |
| 1.93 | 12.60 | 9.46 | 12.38 | 7.68 | 31.02 | 44.27 | 46.95 | 9.78 | 38.98 | 32.28 | 32.84 | 45.46 | 22.77 | 46.06 | 33.21 | 7.54 | 31.82 | 28.48 | 21.10 |
| 47.15 | 27.03 | 28.93 | 26.82 | 12.76 | 19.85 | 17.51 | 1.83 | 39.76 | 9.83 | 3.51 | 19.47 | 29.54 | 3.55 | 9.88 | 7.79 | 32.22 | 22.72 | 30.21 | 34.87 |
| 22.06 | 34.22 | 19.83 | 41.79 | 29.61 | 9.98 | 47.47 | 43.80 | 19.59 | 49.37 | 9.27 | 44.79 | 28.72 | 22.10 | 31.37 | 35.43 | 2.48 | 14.28 | 13.01 | 20.38 |
| 44.77 | 35.51 | 36.42 | 44.80 | 19.68 | 19.87 | 45.19 | 15.43 | 19.41 | 28.53 | 17.68 | 36.68 | 37.27 | 36.82 | 36.97 | 6.97 | 10.01 | 13.63 | 34.02 | 45.56 |
| 18.39 | 25.88 | 5.47 | 45.37 | 10.15 | 25.90 | 32.74 | 21.93 | 34.38 | 4.52 | 3.98 | 3.79 | 1.39 | 17.75 | 15.36 | 34.86 | 7.13 | 19.74 | 3.39 | 33.79 |
| 36.25 | 9.94 | 34.70 | 30.79 | 32.74 | 27.20 | 4.92 | 27.27 | 2.48 | 48.73 | 23.20 | 48.50 | 36.39 | 26.55 | 34.00 | 34.64 | 18.61 | 19.43 | 2.50 | 40.49 |
| 8.48 | 3.04 | 15.53 | 39.22 | 10.62 | 16.10 | 24.23 | 0.46 | 21.99 | 25.39 | 30.30 | 37.93 | 20.05 | 17.49 | 42.13 | 47.12 | 31.17 | 49.86 | 2.67 | 28.14 |
| 43.18 | 19.34 | 15.32 | 14.21 | 1.34 | 30.63 | 19.56 | 0.93 | 1.55 | 22.79 | 42.90 | 46.84 | 20.09 | 36.36 | 30.58 | 40.42 | 43.77 | 29.13 | 29.75 | 3.95 |
| 39.66 | 23.11 | 29.53 | 29.47 | 28.46 | 40.80 | 33.64 | 17.18 | 0.51 | 13.37 | 17.08 | 11.60 | 38.55 | 18.59 | 43.49 | 5.84 | 36.28 | 31.45 | 44.70 | 9.15 |
| 26.78 | 45.10 | 39.00 | 48.26 | 9.87 | 45.08 | 39.87 | 47.67 | 42.44 | 44.52 | 31.44 | 9.27 | 30.85 | 13.25 | 12.53 | 36.61 | 39.41 | 8.55 | 35.69 | 24.05 |
| 4.07 | 40.33 | 42.77 | 6.23 | 15.37 | 28.67 | 23.65 | 38.10 | 9.59 | 36.39 | 49.75 | 0.77 | 32.38 | 34.58 | 8.71 | 3.61 | 13.75 | 33.83 | 41.95 | 27.83 |
| 18.56 | 38.98 | 11.63 | 31.91 | 11.58 | 10.23 | 48.55 | 14.09 | 1.14 | 38.46 | 7.59 | 2.35 | 0.46 | 17.43 | 32.19 | 17.16 | 20.73 | 20.83 | 4.53 | 27.26 |
| 34.96 | 16.90 | 32.88 | 43.81 | 26.77 | 28.50 | 2.70 | 23.29 | 13.00 | 21.34 | 43.17 | 24.33 | 4.37 | 28.29 | 35.47 | 38.92 | 43.21 | 42.53 | 14.65 | 43.22 |
| 32.25 | 37.34 | 41.43 | 38.28 | 43.60 | 45.42 | 45.63 | 26.10 | 22.01 | 5.38 | 17.70 | 41.15 | 21.39 | 8.49 | 0.04 | 32.87 | 38.68 | 3.19 | 4.49 | 19.28 |
| 34.19 | 40.38 | 7.70 | 7.14 | 2.42 | 17.31 | 0.93 | 48.92 | 32.38 | 2.68 | 45.71 | 31.87 | 21.59 | 1.05 | 12.13 | 19.60 | 32.70 | 39.09 | 1.14 | 41.30 |
| 6.92 | 31.71 | 27.52 | 49.17 | 23.17 | 10.74 | 15.03 | 39.11 | 17.13 | 24.03 | 30.40 | 5.13 | 49.22 | 37.79 | 7.54 | 22.82 | 35.58 | 49.94 | 38.78 | 32.08 |
| 31.06 | 47.31 | 34.41 | 14.49 | 28.36 | 14.52 | 27.41 | 35.62 | 12.32 | 27.33 | 24.63 | 47.60 | 33.49 | 38.26 | 31.17 | 22.29 | 39.94 | 37.28 | 49.45 | 10.23 |
| 31.47 | 45.49 | 29.56 | 45.92 | 25.28 | 24.47 | 22.49 | 44.47 | 47.02 | 9.15 | 12.60 | 10.15 | 36.52 | 47.06 | 31.25 | 2.07 | 32.07 | 1.73 | 27.82 | 27.22 |
| 22.32 | 3.07 | 49.80 | 6.39 | 30.05 | 2.52 | 8.64 | 33.01 | 16.62 | 15.80 | 32.68 | 20.53 | 21.38 | 11.08 | 33.93 | 8.32 | 24.88 | 25.38 | 40.14 | 21.75 |
| 0.23 | 16.97 | 18.79 | 6.43 | 41.37 | 36.66 | 44.56 | 32.17 | 32.53 | 25.72 | 36.70 | 36.86 | 47.85 | 23.29 | 18.16 | 5.61 | 45.23 | 41.06 | 22.74 | 5.43 |
| 43.47 | 38.07 | 1.96 | 20.83 | 46.81 | 3.39 | 8.24 | 10.56 | 5.85 | 29.56 | 5.92 | 30.91 | 29.00 | 34.51 | 36.58 | 45.78 | 33.49 | 14.93 | 40.44 | 18.91 |
| 49.87 | 38.63 | 10.22 | 8.53 | 19.41 | 9.06 | 29.05 | 9.78 | 48.01 | 9.51 | 19.09 | 15.20 | 6.04 | 9.91 | 2.31 | 38.56 | 38.05 | 44.05 | 0.09 | 22.43 |
| 21.32 | 40.08 | 23.07 | 24.74 | 37.47 | 11.93 | 27.97 | 4.64 | 46.10 | 44.69 | 42.85 | 2.98 | 24.54 | 31.60 | 37.36 | 37.80 | 12.79 | 45.50 | 39.60 | 9.98 |
| 27.64 | 2.56 | 26.11 | 39.52 | 35.21 | 1.20 | 36.59 | 27.67 | 45.71 | 43.78 | 39.85 | 15.27 | 19.75 | 24.09 | 2.63 | 32.60 | 0.04 | 38.43 | 37.81 | 10.99 |
| 7.74 | 2.38 | 33.53 | 1.63 | 17.29 | 34.89 | 39.91 | 21.81 | 49.09 | 31.78 | 14.76 | 23.85 | 43.72 | 3.96 | 5.05 | 7.16 | 7.15 | 45.90 | 15.44 | 18.69 |

## 2.2.3   Choosing the Households

The task of choosing households is simple and you will need only a calculator, pen/pencil, and a household selection form on which to record the results.

**IMPORTANT:**

**1.** Firstly, you will fill in the **indicative** information on the *household selection form.* This information can be obtained from the household listing form.



**2.** Secondly, is to fill in the operative information.

- These important values are obtained from the calculations in step 1 and 2 (see *page 9*).



**3.** Thirdly, to calculate and record the values representing the selected households.

- The random start number automatically becomes the **first selected household**.

- To get the **second selected household**, you will add the random start number and the Skip Interval.

- The new value, representing the second selected household, is added to the skip interval to obtain the **third selected household**.

- This operation is done until you have reached the cluster size of 18 households.

*Example:*

| | No of H/Hds | Skip Interval (SI) | Random Start (RS) | No. of HH/Dwg Selected | |
|---|---|---|---|---|---|
| | 28 | 1.60 | 1.55 | 1.55 | 1 |
| | | | | 3.15 | 2 |
| | | | | 4.75 | 3 |
| | | | | 6.35 | 4 |
| | | | | 7.95 | 5 |
| | | | | 9.55 | 6 |
| | | | | 11.15 | 7 |
| | | | | 12.75 | 8 |
| | | | | 14.35 | 9 |
| | | | | 15.95 | 10 |
| | | | | 17.55 | 11 |
| | | | | 19.15 | 12 |
| | | | | 20.75 | 13 |
| | | | | 22.35 | 14 |
| | | | | 23.95 | 15 |
| | | | | 25.55 | 16 |
| | | | | 27.15 | 17 |
| | | | | 28.75 | 18 |

Selection 1        1.55 (Random Start Number)

Selection 2        1.55 + skip interval = 1.55+1.6 = 3.15

Selection 3        3.15 + skip interval = 3.15+1.6 = 4.75

Selection 4        4.75 + skip interval = 4.75+1.6 = 6.35

Selection 17        25.55 + skip interval = 25.55+1.6 = 27.15

Selection 18        27.15 + skip interval = 27.15+1.6 = 28.75

**4.** After these values are calculated and recorded properly, you will now disregard the values after the decimal point, and concentrate on the values before the decimal.

- The values before the decimal automatically become the selected dwelling number, so what you will do is identify the appropriate head of household from the edited listing form corresponding to these values.

| | No of H/Hds | Skip Interval (SI) | Random Start (RS) | No. of HH/Dwg Selected | | | DWELLING NUMBER | FURTHER IDENTIFICATION Name of Head of the Household Description of Feature | U |
|---|---|---|---|---|---|---|---|---|---|
| | 28 | 1.60 | 1.55 | 1.55 | 1 | 1 | 001 | FEKORAI SEISEN - HC F B | |
| | | | | 3.15 | 2 | 1 | 002 | PENE WAI - HC | |
| | | | | 4.75 | 3 | 5 | 901 | TOMASINO GUEST HOUSE | ( |
| | | | | 6.35 | 4 | 4 | 003 | MATU GREEN - DUPLEX LHS | |
| | | | | 7.95 | 5 | 4 | 004 | MOKI RED - DUPLEX RHS | |
| | | | | 9.55 | 6 | 1 | 005 | BALA TOGO - HC F B | |
| | | | | 11.15 | 7 | 1 | 006 | SIPI GALA - HC VACANT | |
| | | | | 12.75 | 8 | 5 | 006 007 | SERU MAITI - DQ REAR | |
| | | | | 14.35 | 9 | 1 | 007 008 | DJON DENVA - HC | |
| | | | | 15.95 | 10 | 5 | 008 009 | GNIAI GNIAI - DQ REAR | |
| | | | | 17.55 | 11 | 1 | 009 010 | KIRISI ATAM - HC | |
| | | | | 19.15 | 12 | 1 | 010 011 | KEKS LEWA - HC WB | |
| | | | | 20.75 | 13 | 4 | 011 012 | NAKI TAH - DUPLEX LHS | |
| | | | | 22.35 | 14 | 4 | 012 013 | BITA BITA - DUPLEX RHS | |
| | | | | 23.95 | 15 | 1 | 013 014 | KURUNI ABIDO - HC | |
| | | | | 25.55 | 16 | 1 | 014 014 | SODI MAILU - HC | |
| | | | | 27.15 | 17 | | | VACANT LOT | |
| | | | | 28.75 | 18 | 1 | 015 015 | JOKONI PUKI - HC BRICK | |
| | | | | | | 5 | 016 016 | SUKU BORO - DQ REAR | |

The completed household selection form will look something like this one below.

**Household Selection Form**

CLUSTER NO:

| Prov. No. | Dist. No. | LLG No. | Ward No. | Census Unit No. | Census Unit Name | Census Unit Type | No of H/Hlds | Skip Interval (SI) | Random Start (RS) | No. of HH/Dwg Selected | | Name of Selected HH head |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13 | 02 | 05 | 81 | 105 | Kalibobo Drive | 41 | 28 | 1.60 | 1.55 | 1.55 | 1 | FEKORAI SEISEN |
| | | | | | | | | | | 3.15 | 2 | MATU GREEN |
| | | | | | | | | | | 4.75 | 3 | MOKI RED |
| | | | | | | | | | | 6.35 | 4 | SERU MAITI |
| | | | | | | | | | | 7.95 | 5 | DJON DENVA |
| | | | | | | | | | | 9.55 | 6 | KIRISI ATAM |
| | | | | | | | | | | 11.15 | 7 | NAKI TAH |
| | | | | | | | | | | 12.75 | 8 | BITA BITA |
| | | | | | | | | | | 14.35 | 9 | SODI MAILU |
| | | | | | | | | | | 15.95 | 10 | JOKONI PUKI |
| | | | | | | | | | | 17.55 | 11 | JIMMY NARU |
| | | | | | | | | | | 19.15 | 12 | FLIEL KUL |
| | | | | | | | | | | 20.75 | 13 | NATHAN POLTY |
| | | | | | | | | | | 22.35 | 14 | TOM WARI |
| | | | | | | | | | | 23.95 | 15 | MARK KOSKI |
| | | | | | | | | | | 25.55 | 16 | MALI HONEA |
| | | | | | | | | | | 27.15 | 17 | EDLEY NAMBA |
| | | | | | | | | | | 28.75 | 18 | SANAI WAWA |

**Household Selection Form**