

FIFTH RWANDA DEMOGRAPHIC AND HEALTH SURVEY 2014

(RDHS-V 2014)

MANUAL FOR HOUSEHOLD LISTING

ICF International

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I. Introduction

RDHS-V 2014 is a national sample survey designed to provide information on the levels of fertility, infant and child mortality, on the use of contraception and family planning, on the knowledge and attitudes toward HIV/AIDS and other sexually transmitted infections (STI), on the HIV prevalence and on other family welfare and health indicators. The survey will interview all women between the ages of 15 and 49 and all men between the ages of 15 and 59, living in residential households. The women and men will be from households randomly selected from a set of sample points which are *clusters* of households. Prior to interviewing, all households located in the selected clusters will be listed. The listing of households for each cluster will be used in selecting the final sample of households to be included in the RDHS-V 2014 survey.

The listing operation consists of visiting each cluster, recording on listing forms a description of every structure together with the names of the heads of the households found in the structure, and drawing a location map of the cluster as well as a sketch map of the structures in the cluster.

II. Responsibility of the listing staff

Persons recruited to participate in the household listing operation will work in teams consisting of two enumerators, one is designated as mapper, the other as lister. A coordinator will monitor the entire operation.

The responsibilities of the coordinator are to:

- 1) obtain base maps for all the clusters included in the survey;
- 2) arrange for the reproduction of all listing materials (listing manuals, mapping and listing forms);
- 3) assign teams to clusters;
- 4) monitor the reception of the completed listing forms at the central office;
- 5) verify that the quality of work is acceptable.

The responsibilities of the enumerators are to:

- 1) identify the boundaries of the cluster;
- 2) draw a location map showing the location of the cluster;
- 3) draw a detailed sketch map of the cluster showing the locations of all structures residing in the cluster;
- 4) list all the households in the cluster in a systematic manner;
- 5) communicate to the coordinator problems encountered in the field and follow his instructions.
- 6) transfer the completed listing forms to the coordinator or to the central office;

The two enumerators in each team should work together at the same time in the same area. Firstly, they identify the cluster boundaries together. Then one enumerator/mapper prepares the location and sketch map while the other/lister does the household listing. The sketch map forms and the household listing forms must be prepared in sufficient number. The materials needed for the household listing operation are:

- Manual for Household Listing
- Base map of the area containing the cluster
- Map Information Form (Form DHS/1)
- Household Listing Form (Form DHS/2)
- Segmentation form (Form DHS/3)

III. Definition of terms

The basic documents served in household listing are the EA maps and description of the 2012 population and housing census (PHC 2012) provided by the National Institute of Statistics of Rwanda (NISR). Following are brief definitions of the terms used in this document.

A census *Enumeration Area* (EA) is a geographical statistical unit created in the PHC 2012, contains a certain number of households. An EA is usually a city block in urban areas; a village, or a part of a village in the rural areas; with its location and boundaries well defined and recorded on census maps.

A *base map* is a reference map that describes the geographical location and boundaries of an EA established in PHC 2012.

A *cluster* is the smallest geographical survey statistical unit for RDHS-V 2014 which is a group of a number of adjacent households in a geographical area. For RDHS-V 2014, a cluster corresponds either to an EA or a segment of a large EA. There are in total 492 clusters selected for RDHS-V 2014.

A *structure* is a free-standing structure that can have one or more dwelling units, for residential or commercial use. Residential structures can have one or more dwelling units (for example: single house, apartment structure,).

A *dwelling unit* is a room or a group of rooms normally intended as a residence for one household (for example: a single house, an apartment, a group of rooms in a house); a dwelling unit can also have more than one household.

A *household* consists of a person or a group of related or unrelated persons, who live together in the same dwelling unit, who acknowledge one adult male or female 15 years old or plus as the head of the household, who share the same housekeeping arrangements, and are considered as one unit. In some cases one may find a group of people living together in the same house, but each person has separate eating arrangements; they should be counted as separate one-person households. Collective living arrangements such as army camps, boarding schools, or prisons will not be considered as households. Examples of households are:

- a man with his wife or his wives with or without children
- a man with his wife or his wives, his children and his parents
- a man with his wife or his wives, his married children living together for some social or economical reasons (the group recognize one person as household head)

- a widowed or divorced man or woman with or without children

The *head of household* is the person who is acknowledged as such by members of the household and who is usually responsible for the upkeep and maintenance of the household.

A *location map* is a map produced in the household listing operation which indicates the main access to a cluster, including main roads and main landmarks in the cluster. Sometimes it may be useful even to include some important landmarks in the neighboring cluster.

A *sketch map* is a map produced in household listing operation, with location or marks of all structures found in the listing operation which helps the interviewer to relocate the selected households. A sketch map also contains the cluster identification information, location information, access information, principal physical features and land marks such as mountains, rivers, roads and electric poles.

IV. Locating the cluster

The coordinator will provide the listing team with a base map and description materials containing the cluster assigned to the team. Upon arrival in a cluster, the team should first get in contact with the local authorities/village chief, inform them about the RDHS-V and the household listing operation, request assistance to identify the boundaries of the EA, and get general information of the cluster. For example, the rough number of residential households in the cluster. In most cases, the cluster boundaries follow easily recognizable natural features such as streams or rivers, and construction features such as roads or railroads. In some cases, the boundaries may not be marked with visible features (especially in rural areas), attentions should be paid to make as precise as possible locating according to the detailed description file of the cluster.

Before doing the listing, the team should tour the cluster to determine an efficient route of travel for listing all the structures. Divide the cluster into parts if possible. A part can be a block of structures. It is useful to make a rough location map of the cluster indicating the boundaries of the parts, as well as the relative location of landmarks, public structures (e.g., such as schools, temples, public offices and markets) and main roads. This location map will serve as guide for the team when they begin the main work.

V. Preparing location and sketch maps

The coordinator will designate one enumerator of the team as the mapper. The second enumerator will be the lister. Although the two have separate tasks to perform, they must move together and work in close cooperation; the mapper prepares the maps, and the lister collects information on the structures (and corresponding households) indicated on the sketch map.

The mapping of the cluster and the listing of the households should be done in a systematic manner so that there are no omissions or duplications. If the cluster consists of a number of blocks, then the team should finish each block before going to the adjacent one. Within each block, start at

one corner of the block and move clockwise around it. In the rural area where the structures are frequently found in small groups, the team should work in one group of structures at a time and in each group they can start at the center (choosing any landmark, such as a school, to be the center) and move around it clockwise.

On the first page of the Map Information Form (Form DHS/1), the mapper will prepare a location map of the cluster. Firstly, fill in the identification box for the cluster. All information needed for filling in the identification box is provided by the coordinator. In the space provided, draw a map showing the location of the cluster and include instructions on how to get to the cluster. Include all useful information to find the cluster and its boundaries directly on the map and in the space reserved for observations if necessary.

On the second page of Form DHS/1, draw a sketch map of all structures found in the cluster, including vacant structures and structures under construction. It is important that the mapper and lister work together and coordinate their activities, since the structure numbers that the mapper indicates on the sketch map must correspond to the serial numbers assigned by the lister to the same structures.

On the sketch map, mark the starting point with a large X. Place a small square at the spot where each structure in the cluster is located. For any nonresidential structure, identify its use (for example, a store or factory). Number all structures in sequential order beginning with "1". Whenever there is a break in the numbering of structures (for example, when moving from one block to another), use an arrow to indicate how the numbers proceed from one set of structures to another. Although it may be difficult to pinpoint the exact location of the structure on the map, even an approximate location is useful for finding the structure in the future. Add to the sketch map all landmarks (such as a park), public structures (such as a school or church), and streets or roads. Sometimes it is useful to add to the sketch map landmarks that are found outside the cluster boundaries, if they are helpful in identifying other structures inside the cluster.

Use the **marker or chalk** provided to write on the entrance to the structure the number that has been assigned to the structure. Remember that this is the serial number of the structure as assigned on the household listing form, which is the same as the number indicated on the sketch map. In order to distinguish the number from other numbers that may exist already on the door of the structure, write RDHS-V in front of the number, for example, on the number of structure number 5, write RDHS-V/5, similarly on the door of structure number 44 write RDHS-V/44.

A structure is called *multi-unit structure* if it contains more than one household in the structure. Otherwise it is called *single structure*. **All households found in a structure / multi-unit structure must be numbered by a serial number** from 1 to m, within the structure (this is different from the household number attributed to all of the listed households in the whole cluster). The structure number plus the household number form a unique identification number for a household, and for all of the households in the cluster. For example, household number 3 in structure number 44, with ID number 3-RDHS-V/44 identifies uniquely this household, and it is very useful to write the household ID number in the entrance of the household to facilitate later the interviewer to relocate it in the household interview.

VI. Collecting a GPS waypoint for each cluster

A GPS waypoint is a latitude and longitude reading that represents a location. For some surveys, GPS data for EAs is available from the census. However, if the data is not available, or is of questionable quality, one GPS waypoint for each cluster should be recorded during the listing phase of the survey. These waypoints are recorded using a GPS unit (a Garmin ETREX unit is used in this guide) and data collection forms. If you are using a GPS unit other than the Garmin ETREX, this guide will still be useful; however, some of the instructions may not apply due to differences in design and menus. The Garmin ETREX owner's manual may be useful to consult on the basics of the GPS unit.

Take one reading for each cluster. The GPS waypoints will be captured by the mapper while he is mapping the clusters. One GPS waypoint must be taken for each cluster, and in the case of large clusters which are being segmented, one point should be taken for each segment selected for listing. In DHS surveys, clusters are usually census EAs, sometimes villages in rural areas or city blocks in urban areas. Collecting only one waypoint for the cluster greatly reduces the chance of compromising confidentiality of the respondents and at the same time is sufficient to allow for the integration of multiple datasets for further analysis. The DHS cluster waypoint should always be taken at the geographic center of the cluster or segment. If the cluster is segmented, one point should also be taken for the segment chosen by the Mapping and Listing Coordinator to be included in the survey.

Save the waypoint and record the latitude, longitude, and altitude. The latitude, longitude, and altitude reading for a location are stored in two places: on the GPS unit's data memory (called a waypoint) and on the DHS/1 paper form. GPS units can be broken or lost, and experience has shown that a hardcopy backup is essential. In addition, the paper form provides a backup should the data in the GPS unit be changed, deleted, or misidentified (i.e., the operator names the cluster incorrectly in the unit). The Mapping and Listing Coordinator must be responsible for making sure the data management protocols are strictly followed. The latitude, longitude, and altitude of each cluster must be saved in the GPS unit's memory. Each saved position is called a waypoint, and each waypoint has a unique name. If possible, the waypoint ID should be the same as the DHS cluster number. If it is not possible based on sample design, the waypoint ID should be unique to the cluster and recorded on DHS Form/1 (do not record the same waypoint ID for two different clusters). When a waypoint is saved, the GPS unit assigns it a default name. The mapper must edit the default name and change it to the 6-digit DHS cluster ID number. For example, the waypoint for DHS cluster 11 would be named "000011". Cluster 101 would be named "000101". The mapper will use the identification box of the Map Information Form (Form DHS/1) to record the latitude, longitude, and altitude for each cluster and segment on paper. First, the mapper will write down the latitude and longitude coordinates in decimal degree format and altitude in meters in the Identification Box on the "Location Map Cluster" Form (DHS/1). Second, the mapper will draw a *circle*, in the middle of the cluster/segment, at the location where he captured the waypoint. After listing is complete, the GPS units must be collected as soon as possible and returned to the sampling office by the Mapping and Listing Coordinator. The waypoints will then be downloaded and examined for problems by the designated sampling staff. The Sampling Coordinator should designate one member of the Data Processing Team to receive and process the GPS waypoint file and then give the file to country manager.

In most situations, the Mapping and Listing Coordinator will be responsible for providing all enumerator teams with a Garmin ETREX unit prior to the listing. Before these units are distributed

they should be setup for use by the enumerators. This task will be carried out by the Mapping and Listing Coordinator. If not possible, the Sampling Coordinator will designate one of the sampling technicians to set up the GPS units. For DHS surveys, the only format which is acceptable is Decimal Degrees, regardless of what geographic standards may be in use for other purposes. The set the format, in the UNITS sub-menu, select the first item POSITION FRMT and press the ENTER button. Select “hddd.ddddd” Decimal Degrees, which is the first item. Once “hddd.ddddd” is highlighted, press the ENTER button. It is important that all the GPS units be setup in the same way so that the waypoints returned at the end of the survey are not in different formats from different units. For more details on how to properly prepare the GPS units for waypoint collection, please refer to the *DHS Manual for GPS Data Collection*.

VII. Listing of households

The lister will use the Household Listing Form (Form DHS/2) to record all households found in the cluster. Begin by entering the identification codes of the cluster, the first two columns are reserved for office use only, leave them blank.

Complete the rest of the form as follows:

Column (1) [*Serial Number of Structure*]: For each structure, record the same serial number that the mapper enters on the sketch map. All the structures recoded on the sketch map (except the landmarks) must be recoded on the listing form and numbered. Put some observations in column (6) for special cases.

Column (2) [*Address/description of structure*]: Record the street address of the structure. Where structures do not have visible street addresses (especially in the rural area), give a description of the structure and any details that help in locating it (for example, in front of the school, next to the store, etc.)

Column (3) [*Residence Y/N*]: Indicate whether the structure is used for residential purposes (eating and sleeping) by writing Y for "Yes". In cases where a structure is used for commercial or other purposes, write N for "No". Structures used both for residential and commercial purposes (for example, a combination of store and home) should be classified as residential (ie. mark Y in column 3). Make sure to list any household unit found in a nonresidential structure (for example, a guard living inside a factory or in church). Also do not forget to list vacant structures and structures under construction, and in Column (6) [Observations], give some explanations (for example: vacant, under construction, etc.). All structures seen in the cluster should be recoded on the sketch map of the cluster.

Column (4) [*Serial Number of Household in Structure*]: This is the serial number assigned to each dwelling unit or household found in the structure; there can be more than one dwelling units in a structure. The first dwelling unit in the structure will always have number "1". If there is a second dwelling unit in the structure, then this dwelling unit should be recorded on the next line, a "2" is recorded in Column (4), and Columns (1) to (3) repeat the structure number and address or are left blank. The dwelling units where the household members refuse to cooperate, or are not at home at the time of the listing are treated as normal dwelling units. In such cases, column (5) can be filled with information from the

neighbors or left blank if not possible, and in Column (6) [*Observations/Occupation Status*], give some explanations (for example: refusal, not at home, etc.)

Column (5) [*Name of Head of Household*]: Write the name of the head of the household. There can only be one head per household. If no one is home or the household refuses to cooperate, ask neighbors for the name of the head of the household. If a name cannot be determined, leave this column blank. Note that it is not the name of the landlord or owner of the structure that is needed, but the name of the head of the household that lives there.

Column (6) [*Observations/Occupation Status*]: This space is provided for any special remarks that might help the coordinator to decide either to include a household in the household selection or not, and might also help the interviewing team locate the structure or identify the household during the main survey fieldwork.

If the structure is an apartment structure, assign one serial number to the entire structure (only one square with one number appears on the sketch map), but complete Columns (2) through (6) for each apartment in the structure individually. Each apartment should have its own address, which is the apartment number within the structure.

The listing team should be careful to locate hidden structures. In some areas, structures have been built so haphazardly that they can easily be missed. Especially in rural areas, structures may be hidden by tall grasses and trees. If there is a pathway leading from the listed structure, check to see if the pathway goes to another structure. Talking with people living in the area may help in identifying the hidden structures.

VIII. Segmentation of large clusters

A certain number of the selected EAs may be very large in population size. A complete listing of these EAs may represent an important cost and may not be suitable to be undertaken by one survey. These EAs should be subdivided into several small segments, only one of which will be retained for the survey and be listed. In this case, the RDHS-V cluster corresponds to a segment of an EA. When the team arrives in a large EA that may need segmentation, it should firstly tour the EA and make a quick count to get the estimated number of households residing in the EA. If the EA size is big than 300 households, then the team needs to communicate to the coordinator with the exact cluster number, the estimated number of households and the number of segments intended to be created. The decision of segmentation and the number of segments to be created can only be taken by the coordinator. For easy operation, the recommended number of segments is 2. It should avoid large number of segments (bigger than 3) if it is not really necessary in order to avoid errors.

The ideal would be to have segments of approximately equal size, but it is also important to adopt segment boundaries that are easily identifiable. Firstly draw a location map of the entire EA. Using identifiable boundaries such as roads, streams, and electric power lines, divide the EA into the designated number of roughly equal-sized segments. On the location map of the cluster, show clearly the boundaries of the segments created. Number the segments sequentially. Estimate the size

of each segment in the following manner: quickly count the number of dwellings in each segment, add them up and calculate the proportion of dwellings for each segment.

Example 1: An EA of 320 households has been divided into 2 segments and the results are as follows:

Segment 1:	150 dwellings,	or	$150/320$	=	47 percent
Segment 2:	170 dwellings,	or	$170/320$	=	53 percent
Total:	320 dwellings,	or	$320/320$	=	100 percent

On Form DHS/3 (Segmentation Form) write the size of the segments in the appropriate columns (number and percent) and calculate the cumulative size (percent). The last cumulative size must be equal to 100.

Segment number	Number of dwellings	Percent	Cumulative percent
1	150	47	47
2	170	53	100

For each large cluster to be segmented, a random number will be selected in the central office and included in the file. Compare this random number with the cumulative size. Select the first segment whose cumulative size is greater than or equal to the random number.

Random number: 67
Segment selected: Segment number 2

Proceed the household listing operation in segment number 2 as described in the above sections, see Appendix 3 for an example of how the segmentation form is filled. Draw a detailed sketch map of the selected segment and list all the households found in the selected segment.

IX. Quality control

To ensure that the work done by each listing team is acceptable, a quality check will be performed. The coordinator should tour the regions during the household listing operation, and assess the quality of the finished clusters. The coordinator should select a finished cluster and do an independent listing of 10 percent of the cluster. If important errors are found, the whole cluster will be relisted. If it is related to systematic errors and not possible to do corrections on the listing forms, all of the listed clusters should be relisted.

X. Prepare the household listing forms for household selection

Once the central office receives the completed listing materials for a cluster, they must firstly assign a unique serial number for all the listed occupied residential households in the cluster, in the

second column of the form DHS/2 with label “**Serial Number of Household**”. Only occupied residential households (including the ones refused to cooperate at the time of listing, and the ones the occupant are absent at the time of listing but confirmed by the neighbors that they are not leaving for a long period and will be at home during the period of household interview, by referencing the observations given in column 6 of the form DHS/2) will be numbered. This is a continuous serial number from 1 to the total number of occupied residential households listed in the cluster. Leave the cell in the second column blank if the corresponding household is empty, or the structure is not a residential structure, till another occupied residential household appears, and ensure that the numbering continues with the previously numbered household; see attached example listing forms in the appendix of this document.

After numbering the household listed in the whole cluster, *copy the total number of households listed in the cluster* to the column “**Num of HHs listed**” in the prepared household selection spreadsheet. Make sure this number is copied to the correct place or to the correct cluster number. Copy also the segmentation information in the column “**% Segment selected**” the proportion of the selected segment if it is related to a segmented cluster. The segmentation information is important for correctly calculating the sampling weights. After entering the number of households listed in a cluster, the numbers of the selected households will appear automatically in the reserved place. After finishing the household selection in the Excel template, copy the numbers of the selected households to the first column of the form DHS/2, corresponding to the serial number of the households in the listing form. These are the households that the household interviewers must interview. It is recommended to put colors on the listing forms with a marker to mark the selected households for interviewing. It is also very helpful to put colors on the cluster’s sketch map to mark the structures where the selected households are located. This will save time for the interviewers to locate quickly the sampled households in the field.

A sub-sample of one household in every two households selected for female survey will be selected for male survey. The household selection spreadsheet marked the columns selected for male survey. *Put a mark in the first column next to the number of the selected household on the form DHS/2 to mark the household being also selected for male survey. Or put a different color on the households selected for both male and female surveys.* Make a copy of the whole package of files (sketch maps and the listing forms with household selection and marked), give the original or the copy to the interviewer team for household interview and keep the other copy in central office.

Appendix 1. Example Symbols for Mapping and Listing

Orientation to the North	
Boundaries of the cluster	
Paved road	
Unpaved (dirt) road	
Footpath	
River, creek, etc.	
Bridge	
Lake, pond, etc.	
Mountains, hills	
Water point (wells, fountain, etc.)	
Market	
School	
Administrative structure	
Church, temple	
Mosque	
Cemetery	
Residential structure	
Non-residential structure	
Vacant structure	
Hospital, clinic, etc.	
Electric pole	
Tree, bush	

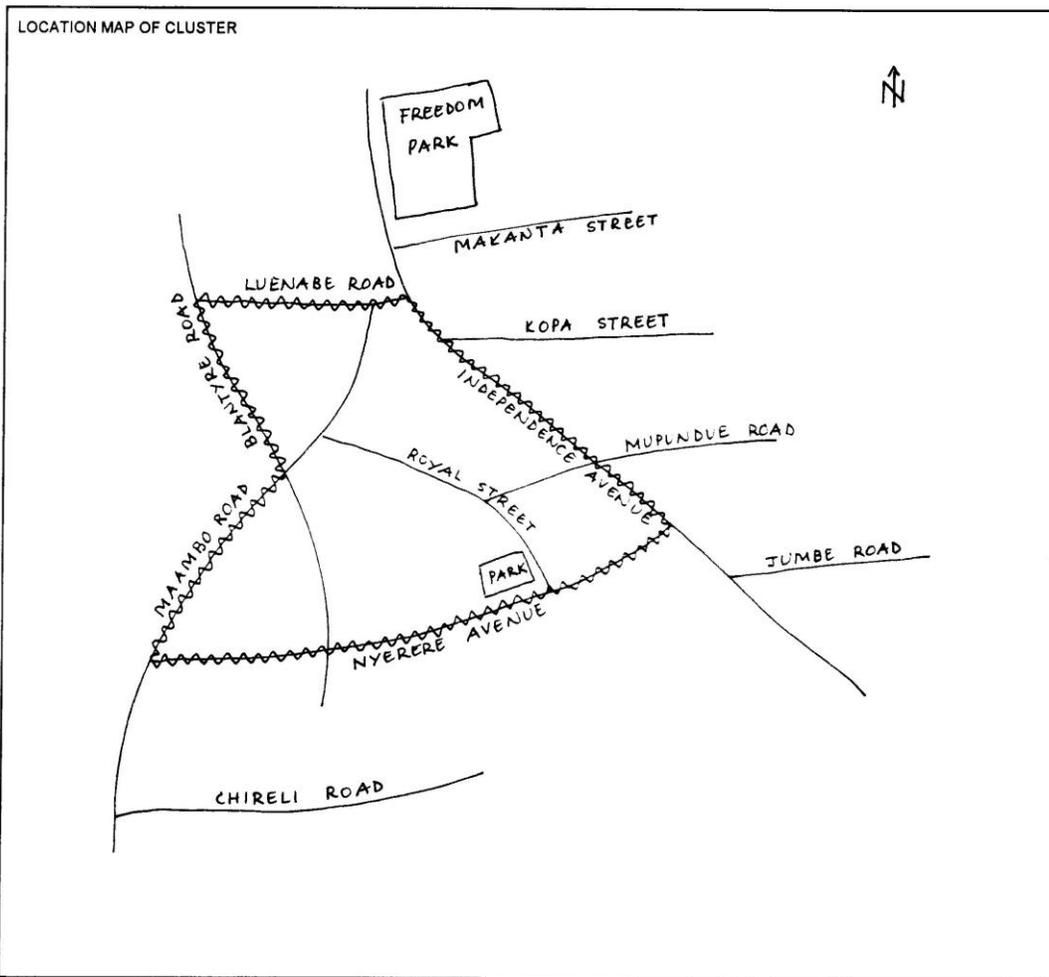
Appendix 2. Examples of mapping and listing forms

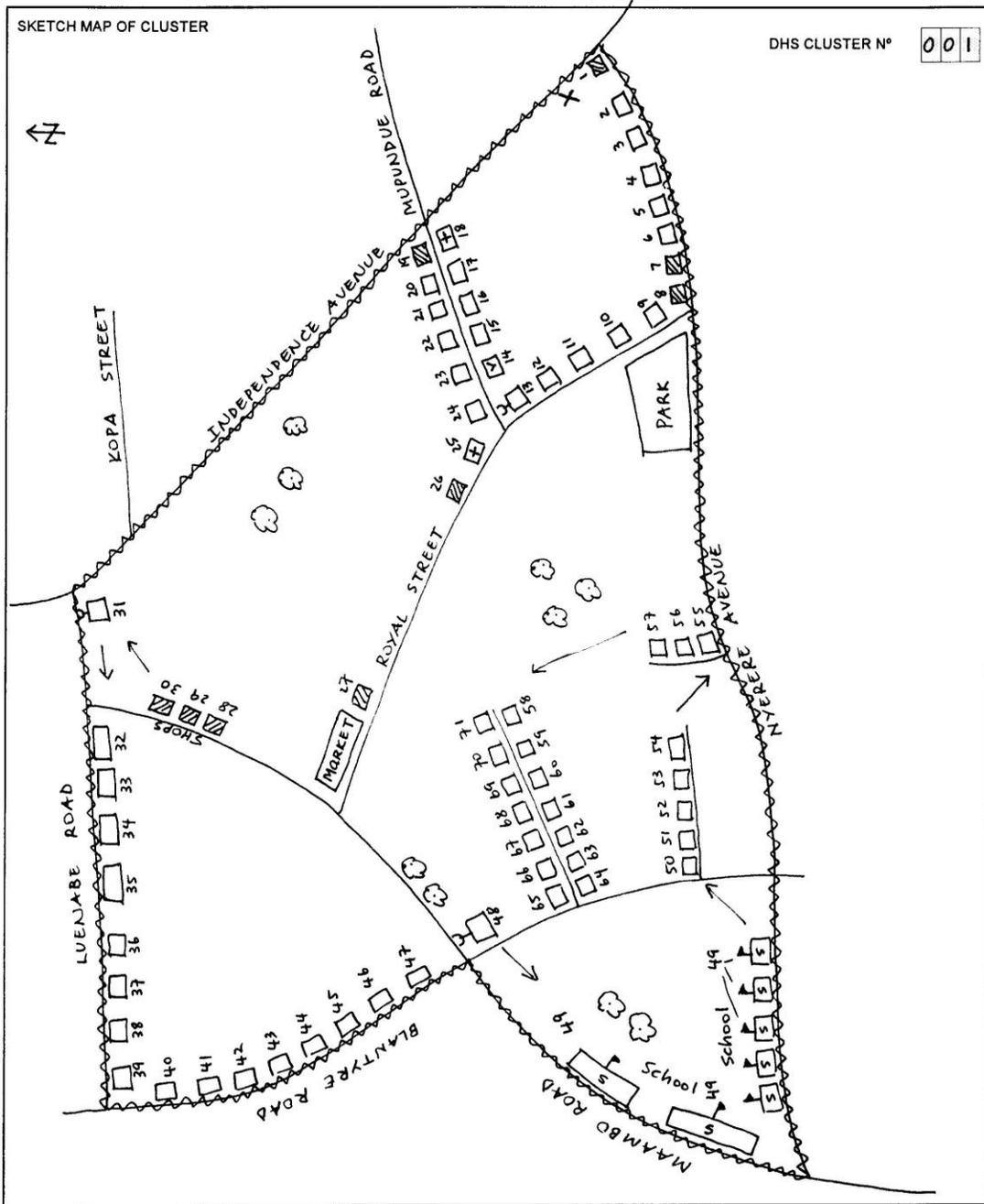
Form DHS/1

DEMOGRAPHIC AND HEALTH SURVEY
MAP INFORMATION

Page 1

IDENTIFICATION		OBSERVATIONS:
PROVINCE <u>KAYES</u>	PROVINCE CODE	1
DISTRICT <u>DIEMA</u>	DISTRICT CODE	04
TOWN/VILLAGE <u>DIEMA</u>	TOWN/VILLAGE CODE	02
NAME OF MAPPER <u>Harrison Sidibe</u>	CLUSTER CODE	017
NAME OF LISTER <u>John Melaku</u>	DHS CLUSTER N°	001





LEAVE/BLANK	SERIAL N° OF STRUCTURE (1)	ADDRESS/DESCRIPTION OF STRUCTURE (2)	RESIDENCE Y/N (3)	SERIAL N° OF HOUSEHOLD IN STRUCTURE (4)	NAME OF HEAD OF HOUSEHOLD (5)	OBSERVATIONS (6)
	1	Nyerere Avenue	N			Pharmacy Star
	2	6 Nyerere Avenue	Y	1	Biane Obote	
	3	8 Nyerere Avenue	Y	1	Eugene Kariba	
	4	10 Nyerere Avenue	Y	2	Jorothay Uchi	
	5	12 Nyerere Avenue	Y	1	Sam Louwa	No one at home.
	6	14 Nyerere Avenue	Y	1	Hamison Coulibali	
	7			2	Paul Liande	
	8	Avenue Nyerere	N	3	Harry Fiwale	In construction
	9	22 Royal Street	N	1	George Sidibi	In construction
	10	20 Royal Street	Y	1		Refused
	11	18 Royal Street	Y	1	Chief Seidou	
	12	16 Royal Street	Y	1	Anna Tonde	
	13	Mupundue Road	N			Mosque
	14	4 Mupundue Road	N			Vacant
	15	6 Mupundue Road	Y	1	Suzanne Ibenga	
	16	8 Mupundue Road	Y	1	David Chouta	
	17	10 Mupundue Road		2	Joseph Lupiya	
	18	10 ^A Mupundue Road	Y	1	Elehi Fahmi	
	19	12 Mupundue Road	Y	1	Doctor Tadesse	Home upstairs, clinic downstairs

Appendix 3. Example of segmentation form

Form DHS/3

DEMOGRAPHIC AND HEALTH SURVEY
SEGMENTATION FORM

IDENTIFICATION				
PROVINCE <u>KOULIKORO</u>	PROVINCE CODE <table border="1"><tr><td></td><td>4</td></tr></table>		4	
	4			
DISTRICT <u>DIOLA</u>	DISTRICT CODE <table border="1"><tr><td>0</td><td>2</td></tr></table>	0	2	
0	2			
TOWN/VILLAGE <u>DIONGAGA</u>	TOWN/VILLAGE CODE <table border="1"><tr><td>0</td><td>6</td></tr></table>	0	6	
0	6			
NAME OF MAPPER <u>WOLDE CONATE</u>	EA CODE <table border="1"><tr><td>0</td><td>2</td><td>3</td></tr></table>	0	2	3
0	2	3		
NAME OF LISTER <u>ANDRE LUENA</u>	DHS CLUSTER N° <table border="1"><tr><td>0</td><td>1</td><td>5</td></tr></table>	0	1	5
0	1	5		

NUMBER OF SEGMENTS TO BE CREATED

0	2
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Segment Number	Number of dwellings	Percent	Cumulative percent
1	150	47%	47%
2	170	53%	100%
3			
4			
5			

RANDOM NUMBER BETWEEN 1 AND 100:

0	6	7
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SEGMENT SELECTED:

0	2
---	---