

Survey Implementation

Document

CAPI Household Listing Manual

Zone of Influence Survey

[Survey name]

August 2022

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# Abbreviations

| CAPI | computer-assisted personal interviewing |
| --- | --- |
| EA | enumeration area |
| GPS | Global Positioning System |
| HH | household |
| ZOI | Zone of Influence |
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# Introduction

This manual provides detailed instructions on how to implement a critical component of the United States Agency for International Development’s Feed the Future Zone of Influence (ZOI) Surveys: the household listing.

The household listing is the foundation of the scientific process used to select the survey sample; the integrity of the entire survey operation rests on the production of a rigorous, accurate household listing. As such, the household listing teams play a critical role in ensuring the success of this important survey.

This manual provides detailed step-by-step instructions and procedures on implementing household listing using the computer-assisted personal interviewing (CAPI) system for Feed the Future surveys, along with the responsibilities of the field listing staff and definitions of key terms used.

## 1.1 Purpose of the survey

Feed the Future is the U.S. Government’s global hunger and food security initiative that seeks to reduce poverty, hunger, and undernutrition among women and children and to increase resilience, income, women’s empowerment, dietary diversity, and appropriate feeding practices and improve hygienic environments. Program efforts are designed to impact the population in ZOIs in Feed the Future target countries.

One of the main tools to track progress in achieving Feed the Future’s high-level objectives are population-based performance indicators collected at baseline and then periodically thereafter. These surveys are designed to provide estimates for key Feed the Future indicators related to poverty, agriculture, nutrition, hunger, water and resilience, with a 95 percent confidence level.

For ZOI Surveys, the household listing operation is typically implemented in month 6 and 7 of the survey timeline, with main survey fieldwork taking place about 2 months later, but this may vary across surveys.

Traditionally, the household listing operations for ZOI Surveys have been implemented using a paper-based approach, in which listing teams recorded all information on paper forms. The information from these forms was then captured on a computer at the office to be made available for the household selection and survey data collection activities. As of 2022, the Surveys for Monitoring in Resilience and Food Security project has introduced a CAPI system developed within the Census and Survey Processing System that enables household listing information to be captured directly onto tablets. This electronic household listing approach will help improve the efficiency and quality of the household listing data collected and streamline the household listing operations.

## 1.2 Terms you need to understand to perform the household listing

This section provides definitions of key terms used in this manual.

*Enumeration area (EA):* An *EA* is a geographical statistical unit created for a census by the national government. In urban areas, an EA can comprise one or more city blocks. In rural areas, an EA can be a village, part of a village, or several small villages. Note that there can be more than one sampling cluster in an EA (see Section 3.3).

*Cluster:* The *sampling cluster,* or simply *cluster*, is the smallest area unit selected for a survey and comprises a number of adjacent households. Depending on the type of sampling frame used, the cluster could take many forms. If the sampling frame is the latest population census conducted in the country, then a cluster could be an EA as defined by the census or a segment of a large EA. If the sampling frame is the roster of villages, in the case of rural areas, then the cluster could be an entire village, a part of the village, or a group of villages. If the sampling frame includes a list of urban blocks, then the cluster could be an urban block.

*Structure*: A *structure* is a free-standing residential or non-residential building. Examples of a non-residential building include a shop, a school, or a factory. Residential structures can have one dwelling unit, such as a concrete block house, or multiple dwelling units, such as an apartment building. Note that some structures can be used for both residential and non-residential purposes, such as an apartment building with shops on the first floor and dwelling units above.

*Dwelling unit:* A *dwelling unit* is a room or group of rooms that is normally intended to be a residence for one household, such as a thatched hut, a cement block house, an apartment, or a group of rooms in a house. Dwelling units can exist within, over, or under a structure that appears to be non-residential. It is possible for more than one household to reside in a dwelling unit.

*Household:* Feed the Future has defined a *household* as those adults and children who live together in the same dwelling unit. They can be related or unrelated, but they should meet the following criteria:

* Acknowledge the same **person or persons as lead decision-makers** for the household
* Share the same housekeeping and cooking arrangements
* Share the same contiguous roof

In some cases, you may find a group of people living together in the same dwelling unit, but each person has separate eating arrangements (for example, a group of migrant workers who share a dwelling unit); they should be counted as separate one-person households.

**Households are found in dwelling units, dwelling units are within structures, and structures are in clusters.**

In some countries, special consideration must be given to polygamous arrangements, or any other modalities of living arrangements known to exist that do not align precisely with the definition of a “household” used by Feed the Future. In the case of polygamy, the delineation of dwelling units can become complicated if, for instance, different wives and their common husband live in fenced compounds with multiple physical structures within, as these separate structures may serve as rooms within one household rather than as separate dwelling units. The concepts of eating from the same pot and the recognition of a lead decision-maker tend to be most critical in defining a household in these cases, although at times these two concepts may be at odds with each other. For instance, in some countries where polygamy is prevalent, different wives with a common husband cook for their own children and direct relatives from separate pots, while in other countries, wives may rotate cooking for entire extended polygamous households. In both cases, the husband may be considered the lead decision-maker. However, in the first case, the different wives (along with their children and relatives) may be considered as different households (each having the same lead decision-maker), while in the second case, all the wives and their children and relatives may be considered as one household (again having the same lead decision-maker). In all cases, it is important to consult with in-country partners, such as the national statistics office, to determine appropriate country-specific guidelines on how to handle these more complex types of living arrangements.

Note that dwelling units intentionally designed to shelter unrelated groups of people, such as army camps, school dormitories, refugee camps, or prisons, will not be considered households for this survey.

*Responsible household member:* This is a person who is deemed by the listing team to be mature enough to respond to basic questions about the household and its members. This person should be at least 15 years of age. There can be more than one responsible household member in a household. Note that you may find more than one household in a dwelling unit (see household definition above). For the purpose of identifying the households, the listing teams will collect the name of a responsible adult from a responsible household member for each household that resides in the dwelling unit.

*Family:* A *family* refers to a group of people living together who are related by marriage, blood, or adoption, with shared living arrangements. Typically, a family would consist of parents with their children (called a nuclear family). However, it can also consist of more distant relatives, such as grandparents, cousins, aunts, and uncles, and is then referred to as an *extended family*. This should not be confused with a *household*, as defined previously, which refers to a group of people who may be related or unrelated who are living together in the same dwelling unit with shared living arrangements. For household listing, the unit we are most interested in determining and recording, is the household.

*Map—base map:* A *base map* is a census map that shows the geographical location and boundaries of an EA, together with principal features such as roads and landmarks in and around the EA. This map will assist the listing team in identifying the correct sampled cluster to be listed.

*Map—location map:* A *location map* is a map that provides a more detailed view of a cluster. This map will be created during the household listing operation by the Cartographer. This map shows the main access points, roads, and landmarks located within the cluster along with its boundaries. It may also include important roads and landmarks in neighboring areas.

*Map—sketch map:* A *sketch map* is a map that is created by the Cartographer using the location map. This map shows all the structures found in the cluster during the listing operation, with each structure marked and numbered on the sketch map. The Cartographer should also indicate physical features and landmarks that are not on the location map, including mountains, rivers, roads, and electrical poles. Sketching these features and landmarks on the sketch map helps the survey teams locate selected dwelling units when they come to conduct interviews.

## 1.3 Steps in selecting the sample for a ZOI Survey

Three main steps are involved in selecting a representative sample of households to interview for a ZOI Survey:

Step 1: Select a representative sample of survey clusters.

Step 2: Create an accurate, comprehensive list of all households in each cluster.

Step 3: Randomly select households to be interviewed in each cluster.

The focus of this manual is on Step 2, the household listing procedure.

## 1.4 Confidentiality

Information obtained during the listing operation will be used to select specific households for participation in the survey. All information, including the name of a responsible adult for the household and information about the location of the household’s dwelling (i.e., addresses and Global Positioning System [GPS] coordinates), will be securely stored in the CAPI system on the tablet, and will be uploaded daily to a CSWeb server through a secure encrypted connection to a database at the Central Office. The database at the Central Office will be used after the listing operation is complete to randomly select households to be interviewed for the survey (i.e., Step 3). This information will not be used for any other purpose.

After the survey is completed, any electronically stored personally identifiable information will be erased, and any paper forms and maps will be destroyed. Household members’ names and addresses will not be reported, and it will not be possible for anyone to deduce the identity of respondents from the data or reports that are produced as a result of this survey.

All data collected by the household listing staff for a ZOI Survey will be completely confidential. Household listing staff should not discuss these data with anyone other than members of their listing team. Information collected during the listing—including names of household members, household locations or addresses, or any other household identification information—should not be shared with anyone else.

## 1.5 Overview of household listing staff and responsibilities

In summary, performing a household listing operation requires the listing team to—

* Obtain base maps for all clusters assigned to them.
* Visit every cluster that is assigned to them for household listing.
* Draw a location map of each cluster to show the cluster boundaries and exact location, and a sketch map of each cluster to show all listed structures and existing landmarks within the cluster.
* List all structures in each cluster, all dwelling units in each structure, and all households within each dwelling unit.

To accomplish this work, listing teams will comprise three members: a Cartographer, who is responsible for preparing the location and sketch maps in hard copy; a Lister, who will complete the household listing forms on the tablet; and a Listing Coordinator, who will have overall responsibility for the correct completion of the listing in each cluster. The responsibilities of these three listing staff members are as follows:

*Listing Coordinator:* Listing Coordinators serve as the primary link between the Central Office and the listing teams. They are responsible for the listing operation in their assigned region. As such, Listing Coordinators are responsible for ensuring both the progress of the listing operation and the quality of the household listings in their assigned region.

Listing Coordinators are responsible for the following:

* Preparing for listing, including providing logistical support for the team (e.g., arranging for transport)
* Identifying and contacting local officials and village elders in each cluster to inform them about the listing operation and to obtain their cooperation
* Obtaining and copying the base maps for all the clusters selected for the survey
* Ensuring that all listing materials (household listing manual, mapping forms, and tablets) are obtained and available to the team to perform the household listing in all selected clusters
* Obtaining CAPI Household (HH) Listing System application updates from the Central Office and ensuring that all household listing teams have the latest system updates installed on their tablets
* Assigning clusters to the household listing teams using the Listing Cluster Assignment application on the tablet (see Sections 2.1 and 3.1.1)
* Receiving and reviewing listing data and authorizing the submission of data to the Central Office
* Retrieving the hard copy location and sketch maps (created by the Cartographer) and ensuring that they are safely stored at the Central Office
* Ensuring that each cluster has been fully covered and listed
* Monitoring and verifying that the captured listing information is of acceptable quality (refer to Section 4 for details on quality control procedures)
* Validating or relisting clusters in which problems are found to ensure accuracy

All Listing Coordinators must have a complete and in-depth understanding of the listing process. Their ultimate responsibility is to ensure that the maps and listing forms are complete and accurate.

*Cartographer and Lister:* The Cartographer is the person who draws the maps in hard copy; the Lister lists all structures and households in the cluster using the CAPI HH Listing System application on the tablets. After receiving their cluster assignments and system updates on the tablet, as well as the base maps, the Cartographer and Lister will start listing in each of their assigned clusters. They work together in each cluster, beginning by identifying the cluster boundaries. First, the Cartographer prepares an updated detailed location map. Next, the Cartographer prepares a detailed sketch map. **At the same time,** the Lister begins to systematically list all the structures and households in the cluster on the CAPI HH Listing System application on the tablet (see Sections 2.2, 3.3, and 3.5). The sketch map and the household listing information must be prepared simultaneously, and the structure numbers on the sketch map and in the CAPI HH Listing System application on the tablet must match.

The Cartographer and Lister are responsible for communicating with the Listing Coordinator about their progress and about any problems they encounter in the field.



## 1.6 Supplies needed to complete the household listing operation

Each listing team will need the following supplies:

* CAPI Household Listing Manual—this manual (one for each team member)
* A notebook for recording progress or problems
* Pencils and erasers
* Base map of the selected clusters (one base map for each cluster that the team has been assigned to list)
* Mapping forms (in hard copy) used to prepare location and sketch maps in sufficient quantity to complete the work in all assigned clusters :
  + LIST/2 Cluster Location Form
  + LIST/3 Cluster Sketch Map Form
* A tablet with the latest updated CAPI HH Listing System installed
* Letters of introduction (in hard copy)
* Clipboards, briefcases, backpacks, notebooks
* Waterproof containers and envelopes to store mapping forms
* First aid kit

# General overview of the CAPI Listing System

The CAPI Listing System has been developed within the Census and Survey Processing System, and the listing teams will access it using the CSEntry for Android application, which should be installed on the tablets. This manual assumes that the listing teams are familiar with the general layout and how to navigate between the different screens of the CSEntry application.[[1]](#footnote-0)

The CAPI Listing System will be used for two main tasks:

* Assignment of the clusters to the listing teams—This will be undertaken by the Listing Coordinator using the Listing Cluster Assignment application that appears in CSEntry on their tablets.
* Capturing information during the listing of structures, dwelling units, and households—This will be undertaken by the Lister, working in tandem with the Cartographer as they conduct the listing within the cluster. The Lister will use the CAPI HH Listing System application to capture the listing information, and the Cartographer will simultaneously create and annotate the sketch map in hard copy, corresponding to the listing information being captured by the Lister.

Selecting the CSEntry icon on the tablet will open the “Entry Applications” menu, in which the two listing system applications appear (i.e., the Listing Cluster Assignment application and the CAPI HH Listing System application).

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It is advised that the “Show Case Tree” option is selected when using the Entry Applications because it provides a summary of the information already collected during the listing and helps track the listing process. The “Show Case Tree” option can be selected by clicking on  at the top right of the screen.

Graphical user interface, application

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## 2.1 Listing Cluster Assignment application

The Listing Coordinators will use the Listing Cluster Assignment application to manage the assignment of clusters to the listing teams. The application has the following functions:

* Assigning clusters to listing teams
* Unassigning clusters that have previously been assigned to a listing team
* Reassigning clusters to a different listing team
* Viewing clusters that have been assigned by other Listing Coordinators

Section 3.1.1 gives step-by-step instructions on using the Listing Cluster Assignment application.

## 2.2 CAPI HH Listing System application

The CAPI HH Listing System application will be the main tool used by the Lister to capture the information for all listed structures, dwelling units, and households in the cluster. The Cartographer will work closely with the Lister during this process, ensuring that the information on the sketch map that he or she creates corresponds to the information captured on the application.

To use the application to capture listing information, the listing team will first need to identify themselves within the application so that it can retrieve the assigned clusters for that listing team. On initial start-up of the application, the listing team will see a “Welcome” screen.

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Pressing the “Enter” key or “**>**” will bring up a list, from which the relevant team can be selected. On the next screen, the listing team is then able to select the cluster that they want to work in from the drop-down list.

Table

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The next screen displays a summary of the selected cluster information as well as the Listing Coordinator responsible for the cluster and the listing team that will be working in this cluster. The listing team should verify that they are in the correct cluster by using this information and the base map provided before continuing with listing operations in the cluster.

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The CAPI HH Listing System application has several modules that can be implemented, with each module being used to perform specific functions (see the following screen shot).

Graphical user interface, application

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These modules have the following functions:

1. **Implement cluster segmentation:** This module will be used when a cluster needs to be segmented. The Lister will use this module to capture the segment information and select a particular segment for listing. Please refer to Section 3.3 and Appendix A for step-by-step instructions on how to use this module for segmentation.
2. **Register household listing in cluster:** This module will be used to capture the listing information for structures, dwelling units, and households for the cluster. Note that the cluster listed could also be a sampled segment from the larger cluster that was initially sampled. Please refer to Section 3.5 for step-by-step instructions on how to use this module.
3. **Report of households listed in cluster:** This module will provide the listing team with a summary report of the household listings in a cluster. Please refer to Section 3.6.
4. **Capture cluster coordinates:** This module will be used by the listing team to capture GPS coordinates for the cluster. Please refer to Section 3.2.1 for step-by-step instructions on how to use this module to capture GPS coordinates for the cluster.
5. **Change cluster number:** This module will be used to change the cluster in which the listing team is working; for example, if they would like to move to listing another assigned cluster.
6. **Transfer data to Central Office:** Selecting this module will transfer data on the tablet over a secure file transfer protocol to the server.
7. **Exit system (Esc):** Exits the application.

# 3. Household listing procedures

The household listing operation requires several key steps: preparing for going to the field, locating each cluster, preparing the location and sketch maps for each cluster, listing all the structures and households found in each cluster, and transferring completed listing forms to the Central Office. In some cases, segmentation is required and will be described later in this manual. The flow chart in Figure 1 summarizes the key steps undertaken in listing a sampled cluster. A detailed description of each of these steps is provided in the sub-sections that follow.

**Figure 1: Flow Chart of the Household Listing Process**



## 3.1 Preparation

Preparing for fieldwork requires that the Listing Coordinator take the following steps:

* Obtain base maps from the Listing Operations Fieldwork Director for each area where his or her team will be working.
* Become familiar with the area where the team will be working and determine the best arrangements for travel and accommodation.
* Contact local authorities to inform them about the listing activity and the upcoming survey, and to gain their support and cooperation.
* Obtain all supplies and equipment necessary for the team to complete its assigned work.
* Obtain CAPI HH Listing System updates from the Central Office and ensure that all household listing teams have the latest system updates installed on their tablets.
* Obtain all monetary advances to cover expenses for the team; funds should be distributed according to the procedures established by the Fieldwork Director, if these have not been included in the per diem that is given directly to the listing team.
* Obtain letters of introduction to be given to local, district, and regional officials providing sufficient authority to conduct the listing.
* Assign clusters to the household listing teams using the Listing Cluster Assignment application (see Section 3.1.1).
* Arrange for telephone and email communications before leaving for the field. Daily contact by phone is required for support and supervision of the team by Central Office staff.

Careful preparation by the Listing Coordinator is essential to support the work of the listing team and to ensure contact with the Central Office throughout the listing period.

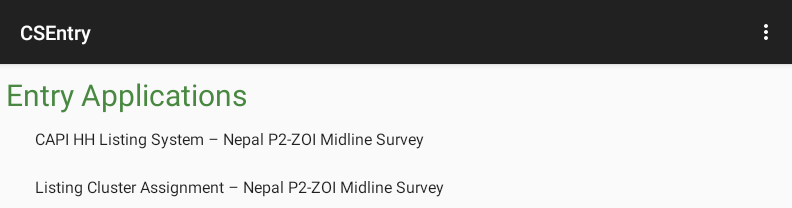
The Listing Coordinator is also responsible for keeping track of the progress in all the assigned clusters using the LIST/1 Listing Summary Form (see Annex A.1). This document may be requested at some point by senior survey management to ensure quality control, but it is mainly used to help the Listing Coordinator monitor the listing progress.

### 3.1.1 Cluster assignment by the Listing Coordinator

The Listing Coordinator will use the Listing Cluster Assignment application on their tablet to assign clusters to their listing teams. The step-by-step instructions that follow illustrate how the Listing Coordinator will implement the cluster assignments using this application.

**Step 1:** Open the application on the tablet.

Open the Listing Cluster Assignment application by selecting it from the list on the Entry Applications screen.



**Step 2:** Select Listing Coordinator name.

The Listing Coordinator will then select their name from the list that appears on the screen. (**Note:** They can also click the icon to search for their name.) 

Graphical user interface

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**Step 3:** Assign clusters to a listing team.

The Listing Coordinator will then select which clusters to assign to each listing team from the “Listing Cluster Assignment Sheet” by checking the box for the clusters to be assigned and then selecting “Assign selected” to assign the selected clusters to a listing team. In the example that follows, clusters 1, 4, and 5 are being assigned by Listing Coordinator 1 to listing team 101.

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**Step 4:** Repeat assignment process for other listing teams.

The Listing Coordinator will then repeat Step 3 to assign the next set of clusters to another listing team until all the clusters they are responsible for have been assigned.

**Step 5:** Verify that all cluster assignments have been done correctly.

The Listing Coordinator should then check and verify that all clusters they are responsible for have been assigned to the correct listing teams. When they are satisfied, they can then select “Sync and exit” to save and upload these assignments and exit the application.

If the Listing Coordinator would like to **reassign any clusters** to another listing team, they can select the relevant clusters by checking the box and selecting “Clear selected.” This will clear the assignments that were done for these clusters, returning them to a “Not assigned” status. The Listing Coordinator can then follow Step 3 to reassign these clusters to the new listing team.

**Note:** It is **important to use the “Sync and exit” button** when doing assignments to ensure that any changes made to the cluster assignments are saved and uploaded. The “Exit” button will allow the Listing Coordinator to view the assignments and exit the application without saving any changes.

## 3.2 Locating the cluster correctly

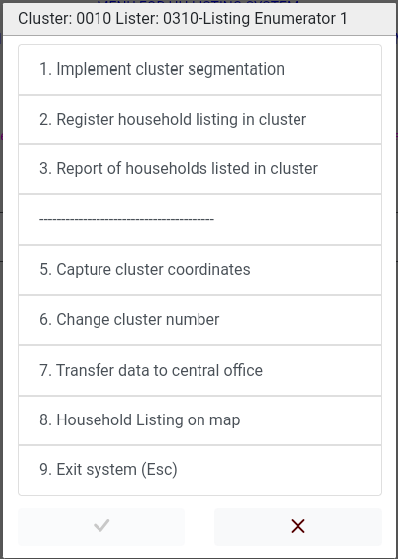
The Listing Coordinator will provide the listing team with a base map and any description materials showing the cluster assigned to them. The cluster is identified by a code, such as cluster code 002. When the team arrives, members will first tour the cluster using the base map to identify all the boundaries of the cluster. In most clusters, the boundaries follow easily recognizable natural features, such as streams or lakes, and constructed features, such as roads or railroads.

Some boundaries, however, may not be readily identifiable, especially in rural areas. In that case, the team should seek assistance from local authorities to identify the boundaries. Locating and determining these boundaries calls for some ingenuity, particularly in rural areas. The following procedure is suggested:

1. Identify on the map the road that is used to reach the cluster. When a listing team reaches what appears to be the cluster boundary, this should be verified by checking the location of actual roads, terrain features, and landmarks against the location on the map. Boundaries can be streets, alleys, streams, power cables, walls, and rows of trees.
2. Do not depend on one single feature to identify the cluster; rather, use as many as possible. You can also check the general shape of the cluster, and sometimes there will be a written description of the cluster. It is important to locate all of the cluster boundaries before you begin listing. For example, if the cluster is a rectangular block, the names of three boundary streets are not enough to unequivocally identify the cluster; check all four boundary streets.
3. It is usually possible to locate unnamed roads or imaginary lines by asking people living in the vicinity. In most cases, these people will know where the villages are and, by locating the villages, you can usually determine where the boundaries run. Local authorities may be helpful, as well as residents of the area.
4. Although there are cases in which boundaries shown on the map no longer exist (for example, they have been demolished), or have changed location (for example, a road has been relocated or a river has changed course), do not be hasty in concluding that the cluster can no longer be identified. If you cannot identify all the boundaries of a cluster, discuss this with the Listing Coordinator before going to the next cluster.

### 3.2.1 Capture the cluster coordinates

During the first tour, the Lister will need to capture the GPS coordinates for the cluster on the tablet using option 5 from the main household listing menu in the CAPI HH Listing System application (i.e., “Capture cluster coordinates”).



The steps to capture the cluster coordinates are as follows:

**Step 1:**Locate the center of the cluster.

The Lister should ensure that they are roughly at the center of the cluster. If not, they should navigate to a point that is as close as possible to the center of the cluster.

**Step 2:** Select option 5: Capture cluster coordinates.

When they are at the center of the cluster, the Lister should select option 5 from the main household listing menu to start capturing cluster coordinates. The system then provides options for capturing the first set of coordinates. The system allows up to three measurements to be taken in each cluster. [[2]](#footnote-1)

Graphical user interface, application

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Graphical user interface, application

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**Step 3:** Capture cluster coordinates.

The system captures three sets of GPS readings. To capture the first set of coordinates, the Lister will select “Capture coordinates” and then tap the icon on the next screen to capture the coordinates. The tablet will then try to connect to satellites to capture a GPS reading. While doing this, the icon will pulsate until it is done.Icon

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At the bottom of the screen, the system displays the readings for the latitude, longitude, and accuracy of the GPS coordinates captured (see the red circle). The **latitude** and **longitude** are the readings in degrees. **Accuracy** refers to the precision of the reading in meters. A smaller value means the reading is more accurate, and a larger value means the reading is less accurate. Logo, company name

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The Lister can then click “Close,” and the system will move to capture the second set of coordinates. Step 3 will be repeated to capture the second set of coordinates and similarly for the third set of coordinates. The system also has an option to “Advance to next reading” to allow the Lister to be able to capture the next set of readings if unable to capture a previous set of readings. The option “Return to household listing/main menu” allows the Lister to exit the module and return to the main household listing menu. 

After coordinates have been captured for the cluster, the system automatically exits the application. Before doing the listing, the team should determine an efficient travel route for listing all the structures during the first tour of the cluster. If the cluster is very large—greater than 300 households—the cluster will need to be segmented (see Section 3.3 and Appendix A).

## 3.3 Segmentation of large clusters

Clusters with a large number of households will be time consuming and resource intensive to list completely. In these cases, large clusters must be subdivided into several small segments, only one of which will be selected for listing and included in the survey. In this case, the cluster corresponds to a segment of the originally selected cluster. For ZOI Surveys, clusters that are estimated to have more than twice the number of households compared to the average cluster size in the ZOI area or that have more than 300 households (irrespective of the average cluster size in the ZOI area) will need to be segmented.

If you encounter a cluster that you think needs to be segmented, inform your Listing Coordinator. They will confirm with the Central Office that segmentation is required. You will then follow the instructions on cluster segmentation provided in Appendix A, using the Cluster Segmentation module in the CAPI HH Listing System application on the tablet.

## 3.4 Preparing the location and sketch maps

This section discusses the steps the Cartographer needs to take to prepare the location and sketch maps.

During the first tour of the cluster, the Cartographer should create a **location map** on the LIST/2 Cluster Location Form (see Annex A.2). A location map shows the relative location of landmarks, public buildings such as schools, places of worship, and markets in and around the cluster, and main roads leading to the cluster, to help the Interviewer teams relocate the cluster during the main fieldwork (see Figure 2 for an example of a completed location map form). At the top of the Cluster Location Form, the Cartographer will fill in the identification box for the cluster. All the information needed for completing the identification box will be provided by the Listing Coordinator and should be confirmed with the information shown on the Lister’s tablet for the cluster. Any differences in the cluster information provided by the Listing Coordinator and what is on the Lister’s tablet should be communicated to the Listing Coordinator for resolution.

In the space provided, the Cartographer will draw a map showing the location of the cluster and include instructions on how to get to the cluster. The Cartographer will include all useful information to help find the cluster and its boundaries directly on the map and in the space reserved for observations. The map uses standard symbols to represent various types of structures and landmarks, as shown in Figure 3.

**Figure 2: Example of a Completed (LIST/2) Cluster Location Form**



**Figure 3: Standard Symbols for Mapping**

Table

Description automatically generated with low confidence

Next, during the second tour of the cluster, the Cartographer will draw a **sketch map** of all structures found in the cluster on the LIST/3 Cluster Sketch Map Form (see Annex A.3). Unlike the location map, which shows only the features most useful in identifying the cluster’s boundaries, the sketch map shows all structures in the cluster, including vacant structures and structures under construction.

The Cartographer should mark the starting point of the listing within the cluster with a large X. For each structure observed, the Cartographer will draw a small square on the map to represent its location. Each structure should be numbered on the sketch map. Beginning at the starting point marked by the X, the Cartographer will number each structure on the map with the number that corresponds to the serial number assigned on the Lister’s tablet for that structure. It is important that the structure number recorded on the map corresponds to the structure serial number assigned in the household listing form on the tablet for this structure because this information is used to locate the correct structure of a sampled household for the survey. An example of a cluster sketch map is shown in Figure 4.

It is important for the Cartographer and the Lister to work together in tandem and coordinate their activities to ensure that the structure numbers that the Cartographer indicates on the sketch map correspond to the serial number assigned in the household listing form for the same structure.

The mapping of the cluster and the listing of the households should be done in a systematic manner to avoid missing any households or creating duplicate listings.

If a cluster consists of several blocks, then the team should finish each block before going to the adjacent one. In each block, start at one corner of the block and move clockwise around the block.

In rural areas, where structures are frequently found in small groups, the team should work with one group of structures at a time, starting at the center of each group of structures (choosing any landmark, such as a school, to be the center), and moving around the landmark clockwise.

When there is a break in the continuity of the structures, such as when moving from one block to another, use an arrow to indicate how the numbers proceed from one set of structures to another. See the use of arrows in Figure 4 for examples on how to do this.

Although it may be difficult to pinpoint the exact location of a structure on the map, even an approximate location is useful for finding the structure in the future. The Cartographer will include on the sketch map all landmarks, such as parks, public buildings, schools, or community centers, and streets or roads. It is important to include all non-residential structures on the map, such as a place of worship or a blacksmith workshop, and to distinguish them from residential structures by using the appropriate symbols.

The Cartographer may wish to add landmarks that are just outside the cluster boundaries if they could help locate structures inside the cluster.



**Figure 4: Example of a Completed (LIST/3) Cluster Sketch Map Form**



### 3.4.1 Listing apartment buildings and multi-unit structures

For multi-unit buildings—structures that contain more than one dwelling unit—the Cartographer should sketch the layout of the apartments on a separate piece of paper. For example, if the structure is one level, the Cartographer should sketch the location of each apartment on one sheet of paper. If a structure has multiple floors, the Cartographer should draw sketches for each floor, indicating the dwelling units on that floor.

In addition to numbering the multi-unit structure on the map, each dwelling unit within the multi-unit structure must be numbered. Use the following standard numbering scheme to number the dwelling units in the multi-unit structure:

* Right to left, in relation to the main entrance
* If more than one floor, bottom to top

Keep in mind that, especially in urban areas, individual dwelling units may contain more than one household. If multiple households are found within a single dwelling unit, then each of the households will need to be assigned a serial number.

The Cartographer should attach these apartment sketches to the other maps created.

### 3.4.2 Listing compounds

A household consists of all people, including adults and children, who live together under the same roof, share cooking or housekeeping arrangements, and recognize the same lead decision-makers in the household.

The listing team may encounter a situation in which family members live in distinct huts within a compound. If all these family members share the same housekeeping and cooking arrangements and acknowledge the same person as the lead decision-maker, all members should be treated as one household, even if the huts have separate roofs. In this case, each hut needs to be drawn on the map, but all huts should be assigned the same structure number because they belong to the same household.

### 3.4.3 Using shape files and satellite imagery

For some countries, listing teams will receive shape files for the sampled clusters. Boundaries will be based on the GPS coordinates for these shape files. Where feasible, satellite images based on these coordinates will be overlayed, so that the listing team can see a map showing the structures that are in the cluster. In this situation, the listing team may be able to save some time and improve the accuracy of its work. Instead of drawing sketches for all the structures, the team can number the images of the structures shown on the satellite map.

If teams are working with a satellite image-based map, the listing team should follow the same general listing procedures described in this manual. Specifically, the team will still need to verify each structure and record dwelling units and households on its listing sheet.

In addition, satellite maps may not be current photographs—they may show a snapshot view made several months ago; therefore, some structures could be missing (e.g., structures built after the map was created), and the listing team will need to draw them on the map. There may also be structures that have been recently demolished but still appear on the map. In that situation, the listing team should mark the structure with a big “X.”

In addition, if the listing team encounters a multi-unit structure, the Cartographer will still need to draw the layout of the apartments within the structure on a separate piece of paper, as described previously.

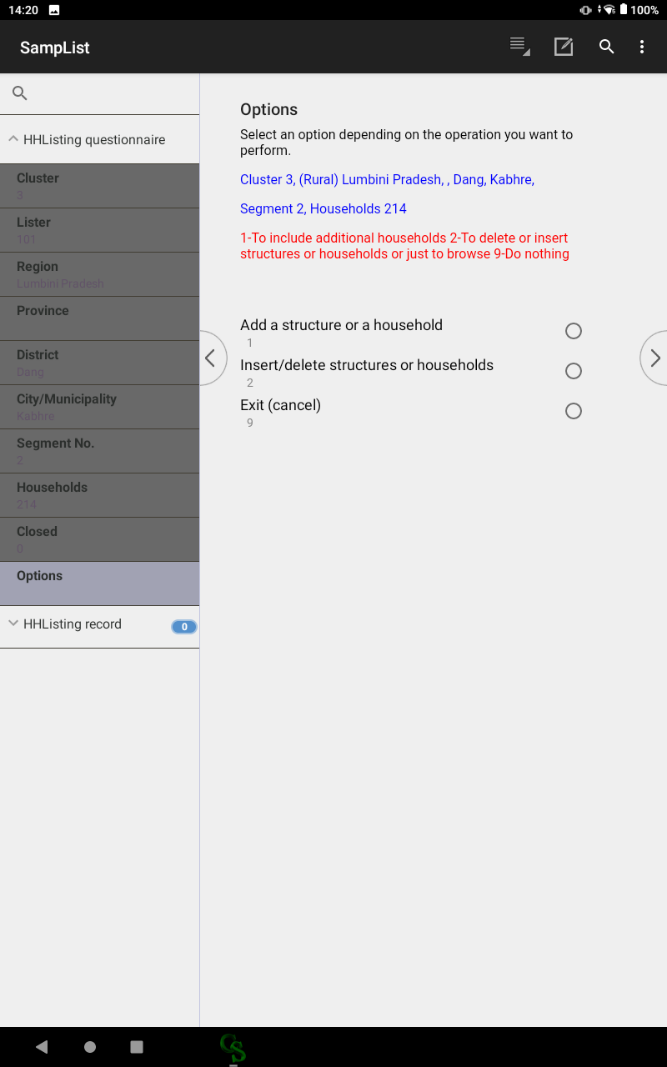
## 3.5 Listing the households

After segmentation has been completed for clusters that required segmentation or for clusters for which no segmentation was necessary, the listing of structures, dwelling units, and households will be undertaken by selecting option 2 from the main household listing menu (i.e., “Register household listing in cluster”).

Graphical user interface, application

Description automatically generated

When option 2 of the main menu is selected, the system first displays the cluster information to help the listing team identify that they are in the correct cluster. It then gives options to the Lister on how they can proceed.



The Lister has three options for how to proceed. The Lister can add structures or households (option 1), insert or delete structures or households on the roster of previously recorded households (option 2), or simply exit the form with no modifications (option 9). At the beginning of listing a cluster and most of the time afterward, the Lister would use option 1 to add structures or households (see Section 3.5.1).

Option 2 is used after listing in a cluster has already started and the listing team identifies structures or households that may have been missed during the listing, or structures or households that were incorrectly listed and need to be removed from the listings (see Section 3.5.2).

### 3.5.1 Adding structures or households

Graphical user interface, application

Description automatically generated

After the Lister selects option 1 (i.e., “Add a structure or a household”) from the “Options” screen, the system asks the Lister to choose the specific type of operation that they want to perform in adding new structures or households (see the following “Intr” screen). This screen is critical because it instructs the system on the type of dwelling units or households that are about to be registered. The following screen is displayed by the system.

Graphical user interface, application

Description automatically generated

The rest of Section 3.5.1 goes through each of these options.

**Option 1 (“Add new structure”)**

Graphical user interface, application

Description automatically generated

This option is used to register new structures during listing. Structures are free-standing buildings that can either be residential (such as a house or an apartment building) or non-residential (such as a shopping center or school). In some cases, only part of a structure may be used for residence—for example, a security guard living within a non-residential structure such as a school or factory building.

On the next screen, the system requests the Lister to indicate whether this structure or part of it is used as a residential unit. Structures used for both residential and non-residential purposes, such as a combination of store and home, should be classified as residential (i.e., select “Yes”). Make sure to list any dwelling unit found in a non-residential structure, such as a security guard living inside a factory. If the structure is not residential, select “No.”

Graphical user interface, text, application

Description automatically generated

If the Lister indicates “Yes,” then the system will require the Lister to complete the following information on the subsequent screens:[[3]](#footnote-2)

**Address or description of structure/dwelling unit:** The Lister will need to record the street address of the structure/dwelling unit, if available. If structures do not have visible street addresses, the Lister will give a description of the structure/dwelling unit and any details that can help the survey team locate it, such as “in front of the school” or “next to the store.” Note that this field is mandatory and cannot be left blank, because this information is important to identify the household for the survey team.

**Name of a responsible adult:** The Lister will try to obtain the name of a responsible adult for this household. The Lister needs to ask a responsible household member: “Please tell me the name of a responsible adult in this household.” If no one is home at the dwelling unit, you can try to obtain this information by asking a neighbor. A person is considered an adult if they are 18 years of age or older. The Lister may in some cases encounter households with only children and no adults residing within them, called “children-only households.” For children-only households, the name of a *responsible household member* should be recorded, noting that this is a children-only household.

If the dwelling unit is known to be vacant, write “vacant” in this field. If you are unable to determine the name of a responsible adult for the household, write “unknown.” Note that this field is also mandatory and cannot be left blank, because this information is important to identify the sampled household for the survey team.

Remember that there can be more than one household in a dwelling unit, such as a free-standing house or an apartment that is meant as a single unit dwelling but there is more than one family residing in it as separate households. Each household found should be listed separately. Therefore, in addition to asking for the name of a responsible adult, the Lister will also need to find out if there are multiple households within each dwelling unit. The Lister should ask the following questions to determine whether there is more than one household in the dwelling unit:

1. **Ask: “How many families live here?”**

If more than one family is living in the dwelling unit, it is possible that more than one household is living in the dwelling unit.

Note that a single person who is living in the dwelling with the family, but who does not share cooking arrangements and does not recognize a common authority for household decision-making, should be considered a separate family or household, even though it is only one person.

1. If the Lister finds:
   1. There is only one family, then no further questions need to be asked about other households residing in the dwelling.
   2. There is more than one family, then they should ask the following questions:
      1. **“Do the two families acknowledge the same person or persons as lead decision-makers for the household?”**
      2. **“Do the two families share the same housekeeping and cooking arrangements?”**
      3. **“Do the two families share the same contiguous roof?”**

If the answer to any of these questions (i-iii) is “No,” then the Lister will list the other family or families as separate households residing in the same dwelling, using option 2 (“Add a household to previous structure”) on the “Intr” screen (see below). The Lister should add the name of the responsible adult for that household and note on the “LNotes” screen that there are two households in the dwelling.

Ahead of implementing the listing operation, the Listing Coordinator should be sure to advise the Lister on any situations that may pose difficulties in determining the status of the household for listing. Are there any unusual household structures in the ZOI? For example, in some communities extended family members may reside in the same compound and could even share some resources, cook, and eat together as a larger unit. However, they may not all acknowledge the same person or persons as primary decision-makers, and therefore, would be considered as separate households. Workers living and eating with a household, such as some domestic workers, would be included as household members.

**GPS coordinates for the household:** GPS coordinates need to be recorded for each household listed. The system provides the following options to the Lister, depending on the action to be taken:

Graphical user interface, application

Description automatically generated

(i) **“Take coordinates for the HH now”** is used to capture a new set of coordinates for the household. Selecting this option will take the Lister to a set of screens like those used to capture the GPS coordinates for the cluster (see Steps 2 and 3 in Section 3.2.1).

To capture the first set of coordinates, the Lister will select “Capture coordinates” and then tap the icon on the next screen to capture the coordinates. The system will then try to connect to satellites to capture a GPS reading. While doing this, the icon will pulsate until it is done receiving a GPS reading.Icon

Description automatically generated

Graphical user interface, application

Description automatically generated

At the bottom of the screen, the system displays the readings for the latitude, longitude, and accuracy of the GPS coordinates captured for the household. The **latitude** and **longitude** are the readings in degrees. **Accuracy** refers to the precision of the reading in meters. A smaller value means the reading is more accurate, and a larger value means the reading is less accurate. Logo, company name

Description automatically generated

The Lister can then click “Close,” and the system will move to capture the second set of coordinates. A similar process will take place to capture the second set of coordinates as well as the third set of coordinates.

The system also has an option to “Advance to next reading” to allow the Lister to be able to capture the next set of readings if unable to capture the coordinates at a previous reading. The option “Return to household listing/main menu” allows the Lister to return to GPS options screen.

(ii) **“Copy coordinates from previous HH”** is used to copy GPS coordinates from the previous household for which GPS coordinates were taken. This option will be used in cases in which there are multiple households in the same structure, such as an apartment building. Rather than the Lister having to capture GPS coordinates for all these households, which would have similar coordinates because they are in the same structure, the system allows the Lister to copy the coordinates from the previous listed household in the same structure using this option.

(iii) **“Do not take the HH coordinates now”** allows the Lister to skip this step and come back at another time to capture the GPS coordinates. This option should only be used if a problem is encountered in capturing the GPS coordinates for a household. Ideally, the capturing of the GPS coordinates should occur immediately during the listing of a household.

(iv) **“Replace existing HH coordinates”** allows the Lister to replace the GPS coordinates previously captured for a household with a new set of readings.

After the GPS coordinates have been captured, on the next screen, the system provides a space for the Lister to note any special remarks that might help the survey team locate the structure or identify the household during the main survey fieldwork. It is particularly important to include a note if more than one household lives in a dwelling unit. For non-residential structures, this column can be used to describe the use of the structure, such as shop or school.

Graphical user interface, text, application

Description automatically generated

Listers are encouraged to use this field to provide any information that may help identify the household later.[[4]](#footnote-3) In fact, at any point in the process of the household listing operation, the Lister can also use the button on the top right of the screen to take any notes that they consider important.

**Option 2 (“Add a household to previous structure”)**

Graphical user interface, application

Description automatically generated

This option is used to add additional dwelling units or households to an existing structure that has already been registered during the listing, such as for adding additional dwelling units to an apartment building or for single free-standing houses with more than one household. This option would also be used to add multiple households to the same dwelling unit in an apartment building.

When the Lister selects this option, the system will ask the Lister to confirm whether the household being added belongs to the previous registered dwelling or is a new dwelling. Option 1 (i.e., “Same as previous dwelling”) is used in cases in which there is more than one household residing in the same dwelling unit. For example, a free-standing house or apartment is meant to be a single unit residence, but the Lister finds that there is more than one household residing within it (see Section 3.5.1 and Appendix B for instructions on how to determine if more than one household resides in a dwelling unit).

If the household being registered is a separate dwelling in the same structure, then option 2 (i.e., “New dwelling”) will be selected.

Graphical user interface, application

Description automatically generated

The system then asks the Lister to follow a similar process as described above for option 1 (“Add a new structure”) to capture the following information on the subsequent screens:

* Address or description of structure/dwelling unit
* Name of a **responsible adult**
* GPS coordinates for the household
* Any notes/observations

The layout and process to complete this information on the subsequent screen are the same as what has been described previously and therefore not shown here.

**Option 8 (“Temporary stop HH listing”)**

Graphical user interface, application

Description automatically generated

This option is used to temporarily stop the cluster household listing with the intention of resuming the work later.

**Option 9 (“Finalize listing for cluster”)**

Graphical user interface, application

Description automatically generated

This option is used after having recorded all structures, dwelling units, and households in the cluster. When this option is used, the system populates the “Closed” field in the Case Tree (circled in green above) to indicate the date when the listing was completed for this cluster. This option should only be used when the listing team is ready to close listing in the cluster. Before selecting this option, the listing team must verify the listings and ensure that the entire cluster has been covered and all listings are captured correctly on the application as well as annotated on the sketch map correctly.

Before closing the listing in a cluster, the listing team should be careful to ensure that they have located all hidden structures and dwelling units in the cluster. In some areas, structures have been built so haphazardly that they can easily be missed. If there is a pathway leading from the listed structure, check to see if the pathway goes to another structure. People living in the area may help in identifying the hidden structures.

Every cluster must have its own comprehensive set of listing forms (LIST/2, LIST/3, and LIST/5; see Annex A). When these are completed, the Listing Coordinator should check them to ensure that the entire cluster has been included and that there are no duplications. The listings on the household listing forms should be carefully compared to the sketch map to ensure that every structure on the sketch map is listed on a household listing form and that every structure on the household listing form can be located on the sketch map.

Remember that later, each of the selected households will be visited, and members will be asked to participate in the survey. To ensure that the survey produces representative, unbiased data, *it is extremely important that every household in selected clusters is included in this household listing*.



### 3.5.2 Inserting or deleting structures or households

During the listing of a cluster, the listing team may encounter a situation in which they realize that they have missed a structure or household during the listing process and would now like to add it to the listings, or they may have mistakenly listed a structure or household twice and would like to delete this entry from the listing (i.e., incorrect listing). The option circled below allows the Lister to make these changes.

Graphical user interface, application

Description automatically generated

Note that this option is only used to make changes such as inserting new records or deleting records from the existing listing of structures and households in the cluster. If the Lister would like to add new structures and households to the listings as additional records without changing the existing list of households and structures, then they should use option 1 (“Add a structure or a household”) on this screen and follow the instructions in Section 3.5.1 and not option 2 (“Insert/delete structures or households”) as illustrated in this section.

When the Lister selects option 2 (i.e., “Insert/delete structures or households”) from the “Options” screen, the system asks the Lister to choose the specific type of operation that they want to perform in inserting or deleting within the listed structures or households (see “Intr” screen that follows). This screen is important because it instructs the system on which records to change in the existing listing and the type of change to be registered. The following screen is displayed by the system.

Graphical user interface, table

Description automatically generated

**Option 3 (“Delete current entry”)**

Graphical user interface, table

Description automatically generated

This option is used to delete an entry from the listings. However, the system is set to start at the first record on the roster, and the Lister needs to navigate down the roster list until reaching the record to be deleted. To move down the roster list, the Lister should first select option 6 (“Move to next record”) and click “**>**” to move down the list, record by record, until reaching the record that they want to delete.

The Lister can keep track of which record they are at while moving down the list of records by looking at the Case Tree on the left of the screen and the “HHListing record” number at any given point.

Graphical user interface, table

Description automatically generated

When the Lister reaches the record, they want to delete, they will then select “Delete current entry” to delete this record. The system will ask the Lister to confirm that they are sure they want to delete this record. At this point, the Lister should ensure that they are certain that they want to delete the record in question, and then they can select “Yes” to confirm deletion. A message will appear on screen to indicate that the selected record has been deleted.

Graphical user interface, text, application

Description automatically generated

**Option 4 (“Insert a structure”)**

Graphical user interface, table

Description automatically generated

This option is used when the Lister accidentally missed a structure during listing and would now like to add that structure in the listing roster. Like option 3, to be able to move to the record in the listing for which the Lister would like to insert a structure, the Lister first needs to select option 6 (“Move to next record”) and click “**>**” to keep moving down the list of records until reaching the record before which they want to insert the structure.

The Lister can keep track of which record they are at while moving down the list of records by looking at the Case Tree and the “HHListing record” number at any given point as shown above under option 3. When the Lister is at the record for which they want to insert a structure, they can then select option 4 (“Insert a structure”).

The system will then ask the Lister to confirm if this structure or any part of it is used as a residential unit. The system will require the Lister to complete the required information on the subsequent screens as done for option 1 (“Add a structure or a household”) and as described in Section 3.5.1.

Graphical user interface, text, application

Description automatically generated

Note that this option to insert a structure can only be used to insert a structure between two records that are not part of the same structure. If the Lister tries to use this option between records within the same structure (for example between two dwelling units in the same apartment building), then the following error message will be displayed because it is not possible to insert a structure between two records within the same structure.

Graphical user interface, application

Description automatically generated

**Option 5 (“Insert a household to previous structure”)**

Graphical user interface, table

Description automatically generated

This option is used when the Lister by mistake missed a dwelling unit or household during listing and would now like to go back and add that dwelling unit or household in the correct structure on the listing roster. This is necessary because the order in which households are registered in the cluster for the CAPI HH Listing System is important for sampling selection of households.

Like options 3 and 4, to be able to move to the record in the listing where the Lister would like to insert the dwelling unit or the household, the Lister first needs to select option 6 (“Move to next record”) and click “**>**” to keep moving down the list of records until reaching the record before which they want to insert the dwelling unit or structure.

The Lister can keep track of which record they are at while moving down the list of records by looking at the Case Tree and the “HHListing record” number, at any given point, as shown previously for option 3. When the Lister is at the record before which they want to insert a dwelling unit or household, they can then select option 5 (“Insert a household to previous structure”).

The system will then ask the Lister to confirm that the household being inserted belongs to the previous registered dwelling or is a new dwelling and will require the Lister to complete the required information on the subsequent screens as was done for option 1 (“Add a structure or a household”) and as described in Section 3.5.1.

## 3.6 Report of households listed in cluster

Option 3 of the main menu is designed to help Listers check the status of the household listing operations in the cluster. This report can be produced at any time during the listing process.

Graphical user interface, application

Description automatically generated

The report shows all information collected as part of the household listing operations. It is divided into three major components:

1. Households registered in the system on the date of producing the report (note the date given at the top of the table). This section also indicates to which cluster these listings correspond as well as the status of the cluster (i.e., whether it is “open,” meaning still in progress, or whether it is “closed,” meaning that the Lister has finalized listing in this cluster).
2. Segmentation, when relevant
3. The cluster-level GPS coordinates based on an average of the household-level GPS coordinates captured at the time of producing the report

Graphical user interface, table

Description automatically generated



Graphical user interface, text, application, table

Description automatically generated

## 3.7 Change cluster number, transfer data, and exit system

The last three options on the CAPI HH Listing System main menu are as follows:

Graphical user interface, application

Description automatically generated

**Option 6 (“Change cluster number”)** takes the Lister back to screen with the drop-down list of clusters where they can select another cluster number (see Section 3.2). This option should not be used frequently because the cluster number should be established on arrival in a cluster, and it is advised that the listing team finalize one cluster before moving to another one.

**Option 7 (“Transfer data to central office”)** enables the Lister to tell the system to submit all cluster-related data to the Central Office at that time. The system uses a secure file transfer protocol to transfer data from the field to the Central Office. This is done automatically on a daily basis as long as Listers have access to the Internet. It is also recommended that as soon as a cluster is declared finalized, the Lister should use this option to send the updated data to the Central Office. Again, this operation is only possible if the Lister is connected to the Internet.

**Option 8 (“Exit system”)** should be used if the Lister does not expect to work with the system for a prolonged period or if they are taking a break. If the system is not exited properly, files may not be properly closed, and the Lister may get error messages the next time they access the system. It is important to exit the system using this option.

## 3.8 Recording cluster characteristics

The listing team should record the characteristics of each cluster on the LIST/5 Cluster Characteristics Form (Annex A.4). This includes (1) the languages spoken in the cluster; (2) whether cell phone service is available and, if so, the name of the service providers that have coverage in the area; (3) whether the Internet is available and, if so, where it can be accessed; and (4) about how long the Lister estimates it takes for farmers to walk to their plots. This information is particularly useful during the interviewing phase of the study.

# Quality control

Before leaving any cluster, the listing team should check to be sure that all structures are marked on the LIST/3 Cluster Sketch Map Form and all households are listed in the CAPI HH Listing System application on the tablet for that cluster. Compare the information recorded on the household listing to the sketch map to be sure that the structure numbers correspond on both for each structure.

You will provide your sketch maps to your Listing Coordinator, who will then review the quality of your work together with the data captured on the tablet for the cluster.

**Reviewing quality of sketch maps.** The Listing Coordinator will carefully review the sketch maps to ensure that every structure can be located. Field teams that conduct the survey will need to find dwelling units based on these maps, so the Listing Coordinator will assess how easily the maps can be read to identify structures.

**Ensuring consistency between sketch maps and listing information captured.** The Listing Coordinator will compare the sketch maps to the listing information captured on the tablet to ensure that all structures in the entire cluster have been included on the listing, that there are no duplications, and that structure numbers are the same on the sketch maps and the listings for each structure.

**Reviewing quality of listing.** The Listing Coordinator will perform a quality check of the listing. The Listing Coordinator will randomly select 10 percent of the structures in each cluster and list those structures themselves. The Listing Coordinator will compare what is listed on the tablet with what they find when visiting a selected structure.

The Listing Coordinator will perform these quality control checks before the team has left the cluster. If errors are found because the listing team did not follow the proper protocol, the whole cluster will be relisted. If any errors are found that are specific to one or two households, such as incorrectly entering the name of a responsible adult in a household, corrections will be made on the household listing application, and no relisting will be necessary.

# Community outreach

The work of the listing team will also serve to introduce the ZOI Survey to the communities selected for participation. While working in each cluster, the listing team should talk to community members and help them become familiar with the survey, which, in turn, will help ensure that the community is ready to receive the interviewing teams when they arrive to perform the interviews with selected households.

Before the listing operation begins, the Listing Coordinator will contact the regional, district, local, and village officials to obtain their agreement to the listing being done in their area. Tact and sensitivity in explaining the purpose of the survey to the community during the listing operation will help gain the cooperation needed to conduct the interviews when fieldwork begins.

The listing teams will be provided with literature (for example, leaflets, posters, or brochures) describing the survey objectives and informing the community that Interviewers will be visiting the area in the coming weeks. Ask local officials for permission to display or distribute these documents and seek suggestions for the best locations to put them.

# Appendix A: Segmenting large clusters

Some enumeration areas (EAs) selected for the survey during the first stage of selection may be found to have grown to be very large in population size. A complete listing of these EAs may represent a significant cost in terms of time and resources and may not be feasible to be undertaken for just one survey. If a sampled EA has grown too large by the time of the listing operation, field teams need to divide the EA and subsample one part of it, in a process called “segmentation.”

A quick count of the number of dwelling units in a sampled EA on the first tour should give a sense of how large the EA is. Segmentation should only take place for those clusters that are deemed so large that the listing fieldwork becomes unwieldy. For Feed the Future Zone of Influence Surveys, the cut-off to determine when an EA needs to be segmented is based on the average number of households within an EA in the survey area.[[5]](#footnote-4) If possible, EAs to be segmented should be divided into segments of roughly equal size to try to preserve a self-weighting sample design. However, it is important to adopt segment boundaries that are easily identifiable so that listing errors can be minimized.

In most cases, a cluster would only need to be segmented into two segments, with an ideal segment size around the same number of households as the average EA size in the survey area. If the average number of households per EA is found to be 150 households or more, then the ideal segment size would be around 150 to 200 households. Dividing an EA into many segments—more than three—should be avoided, unless necessary to minimize errors. If it is determined that a cluster should be segmented, it should be divided as many times as needed so that each segment: (1) comprises roughly the ideal segment size in terms of number of households in the survey area, (2) is roughly equal in size in terms of number of households with other segments, and (3) has clearly identifiable boundaries. Having clearly identifiable segment boundaries is most critical to avoid errors in listing and therefore takes precedence over the other conditions. Each segment should be formed in such a way that it is as compact as possible and so that it contains households that are contiguous to one another. Then, one segment from among all the segments within the EA will be randomly selected by the system for listing purposes.



If the EA size is found to be larger than cut-off value for segmentation as determined for the survey, then the team needs to first **communicate with the Listing Coordinator,** providing 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 Listing Coordinator.** After the Listing Coordinator gives the go ahead, the segmentation of the cluster and selection of a sample segment for listing will be conducted as follows:

**Step 1:** Draw a location map.

The Cartographer will draw a location map of the entire cluster using the LIST/2 Cluster Location Form, as described in Section 3.4.

**Step 2:** Identify segments within the cluster.

Using identifiable boundaries, such as roads, streams, and electric power lines, the listing team will divide the cluster into the designated number of roughly equal-sized segments.

**Step 3:** Note the segment boundaries on the cluster location map.

On the cluster location map, the boundaries of the segments created should be clearly shown.

**Step 4:** Capture the information for each segment on the tablet.

The Lister will select the first option, “Implement cluster segmentation,” from the main menu of the CAPI HH Listing System. The system then displays a screen with two options. The Lister can go back to the main menu (i.e., selecting the option “Return to main menu”—if, for example, segmentation is not in fact needed) or they can begin capturing segmentation information for each segment (i.e., selecting the option “Execute segmentation”).

Graphical user interface, application

Description automatically generated Graphical user interface, text, application

Description automatically generated

**Note:** The system does not allow you to segment a cluster if households have already been entered for this cluster in the household listing screen (i.e., using option 2 from the CAPI HH Listing System main menu [see Section 3.5.1]). If households have already been entered, the error message below is displayed and only the option to go back to the main menu is allowed.

Graphical user interface, text, application

Description automatically generated

If no information for the household listing has been entered or collected for this cluster before and “Execute segmentation” is selected, then the system displays the next screen in which the Lister is requested to enter the estimated dwelling units for the first segment (i.e., segment 1).

Graphical user interface, application

Description automatically generated

On the next screen, the Lister is asked if there are more segments in the cluster to capture. The Lister will select “Yes” until information for all segments has been captured. The option “View segments” gives the listing team a running tally of the information entered for segments thus far during the process.

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Description automatically generated Graphical user interface, application

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After all segments have been captured and the segment numbers verified that they correspond with the segment numbering on the sketch map, the Lister can then select “No” to indicate that there are no more segments to capture.

**Step 5:** Select a segment using the tablet.

After “No” has been selected to indicate that there are no more segments to capture, the system then displays the “Select a segment” screen, asking whether it should proceed with selecting a segment from those that have been captured.

Graphical user interface, application, Word

Description automatically generated

If the answer is “No,” the warning message below is displayed, and all the segment information entered is discarded and the system returns to the main menu. This option may be selected if, for example, the listing team identifies an error or needs to redo the segmentation for some reason.

Graphical user interface, text, application

Description automatically generated

If there are no issues and selection of a segment can continue, then “Yes” will be selected. The system then calculates the percentage of the cumulative number of households and randomly selects one of the segments, displaying the information for the selected segment on the next screen.

Graphical user interface, text, application

Description automatically generated

At this point, the listing team should take note of the selected segment and ensure that the next step is implemented for the correct sampled segment. The Lister should then click “**>**” to return to the main menu for the CAPI HH Listing System.

**Step 6:** List and draw the sketch map for the selected segment.

On the main menu of the CAPI HH Listing System, the Lister will select option 2 (i.e., “Register household listing in cluster”) to begin listing within the selected segment, with the Cartographer drawing a sketch map for the selected segment in tandem, following the steps outlined in Section 3.4.

Note that the first screen after selecting option 2 on the tablet will display the cluster and selected segment information for the listing team.

The following example illustrates how the CAPI HH Listing System selects one of the segments in a large, sampled cluster.

Graphical user interface, application

Description automatically generated

**Illustrative example: Segment selection process**

Suppose a large cluster is identified, and, based on a quick count, it is found that there are 620 dwelling units in the cluster. Trying to ensure roughly equal-sized segments with clearly identifiable boundaries, it is determined that the cluster will be divided into three segments, as follows:

Segment 1: Containing 220 dwelling units, or 220/620=35 percent of the estimated dwelling units in the cluster

Segment 2: Containing 190 dwelling units, or 190/620=31 percent of the estimated dwelling units in the cluster

Segment 3: Containing 210 dwelling units, or 210/620=34 percent of the estimated dwelling units in the cluster

**Total: 620 dwellings, or 620/620=100 percent**

After entering the number of dwelling units in the tablet for each of the three segments (i.e., Step 4 above), the system automatically calculates for each segment, the percentage in terms of the number of dwelling units the segment represents in the cluster and the cumulative percentage (see Table A.1).

**Table A.1: Example of Cluster Segmentation**

| **Segment number** | **Number of dwellings** | **Percent** | **Cumulative percent** |
| --- | --- | --- | --- |
| 1 | 220 | 35 | 35 |
| 2 | 190 | 31 | 66 |
| 3 | 210 | 34 | 100 |

Next the system will generate a random number between 0 and 100. For this example, the tablet generates a random number of 67. Then the tablet will compare this random number with the cumulative percentage for each segment and select the first segment whose cumulative percent is greater than or equal to the random number. In this example, segment 3 is then the selected segment, and the household listing operation will proceed in segment 3, as described previously.

# Appendix B: Determining if there are multiple households in a dwelling unit

IN ADDITION TO ASKING FOR THE NAME OF A RESPONSIBLE ADULT, YOU NEED TO FIND OUT IF THERE ARE MULTIPLE HOUSEHOLDS WITHIN EACH DWELLING UNIT. ASK THE FOLLOWING QUESTIONS TO DETERMINE IF THERE IS MORE THAN ONE HOUSEHOLD IN THE DWELLING UNIT:

1. Ask: “How many families live here?”

If there is more than one family living in the dwelling unit, it is possible that there is more than one household living in the dwelling unit.

Note that a single person who is living in the dwelling with the family, but who does not share cooking arrangements and does not recognize a common authority for household decision-making, should be considered a separate family or household, even though it is only one person.

1. If you find:
   1. There is only one family, you do not need to ask any further questions about other households residing in the dwelling.
   2. There is more than one family, then you should ask the following questions:
      1. “Do the two families acknowledge the same person or persons as lead decision-makers for the household?”
      2. “Do the two families share the same housekeeping and cooking arrangements?”
      3. “Do the two families share the same contiguous roof?”

**If the answer to any of these questions (i-iii) is “No,” then list the other family or families as separate households residing in the same dwelling following the instructions as outlined for option 2 (“Add a household to previous structure”) in Section 3.5.1.**

# Annex A: Blank listing forms

## A.1 LIST/1 Listing Summary Form

**Listing Summary Form, [SURVEY NAME]**

Listing Coordinator: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Page \_\_\_\_\_ of \_\_\_\_\_\_

| **Cluster**  **Name** | **Cluster Number** | **Start Date** | **End Date** | **Number of Dwelling Units** | **Number of Households** | **Comments** |
| --- | --- | --- | --- | --- | --- | --- |
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## A.2 LIST/2 Cluster Location Form

**LIST/2: Cluster Location Form, [SURVEY NAME]**

| **IDENTIFICATION** | |  | OBSERVATIONS: |
| --- | --- | --- | --- |
| PROVINCE\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | PROVINCE CODE |  |  |
| DISTRICT \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | DISTRICT CODE |  |  |
| TOWN/VILLAGE\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | TOWN/VILLAGE CODE |  |  |
| NAME OF MAPPER \_\_\_\_\_\_\_\_\_\_\_\_ | CLUSTER CODE |  |  |
| NAME OF LISTER \_\_\_\_\_\_\_\_\_\_\_\_\_ | FTF CLUSTER NO |  |  |



## A.3 LIST/3 Cluster Sketch Map Form

**LIST/3 Cluster Sketch Map Form, [SURVEY NAME]**

CLUSTER

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## A.4 LIST/5 Cluster Characteristics Form

**LIST/5 Cluster Characteristics Form, [SURVEY NAME]**

Region: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ District: \_\_\_\_\_\_\_\_\_\_\_\_\_\_ Cluster Name: \_\_\_\_\_\_\_\_\_\_\_\_\_ Cluster Number:

Listing Coordinator: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_

| **Q1.**  What are the main languages spoken in this cluster? | Language 1:  \_\_\_\_\_\_\_\_\_\_\_\_ | Language 2:  \_\_\_\_\_\_\_\_\_\_\_\_ | Language 3:  \_\_\_\_\_\_\_\_\_\_\_\_ | Language 4:  \_\_\_\_\_\_\_\_\_\_\_\_ | Language 5:  \_\_\_\_\_\_\_\_\_\_\_\_ | Language 6:  \_\_\_\_\_\_\_\_\_\_\_\_ |
| --- | --- | --- | --- | --- | --- | --- |
| **Q2.**  Is cell phone service available in this cluster?  CIRCLE ONE:  YES 🡪 GO TO Q2a  NO 🡪 GO TO Q3 | **Q2a.**  If YES, who are the service providers?  (WRITE PROVIDER NAMES IN COLUMNS TO THE RIGHT) | Provider 1:  \_\_\_\_\_\_\_\_\_\_\_\_ | Provider 2:  \_\_\_\_\_\_\_\_\_\_\_\_ | Provider 3:  \_\_\_\_\_\_\_\_\_\_\_\_ | Provider 4:  \_\_\_\_\_\_\_\_\_\_\_\_ | Provider 5:  \_\_\_\_\_\_\_\_\_\_\_\_ |
| **Q3.**  Is Internet or Wi-Fi service available in this cluster?  CIRCLE ONE:  YES 🡪 GO TO Q3a  NO 🡪 END | **Q3a.**  If YES, where is it available?  (WRITE ACCESS POINT LOCATION NAMES IN COLUMNS TO THE RIGHT) | Access point1:  \_\_\_\_\_\_\_\_\_\_\_\_ | Access point 2:  \_\_\_\_\_\_\_\_\_\_\_\_ | Access point 3:  \_\_\_\_\_\_\_\_\_\_\_\_ | Access point 4:  \_\_\_\_\_\_\_\_\_\_\_\_ | Access point 5:  \_\_\_\_\_\_\_\_\_\_\_\_ |
| **Q4.**  How long does it take farmers in this community to walk to their plots? | Notes: | | | | | |

1. For a general overview of navigating in the CSEntry application, select “Help” under the options menu () on the top right of the screen when using any of these applications. [↑](#footnote-ref-0)
2. The standard procedure is to use the GPS capabilities in the listing application on the tablet to capture GPS coordinates. However, if the GPS on tablets does not work for some reason, teams may be provided a GPS device as a backup. If the GPS device is used to determine the GPS coordinates for the cluster, then these GPS readings should be captured in the notes field by clicking on in the top right-hand corner of the screen during Step 2. [↑](#footnote-ref-1)
3. If the structure or any part of it is not used as a residence, then only the information on the address/description of the structure and any notes/observations are captured for this structure. [↑](#footnote-ref-2)
4. The standard procedure is to use the GPS capabilities in the listing application on the tablet to record GPS coordinates. However, if the GPS on tablets does not work for some reason, listing teams may also be provided a GPS device as a backup. If the GPS device is used to determine the GPS coordinates for the household, then these GPS readings should be captured in the LNOTES field shown above. [↑](#footnote-ref-3)
5. To determine the cut-off for segmentation, follow these steps: Step 1: Calculate the average number of households per EA, using the size measure (number of households per EA) available from the first-stage sampling frame. For example, suppose that based on this calculation it is found that there are 100 households per EA on average. Step 2: Double the average number of households (e.g., 100x2=200 households). This is the cut-off for the number of households in an EA above which segmentation is required. Step 3: If the average number of households per EA is found to be 150 households or more, then the cut-off for segmentation will remain at 300 households. [↑](#footnote-ref-4)