

CHAPTER VI

CONDUCTING THE FIELD WORK

This chapter should be read by technical resource persons and survey coordinators. Supervisors and interviewers should read the sections that are relevant to them. The chapter will teach you:

- ✓ How to map and locate the households.
- ✓ How to handle some special situations in the field.
- ✓ What interviewers should do in the field.
- ✓ What supervisors should do.

HOW TO MAP AND LOCATE THE HOUSEHOLDS

In chapter 4, you were asked to choose a sampling procedure for households within small areas such as villages or census enumeration areas. We now give detailed guidelines on how to select households using three alternative methods: segmentation, starting point based on a boundary map or EPI-style random walk. Read carefully the option corresponding to your sampling design.

In this chapter, the following definitions are used:

- A *household* is a group of persons who eat and live together.
- A *dwelling* is a building or residential unit. It may include one or more households, as in the case of compounds or apartment buildings.

USING SEGMENTATION TO IDENTIFY THE CLUSTERS

Segmentation must be done by a supervisor, usually one or more days before the field work. Follow the steps below for each small area selected:

1. **Compute the number of segments to be created** by dividing the total number of households in the small area—according to the last census—by the desired cluster size. Table 6.1 gives the number of segments to create in an area when the cluster size is equal to 40.

EXAMPLE:

Suppose the census recorded 250 households in the village and the cluster size is 40. Dividing 250 by 40 gives 6.25. Round it to the nearest whole number, in this case 6. Exactly six segments are to be made in this village. You would have reached the same result by using Table 6.1.

Table 6.1. Determining the number of segments to create in a given small area (cluster size = 40)

1–60	1
61–100	2
101–140	3
141–180	4
181–220	5
221–260	6
261–300	7
301–340	8
341–380	9
381–420	10

etc.

In some cases the area may be very populated—more than 1,000 households. You may divide these first into four quadrants with approximately the same area and then select one of the quadrants at random before carrying out the segmentation. In this case, the census count must be divided by 4.0 before calculating the number of segments in a quadrant. A note must be made of these special cases so that the proper survey probabilities and weights can be calculated later at the analysis stage.

EXAMPLE:

A village with 1,400 households may be divided into four quadrants of about 350 households each. According to Table 6.1, above, nine segments would be created in the chosen quadrant and one of these segments selected at random.

2. To prepare the sketch map, go to the field with the available boundary map and locate the outer boundaries of the small area. If a map is not available, get help from a local person and draw a map marking these boundaries, identifying the names of roads, lanes, streets and showing physical boundaries such as streams, rivers, and so forth.

3. **Draw internal markers**, which will help identify locations and aid in establishing a path of travel. These would include internal streets, paths, streams and so forth.

4. **Draw a small square representing each dwelling unit in its appropriate location on the map.** For help in later locating the households, it is also useful to mark other prominent buildings—schools, churches, mosques, and so forth.

☞ Note that the sketching should be a "quick count" operation for locating dwellings. It does not require knocking on doors to inquire about households or the names of occupants. An exception is multi-dwelling buildings that appear to include several households—for example, in the case of large compounds or apartment buildings, where you should ask about the number of households and record it on your map.

5. **Count the number of dwellings in the small area** and divide it by the desired number of segments calculated in step 1 above. This will give you the actual number of households in each segment.

For purposes of making the segments, absolute precision in the count of households is not necessary. A quick count of dwellings can be used instead of counting households.

6. **Based on the sketch map, divide the area into segments with roughly the same number of dwellings.** This means that the size of the segments in terms of area is likely to vary considerably—densely populated areas will have geographically small segments and low-density segments will be large. Give each segment a number.

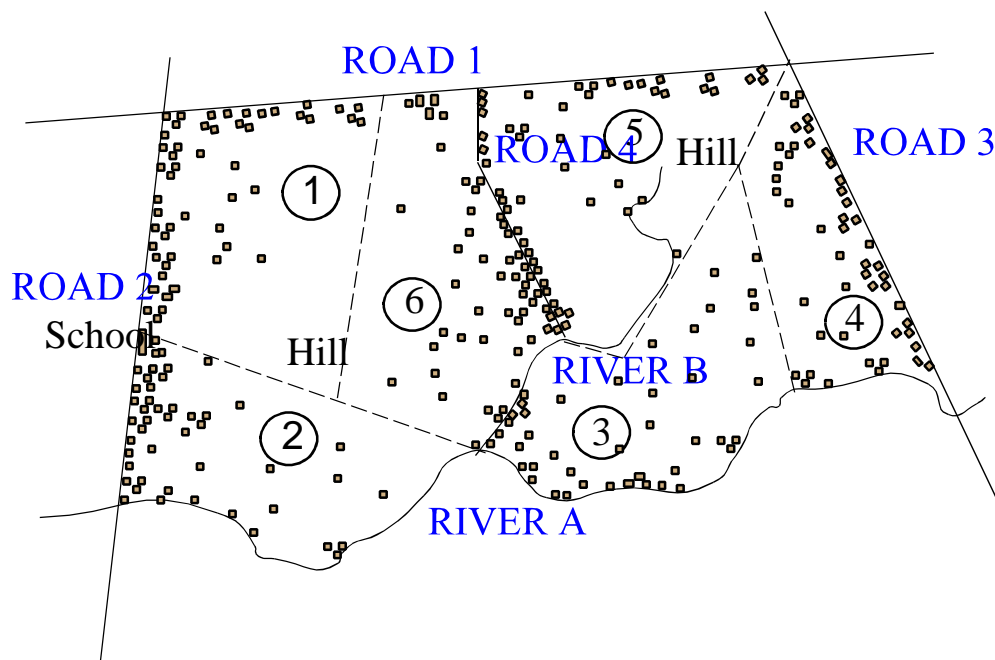
📎 **EXAMPLE:**

You had calculated that you needed six segments and, after mapping, your area was found to include 310 dwellings. You should then divide it into six segments of 51 dwellings each.

☞ It is essential to create segments in such a way that segment boundaries can be easily identified. You may have to relax the criterion of equal-sized segments in order to achieve this. The segment will be visited later, perhaps by some other field worker, so the boundaries must be readily identifiable on the sketch map and on the ground.

The number of segments should be calculated on the basis of the last census count even if the population within the small area has changed since the census. This will ensure that changes in population are automatically adjusted for.

Figure 6.1. Map of hypothetical rural area showing creation of six segments with approximately 50 dwellings each



7. After segmentation has been completed, the next step is to select one and only one segment at random in each of the small areas. Using a random number table or writing the numbers in pieces of paper, choose a random number between 1 and the number of segments created in the area to identify which segment is to be selected.

EXAMPLE:

If the small area has been divided into six segments, choose a random number between 1 and 6 to determine which is selected. Do this independently for each selected small area.

If possible, the person selecting the segment should not be the same one who created the segmentation in the first place, in order to prevent the possibility of inadvertent bias.


Box 6.1
USING SEGMENTATION IN URBAN AREAS

Segmenting urban areas is easier than segmenting rural areas. Cities and towns are usually organized into blocks or some similar units. When using census enumeration areas, maps are usually available showing streets and blocks. If unavailable, these maps can be easily drawn. A quick drive through the area will let you find out whether the number of dwellings appears to be about the same in every block. If so, the segmentation may be based on the blocks.

 **EXAMPLE:**

Let us suppose that your urban census tract includes 17 blocks and that you require seven segments. Divide 17 by 7 to obtain 2.4 blocks per segment. Using the map, divide the area into seven segments with two and a half blocks each (the last will have to include three blocks to complete 17) and choose one of these at random.

If the number of dwellings in the blocks are variable, proceed as for the rural areas, counting the total number of dwellings in the area and later dividing them into the required number of segments.

-  Although when sketch-mapping rural areas you do not have to worry about separating dwellings from households, in urban areas you should ask how many households are present in tall buildings (for example, those with more than two floors).

THE RANDOM WALK METHOD

The random walk method includes two separate steps. The first is to choose a starting point and the second is to select the households from that point onward. According to the flowchart in chapter 4, whenever boundary maps are available they should be used for selecting the starting point. If these maps are not available, then the EPI-like method should be used. In both cases, the random walk method should be used for selecting subsequent households from the starting point. These methods are described below.

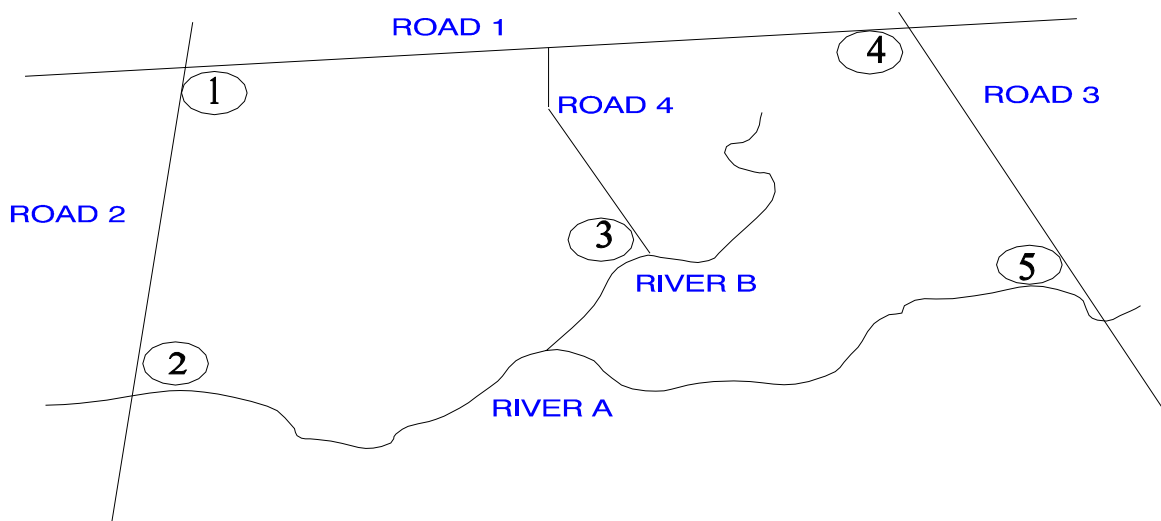
Selecting the Starting Point on the Boundary Map

Using a map of the outline of the small area (Figure 6.2), follow the steps below:

1. Allocate a number of starting points (usually four to seven), spread out on the map.

Typically, these points are put on easy-to-locate spots along the boundaries of the area, but at least one or two additional points are placed in the middle of the geographical area. Ensure that these points are linked to a landmark so that the field workers will find them without difficulty.

Figure 6.2. Map of hypothetical rural area showing starting points



2. Choose one of these numbers at random—for example, by writing them on pieces of paper and drawing one.

☞ It is not necessary to go to the field before completing the above steps. You do not have to know where the households are located when the starting points are allocated.

It is possible that with this sampling scheme some households will have twice the chance of being selected (for example, those exactly in the middle of two of the numbers), while others will have a zero probability of selection (for example, those far from all numbers). This sampling scheme, therefore, does not produce a strict probability sample.

Also, it may be argued that this method gives a greater chance of selecting an isolated household as the starting point. This is more likely to be true if there are great differences in household concentrations within the area, and less likely if households are more evenly scattered. One should note, however, that having selected this starting household one would proceed within

the area to find the subsequent ones. Any concentrations of households such as small villages located near that starting point may be fully included in the sample.

Despite these shortcomings, this method may result in a sample without important biases, being particularly applicable to scattered rural populations in low-density areas, where enumeration or segmentation would be costly and lengthy.

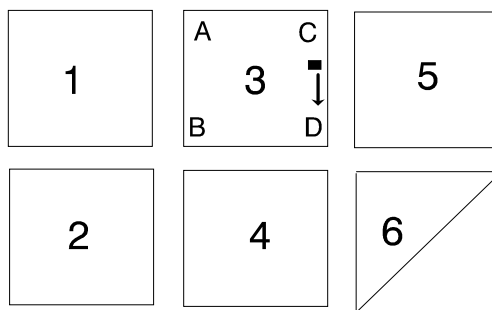
Box 6.2
USING THE STARTING POINT METHOD
IN URBAN AREAS

The starting point method can be easily adapted to urban areas. After numbering the blocks, select one of them at random. The corners of the chosen blocks are assigned letters, one of which is also selected at random. Moving in a clockwise direction from that corner, all houses up to the next corner are numbered and one of these is also randomly chosen. That will be the first household to be interviewed. From there onward, every third or fifth household, for example, would be included in the sample. If the selected block does not include sufficient households, the next block (in numerical order) would be selected for completing the cluster.

EXAMPLE:

Figure 6.3 shows a map of an urban enumeration area composed of six blocks. Block 3 was selected at random, and then corner C was selected in that block. One house on that side of the block was chosen and subsequent houses were selected in a clockwise direction.

Figure 6.3. Example of the random starting point method in an urban area



Using the EPI Method for Selecting the Starting Point

This option is particularly useful if you have sampled small areas (for example, villages or rural communities) but there are no boundary maps that would allow you to use segmentation or to choose a starting point on the map.

Field workers should follow these steps for selecting the households:

1. Go to some central location within the community. This could be a market, a church, a health facility or the junction between two roads. If possible, find a local guide who can accompany you. He/she can introduce you to the families and help you find the households and the community boundaries.
2. Select a direction at random by spinning a bottle. Move in a straight line in this direction. Count all the houses you pass until you reach the edge of the community. If possible, number each house with chalk as you go.
3. Pick one of these numbered houses at random to form the starting point for the survey.

Like the previous method of selecting a starting point from a boundary map, the EPI method does not produce a strict probability sample. It also has an additional disadvantage of relying on vague definitions of "village boundaries." Under some circumstances, however, when boundary maps are not available, it is an acceptable method.

Using the Random Walk Method for Selecting Households

Whether the starting point was selected from the boundary map or through the EPI procedure, the random walk method may be used for selecting the next households.

Box 4.6 in chapter 4 described the original random walk method. The guidelines below have been slightly modified in an attempt to overcome some of the problems with the standard method. The main modifications are:

- Interviewing should stop when the required number of households (not children) is reached.

 **EXAMPLE:**

If the cluster size is 30 households, field work should be interrupted when this number is reached, even if only a few children were found in that particular cluster. Other clusters will have more children than expected so that in the end numbers will balance out.

- Special caution should be taken to avoid bias when selecting households.

EXAMPLE:

Households should be selected in such a way that those far from the village center, or those distant from a main road, have the same chance of being sampled as more accessible households. Isolated families may have a different health status and it is important that they are not excluded from the survey.

- Further attempts should be made to interview residents who are not at home when initially visited.

EXAMPLE:

Children whose parents are often away from home may differ in health status from the remaining children. Extra efforts, such as going back to the house at the end of the working day, are required for reaching these children and their parents. (This issue is discussed in greater detail later in the chapter.)

Follow these steps to select the households:

- The household nearest to the starting point should be the first to be included.
- Spin a bottle or flip a coin to decide in which direction you should move after that.
- Follow a road or a path to identify the next households. Figures 6.4A and 6.4B show that by choosing the next closest household you may leave out families living away from the main roads or paths. However, virtually every house will be connected to a road by an access path. By following these paths from the point where they join the main road (Figure 6.4B), you may avoid this type of bias.

Figure 6.4A. WRONG: Selecting the nearest household will leave out the more isolated families.

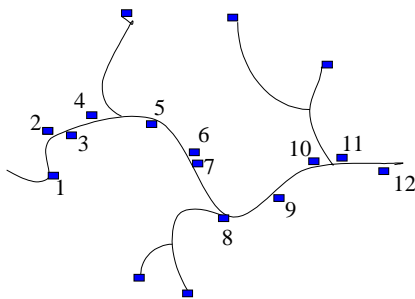
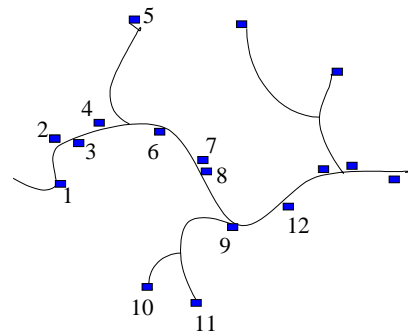


Figure 6.4B. RIGHT: Following the access paths will also include the isolated households and avoid “main road bias.”



- ☞ In scattered areas, the assistance of a local guide is essential for saving time. This person will help you follow the paths leading to households and avoid wasting time, following only those paths which lead to fields or empty houses.
- ☞ If you are uncertain about which way to move, use a random selection process to decide which household to interview.

 **EXAMPLE:**

If you are unsure about which of two households is the next to be interviewed, flip a coin to decide which household to go to.

4. Continue in this way until you have reached the required number of households (not children) in your cluster.

In urban areas, a procedure like that described for the starting point method may be used.

Using Different Sampling Schemes for Urban and Rural Areas

You may use different schemes for sampling households in urban and rural areas. You may also use different sampling schemes in densely populated or less densely populated rural areas.

Box 6.3

OPTIONS FOR IMPROVING THE RANDOM WALK METHOD

You can improve your sample by spreading it out within the small area or community. Some suggestions are:

- ☞ Instead of selecting consecutive households, use systematic sampling. For example, interview one household and skip four; interview another one and skip another four; and so on.
- ☞ Divide the community or census tract into four sections (no mapping required) and select one-fourth of the required households from each quarter, using the same procedure for choosing the starting point within each section.

The above suggestions will improve your sampling, but you will need more time to complete the cluster since you will have to travel greater distances from house to house. In an area with low population density, spreading out the sample may not be feasible.

Any method which achieves a random selection of households, preferably spread widely, is acceptable.

 **EXAMPLE:**

You may interview every household in scattered rural areas and every third or fifth one in urban or dense rural areas (such as areas with many compounds).

HOW TO HANDLE SPECIAL SITUATIONS IN THE FIELD

Some special situations in the field, described below, may require specific solutions:

 ***The small area cannot be reached.***

This is a rare event but in some cases—during the rainy season, for example—the area cannot be reached because of poor road conditions. When this happens, survey the closest area to the original one that can be reached. All replacements should be recorded in the field notebook and mentioned in the final survey report. Note that replacing the cluster that cannot be reached with another area does not completely solve the problem, since children living in areas of difficult access are likely to also differ in health status and in the utilization of services.

 ***The small area includes fewer households than the required cluster size.***

Survey all the households in the area. Then move to the area that is closest to the last household you did in the original area. Survey as many households in this second area as you need to complete the cluster.

 ***Separate households are difficult to identify.***

If separate households are difficult to identify—for example, where there are a few related families living in the same dwelling and sharing some but not all meals—treat the entire dwelling as one household and interview all the women and children within that dwelling.

 ***The household is empty.***

If you call or knock a few times and there is no reply, ask the neighbors whether the house is inhabited. If it is not occupied, and you are working with a fixed-size cluster (for example, 40 households), select an additional household at the end of the day to compensate for the one which was empty. If you are working with a variable number of households per cluster—as when using segmentation—just go on to interview all the other households in the segment.

If the neighbors tell you that the house is inhabited, come back at the end of the working day to see if the residents have returned. If they are still away, try to come back on another day. This may not be feasible in rural areas where the whole team is moving from place to place, but in urban areas it is often possible.

☞ ***The residents refuse to be interviewed.***

Refusals are often a transitory reaction. Therefore, never accept a refusal as definitive. Ask one of your team colleagues to visit the house later in the day and try again. If another interviewer still does not succeed, ask the supervisor to try at the end of the day. Do not give up until three attempts have been made. If you still fail to interview, make a note of the refusal on the cluster sheet, but do not replace the house. Report the refusal to the supervisor.

Give higher priority to returning to clusters where there were several losses than to those with one or two losses. This is because residents of the former are more likely to be atypical—for example, they may be of higher socioeconomic status or many mothers may be out at work—and their exclusion could bias the sample.

Bias may result if losses and refusals are common. Start to worry if you fail to interview more than 5–10 per cent of your intended sample.

Houses where residents are absent or refuse to be interviewed should be carefully recorded and counted as losses in the final report. Children and adults living in these houses may well be different from those interviewed, so that replacing them with another (compliant) household does not solve the problem.

WHAT EACH INTERVIEWER SHOULD DO

The daily routine of the interviewer should include the following:

- Read the cluster map and locate the segment or the starting household.
- Follow the instructions, to select the next households in the cluster.
- Fill in a new cluster form for each cluster.
- Introduce him/herself to the household members and ask permission to carry out the interview.
- Apply the questionnaire to all members of the target population in the household.
- If applicable, carry out the additional procedures for data collection, including anthropometry, testing salt iodine and observing water and sanitation facilities.

- Fill in the responses to the questionnaire in a neat and legible form.
- When in doubt about the coding of an answer, write it down in full at the margin of the questionnaire and check the correct coding with the supervisor at the end of the day.

WHAT EACH SUPERVISOR SHOULD DO

The supervisors will have many tasks during the survey. Tasks related to sampling have been described above, and will vary according to the method used. In addition to these tasks, all supervisors will have to perform the following tasks on a daily basis:

- Contact the local authorities or leaders in every community and, if required, hire local guides.
- Supply the interviewers with questionnaires and other field work materials.
- Assign clusters or households to the interviewers.
- Observe about 5 per cent (that is, one in every 20) of each field worker's interviews and correct any mistakes that may be noticed. For example:
 - Check that the interviewers are stating the questions exactly as instructed.
 - Explain questions and answers that are not being properly interpreted.
 - Check that the interviewers are not inducing particular responses
- Repeat a few of the interviews and measurements separately from the interviewer, particularly in the early phase of the survey. Check that the answers are consistent with those obtained by the interviewer and, if not, take corrective action.
- Review questionnaires as they are completed. For example:
 - Check that answers are legible.
 - Verify the consistency of answers (for example, the ORT module should not be answered for children without diarrhoea).
 - Investigate high levels of non-response (that is, if an interviewer reports many refusals or empty households).
 - Check totals—the number of children with completed health questionnaires should equal the total number of children under five years of age living in the household.
- When a return visit is necessary, note call-back times and household position or instruct interviewers about how this should be done.

- Check that interviewers are not replacing households which are difficult to contact with other households.
- Change interviewing times if necessary to prevent the need for too many return visits.
- Answer questions, resolve problems, give feedback to the interviewing team on the progress of the survey.
- Keep the team on schedule. Allocate assignments to interviewers and re-deploy staff when necessary.
- With the team, make basic tabulations and feed back information to the community, as decided by the survey managers.
- Carry a notebook at all times to keep a record of:
 - sampling procedure (details on the clusters selected)
 - how households were allocated to the interviewers
 - the outcome of each interview (see cluster control sheet), transcribed from the interviewer's records
 - any difficulties in the field (also transcribed from interviewers' notes)
 - a tabulation sheet for recording questionnaires as they are completed (see cluster control sheet)
 - ad-hoc decisions on how to code unexpected answers
 - the supervisor's general observations about the survey
- Collect all the completed questionnaires and keep them clean and safe, photocopy them if necessary, and send them back to headquarters.

The number of tasks requested of the supervisor is large. If sketch mapping is also being done, it may be wise to have more than one supervisor per team.

Box 6.4**KEEPING UP THE MORALE OF THE TEAM**

Particularly after the first two to three weeks of field work, it is important to keep the morale of the team high. Interviewing becomes a routine and standards may be relaxed. Here are some suggestions for maintaining the team's spirits:

- If possible, avoid having the field workers away from their families for more than two consecutive weeks.
- Ensure that the field workers understand exactly how much and when they will get paid and avoid any delays in paying them. Ensure that money for expenses (for example, meal allowances) is paid before the expense is made.
- The interviewers should work in pairs whenever possible. They can carry out simultaneous interviews in neighboring houses. This increases their sense of security and they will be able to help each other make decisions about locating the houses, and so forth.
- Special attention must be paid to drivers. You should brief them and explain the need for random sampling and for reaching households that are far away from the good roads. They must also be instructed about the need to avoid interfering with the interviews. Otherwise, they may try to influence the sampling and interviewing procedure.
- Within the limitations imposed by the work load, interviewers should have time to rest at midday and at the end of each working day, as well as having at least one full day off at weekends. Otherwise they will become excessively tired and this will affect the quality of their work.