Rapid Assessment Method for Older People (RAM-OP): The Manual

Pascale Fritsch, Ernest Guevarra, Katja Siling, Mark Myatt

21/12/2015

Contents

The RAM-OP Manual

Introduction

Older people (generally defined as people aged sixty years and older) are a vulnerable group for malnutrition in humanitarian and developmental contexts. Due to their age they have specific nutritional needs, such as easily digestible and palatable food adapted to those with chewing problems, which is dense in nutrients. In famine and displacement situations where populations are dependent on food distributions, older people often find the general ration inappropriate to their tastes and needs, have difficulties accessing the distributions, or have difficulties transporting rations home. As a result, older people can become malnourished and in need of specifically targeted food interventions. In times of drought or food scarcity, older people tend to reduce their food intake in order to share or give up their ration to younger members of their families. They are then at risk of malnutrition.

Despite these potential vulnerabilities in humanitarian situations, older people are rarely identified as a group in need of specific nutritional or food assistance. Surveys and assessments almost always focus on children, and sometimes on pregnant and lactating women. Humanitarian workers argue that assessing the nutritional status and needs of older people is both costly and complicated. As a consequence, the nutritional status and needs of older people in crisis go unidentified and unaddressed.

HelpAge International, VALID International, and Brixton Health, with financial assistance from the Humanitarian Innovation Fund (HIF), have developed a Rapid Assessment Method for Older People (RAM-OP) that provides accurate and reliable estimates of the needs of older people. The method uses simple procedures, in a short time frame (i.e. about two weeks including training, data collection, data entry, and data analysis), and at considerably lower cost than other methods. The RAM-OP method is based on the following principles:

- Use of a familiar "household survey" design employing a two-stage cluster sample design optimised to allow the use of a small primary sample (m 16 clusters) and a small overall (n 192) sample.
- Assessment of multiple dimensions of need in older people (including prevalence of global, moderate and severe acute malnutrition) using, whenever possible, standard and well-tested indicators and question sets.
- Data analysis performed using modern computer-intensive methods to allow estimates of indicator levels to be made with useful precision using a small sample size.

The following tools are currently available under the General Public Licence / Free Documentation License, meaning that you are free to copy and adapt these tools:

- an English language manual / guidebook
- a questionnaire (available in English and French)
- data entry and data checking software (available in English and French)

- data analysis software.

We believe that the availability of a rapid, low-cost, and user-friendly method will encourage governments, UN agencies, as well as international and local non-governmental organisations to actively assess the situation of older people in humanitarian contexts, and implement, monitor, and evaluate relevant and timely responses to address their needs.

Chapter 1

Sampling

1.1 The RAM-OP sample

RAM-OP uses a two-stage sample:

First stage sample: A sample of communities (e.g. villages or city-blocks) in the survey area is taken. A sampled community is also called a primary sampling unit (PSU).

Second stage sample: Domestic dwellings are sampled from within the communities selected in the first stage sample. All eligible individuals in the sampled dwelling are included in the sample.

1.1.1 The first-stage sample

The first stage sample is a systematic spatial sample. Two methods can be used and both methods take the sample from all parts of the survey area:

- **List-based method:** Communities to be sampled are selected systematically from a complete list of communities in the survey area. This list of communities is sorted by one or more non-overlapping spatial factors such as district and subdistricts within districts:

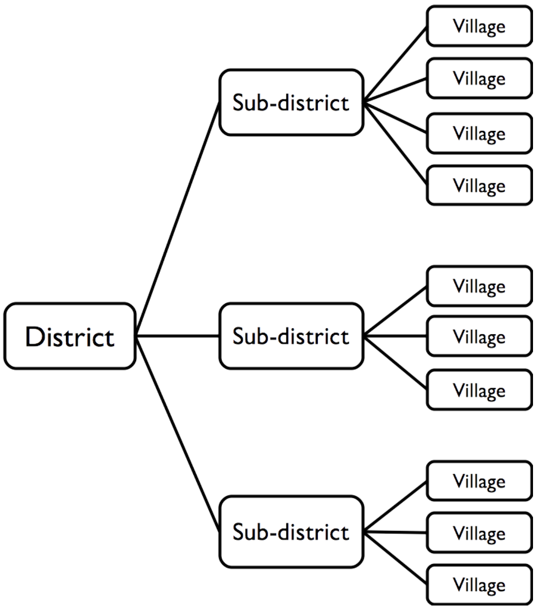


Figure 1.1: Communities listing by district and sub-district

- **Map-based method:** Communities to be sampled are selected from the centres of the squares of a grid drawn over a map. The map must be sufficiently well made and of sufficiently large scale to show the position of every community in the survey area. This type of sample is known as a centric systematic area sample and is often referred to as a CSAS sample.

Note: *Population proportional sampling* (PPS) is **not** used in RAM-OP surveys. Population estimates for all communities are **not** required for sampling purposes. Population estimates are required only for the selected communities. These are used during data analysis in order to weight results by population size. If this information is not available before the survey, it can be collected during the survey.

1.1.2 The second stage sample

The second stage within-community sample uses a method called map-segment-sample. This method takes the within-community sample from all parts of a sampled community.

1.2 Implicit stratification

Both the first and second stage samples use a form of spatial stratification:

- The list-based method's first stage systematic spatial sample stratifies the sample by non-overlapping spatial factor such as districts and subdistricts within districts.
- The map-based (CSAS) method's first stage sample stratifies the sample by grid square.
- The map-segment-sample second stage within-community sample stratifies the sample by parts of the community being sampled.
- The first and second stage samples also ensure that a reasonably even spatial sample is taken from the entire survey area and from each of the sampled communities.

These sampling procedures provide *implicit stratification* and tend to spread the sample properly among important sub-groups of the population such as rural / urban / peri-urban populations, administrative areas, ethnic sub-populations, religious sub-populations, and socio-economic groups. This often improves the precision of estimates made from survey data.

The use of implicit stratification improves the efficiency of a two-stage cluster sample and allows RAM-OP to use relatively small sample sizes compared to other methods, such as SMART surveys. The use of modern computer-intensive data analysis techniques also allows RAM-OP to make better use of the available sample than is done in other methods.

1.3 RAM-OP survey sample size

The following shorthand symbols will be used when describing sample designs:

m = Number of primary sampling units (PSUs).
n = Size of the sample of individuals or households from a PSU.
n = May also mean the overall survey sample size (this meaning will be made clear in the text).
N = Population

The overall sample size for a RAM-OP survey is about $n = 192$ individual subjects. You should aim to collect an overall sample of at least $n = 192$ individuals.

The RAM-OP sample is collected in two stages:

- The first stage sample uses a sample size of about $m = 16$ communities (or PSUs).
- The second stage sample uses a sample size of about $n = 12$ eligible subjects sampled from each of the communities selected for inclusion in the first stage sample.

The overall sample size from $m = 16$ communities and $n = 12$ eligible subjects is about:

$$\text{overall sample size} \approx m \times n \approx 16 \times 12 \approx 192$$

It is not recommended that fewer than $m = 16$ communities are sampled.

1.4 RAM-OP survey sample size

Sampling fewer than $m = 16$ communities will tend to reduce the precision with which estimates can be made. If you have the resources to sample more than $m = 16$ communities then you should do so. A sample of $m = 24$ communities and $n = 8$ eligible subjects, for example, will tend to yield estimates with better precision than a sample with $m = 16$ communities and $n = 12$ eligible subjects.

Do not be tempted to increase the size of the within-community sample in order to achieve an overall sample size of $n = 192$ from fewer than $m = 16$ communities. Doing so will tend to reduce the precision with which estimates are made. It may also be impossible to do this in many settings.

Here, for example, is a *population pyramid* for a typical developing country:

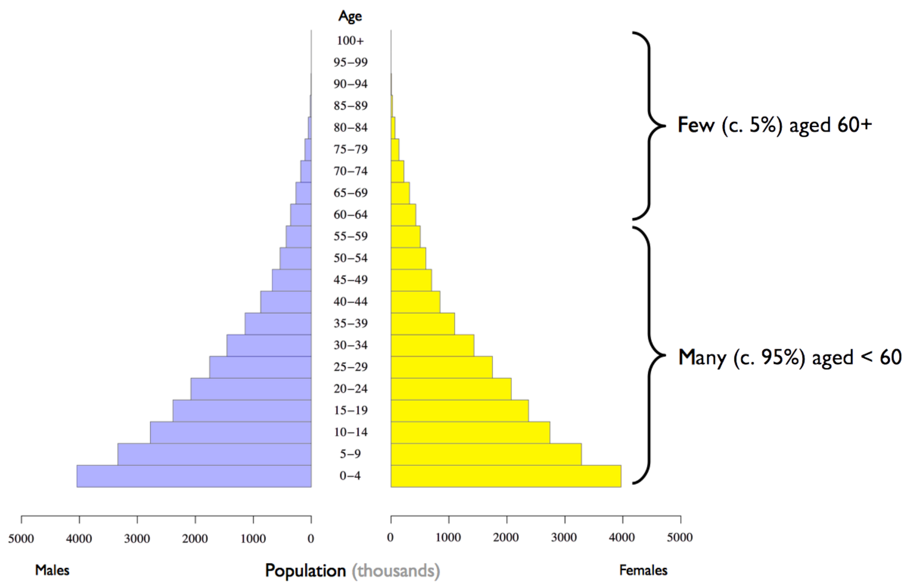


Figure 1.2: Population pyramid for a typical developing country

If the average community population is $N = 300$ then there will be fewer than 15 people aged 60 years and older in about half of the selected communities. This is because about half of the selected communities are likely to have a population below the average population.

1.5 Eligibility

Older people are usual defined as persons aged 60 years and older (UN definition). This means your sample will usually be restricted to people aged 60 years and older.

In some settings different eligibility criteria may apply. This will likely be the case in settings with very high life-expectancies (usually middle and high income countries) or very low life-expectancies (usually low income countries and in emergencies).

In a setting of very high life-expectancy you may want to restrict eligibility - to persons aged 65 years or older, for example. A local definition of older people is likely to be available.

In a setting with very low life-expectancy, very few people are aged 60 years or older. For example:

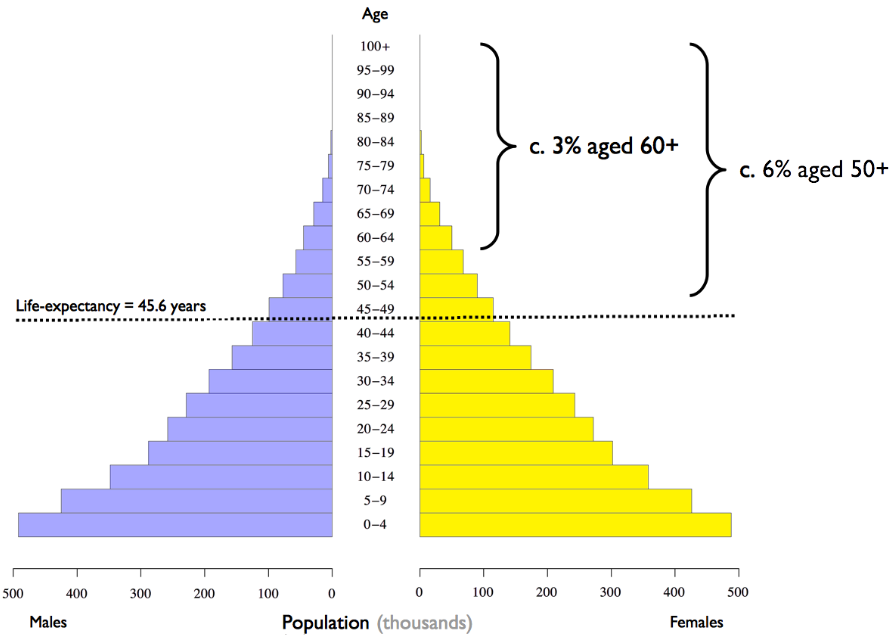


Figure 1.3: Population pyramid for a setting with low life-expectancy

It is common in such setting for there to be a local definition of older people. This will usually be "persons aged 50 years or older" or "persons aged 55 years or older".

1.6 Age distribution, eligibility criteria, and sample design

The age distribution of the population and the survey eligibility criteria will affect the sample design in terms of the number of communities that you will need to sample (m) and the number of older persons (n) that can be sampled from each community.

The overall sample size for a RAM-OP sample should be at least $n = 192$ usually collected as $n = 12$ eligible subjects sampled from $m = 16$ communities. If older people make up a very small proportion (i.e. much less than 5%) of the total population and / or the average population of communities is small then you will usually need to sample more than m = 16 communities in order to get about $n = 192$ older people in the overall sample. This is likely to occur when there are fewer than 20 to 25 older people in a community of average size.

You can calculate the number of older people that you would expect to be living in a community of average size using the following formula:

$$n_{\text{aged 60+ in an average village}} = \text{average village population}_{\text{all ages}} \times \frac{\text{percentage of population}_{\text{aged 60+}}}{100}$$

If this is below about 20 people then you should consider how you will collect the required overall sample size. Three approaches may be used:

- **Relax the eligibility criteria:** You may decide to define older people as "persons aged 50 years or older" or "persons aged 55 years or older". This may double the size of the eligible population and make the sample easier to collect. This approach is only reasonable if life-expectancy is low.

- **Increase the number of communities that you plan to sample:** You may choose to collect your sample as $n = 7$ eligible subjects sampled from $m = 30$ communities giving an expected overall sample size of $n = 210$. This would be a very good sample. The disadvantage of this approach is that survey costs increase with the number of communities that are sampled, because a lot of survey time and vehicle costs are spent on travelling to and from the selected communities.
- **Take a "top-up" sample only when you need to:** The basic procedure when a selected community is small and likely to contain fewer than $n = 12$ older people is to collect data on all older people in the selected community using a door-to-door census. If the within-community sample size is much smaller than the required one then a "top-up" sample is taken from the nearest neighbouring community using the map-segment-sample method (or a door-to-door census if this community is also small). The advantage of this approach is that travelling time and survey costs are better controlled.

If the proportion of older people is not very small and / or communities are large then you should have no problems achieving the overall sample size.

1.7 Practical sampling

1.7.1 The first stage sample - list-based sampling

The first stage sample can be drawn from a list of all communities. The list-based sample is a simple systematic sample taken from a complete list of communities in the survey area sorted by one or more non- overlapping spatial factors (such as administrative units or electoral wards) in the survey area. *Population proportional sampling* (PPS) is not used since this would concentrate the sample in the larger communities.

Below is a worked example of how a RAM-OP first stage, list-based sample can be drawn from a survey area composed of 67 villages.

Step 1: Calculate the *sampling interval* by dividing the total villages in the survey area (67 villages) with the number of villages to be drawn from the sample (16 villages).

$$\text{Sampling Interval} = \left\lfloor \frac{N_{villages}}{N_{sample}} \right\rfloor = \left\lfloor \frac{67}{16} \right\rfloor \approx \lfloor 4.19 \rfloor \approx 4$$

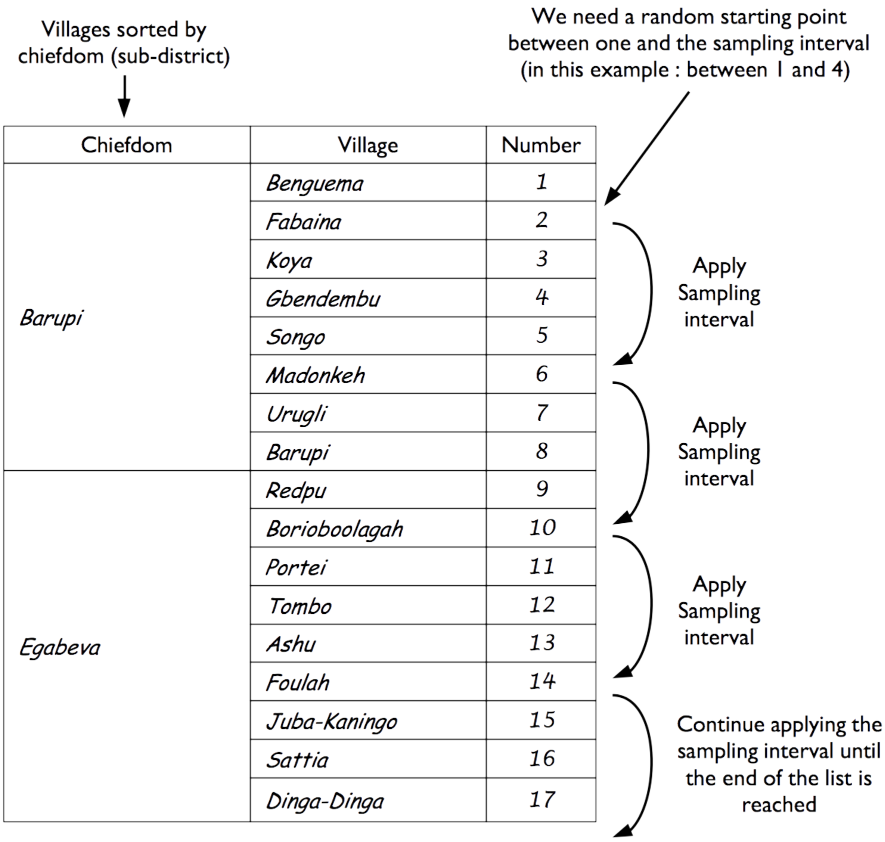
The *sampling interval* needs to be a whole number. Remember to **always** *round down* when calculating the *sampling interval* to the nearest whole number.

Step 2: Choose a *random starting point* between 1 and *sampling interval*. In this example, this would be a random number **between 1 and 4**.

A random number can be selected through simple lottery (i.e., draw from a lot of 4 numbered from 1 to 4). A standard spreadsheet software can also be used to draw the random number using the `RANDBETWEEN` function as follows:

```
RANDBETWEEN(1, 4)
```

Step 3: Using the *random starting point* and the *sampling interval*, select the sampling villages from a list of all villages organised/sorted by a **non-overalapping** spatial factor such as district or sub-district.



Chiefdom	Village	Number
Barupi	*Benguema*	1
	Fabaina	2
	Koya	3
	Gbendembu	4
	Songo	5
	Madonkeh	6
	Urugli	7
	Barupi	8
Egabeva	*Redpu*	9
	Borioboolagah	10
	Portei	11
	Tombo	12
	Ashu	13
	Foulah	14
	Juba-Kaningo	15
	Sattia	16
	Dinga-Dinga	17

Figure 1.4: Selection of sampling villages using lists

This procedure will sometimes select more than 16 communities.In this example, seventeen villages (i.e. at positions 2, 6, 10, 14, 18, 22, 26, 30, 34, 38, 42, 46, 50, 54, 58, 62, and 66 in the list) will be selected.When this happens you should sample **all** of the selected communities.

1.7.2 The first stage sample - map-based sampling

An alternative approach to list-based sampling is to use map-based sampling. The map-based (CSAS) sample selects communities from the centre of squares of a grid drawn over a map. The map must be sufficiently well made and of sufficiently large scale to show the position of **all** communities in the survey area.

A square grid is drawn over the map. The size of the grid squares should be small enough so that the number of squares covering the survey area is the same as (or very similar to) the number of communities that you plan to sample. You may need to experiment with different grid sizes to achieve this. Figure 1.6 shows an example map and grid with $m = 16$ grid squares.

The sample is drawn by selecting the community that is located closest to the centre of each grid square:

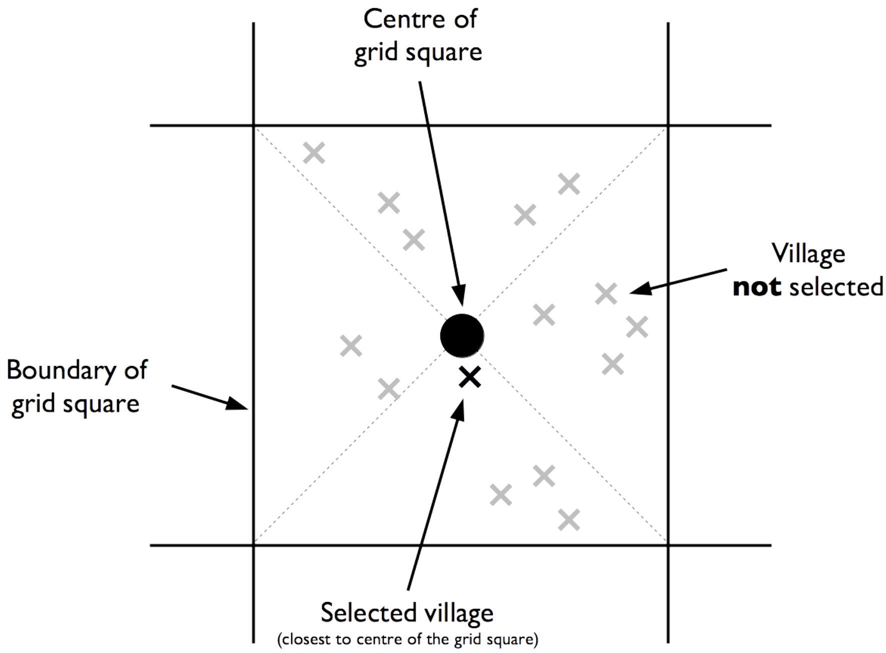


Figure 1.5: Selection of sampling villages using maps

If two or more villages are located the same distance from the centre of a grid square then a single village is picked at random, by tossing a coin for example.

Figure 1.7 shows the sample selected by this process for the area shown in Figure 1.6.

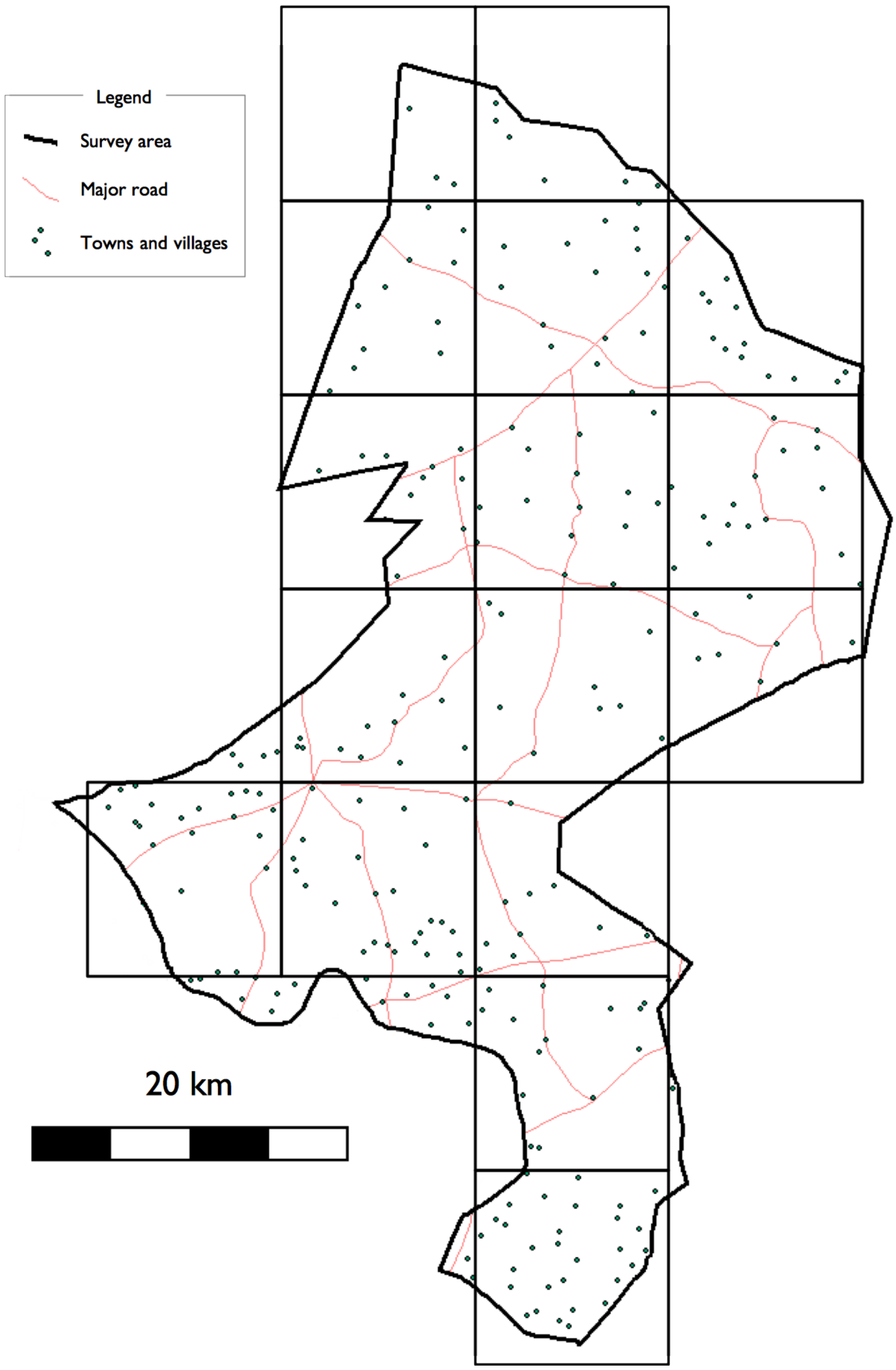


Figure 1.6: Drawing a square grid over the map

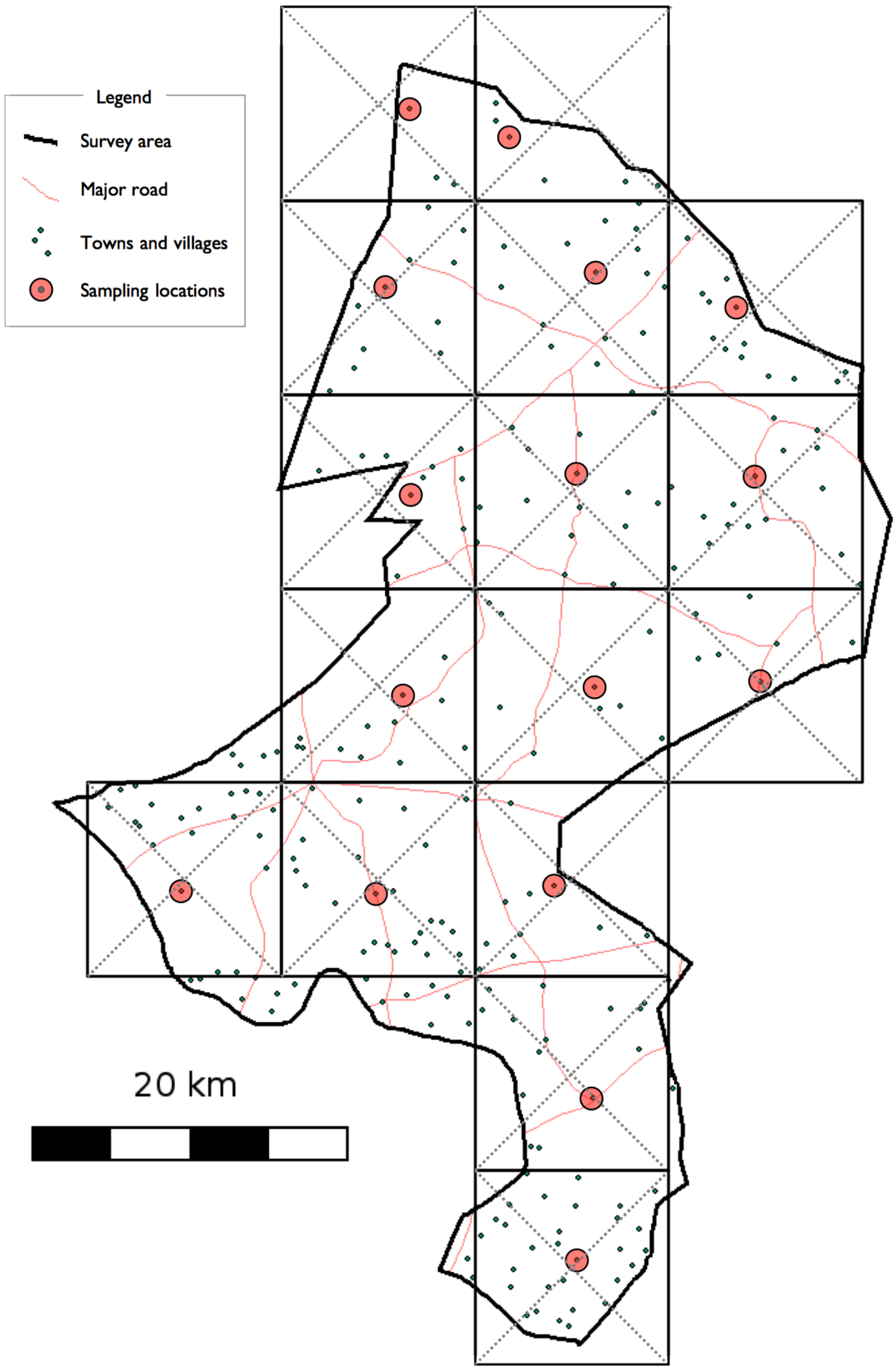


Figure 1.7: Drawing the first-stage CSAS sample

Both the list-based and the map-based (CSAS) sampling methods spread the sample of communities evenly across the entire survey area. Each community has an equal chance of being included in the sample. Population proportional sampling (PPS) is not used since this would concentrate the sample in the larger communities.

The same method can be used when sampling in urban contexts. Figure 1.8 shows a sample drawn from a list of census enumeration areas sorted by administrative district. Figure 1.9 shows a sample drawn using the map- based (CSAS) method. In both cases the primary sampling units (PSUs) are census enumeration areas.

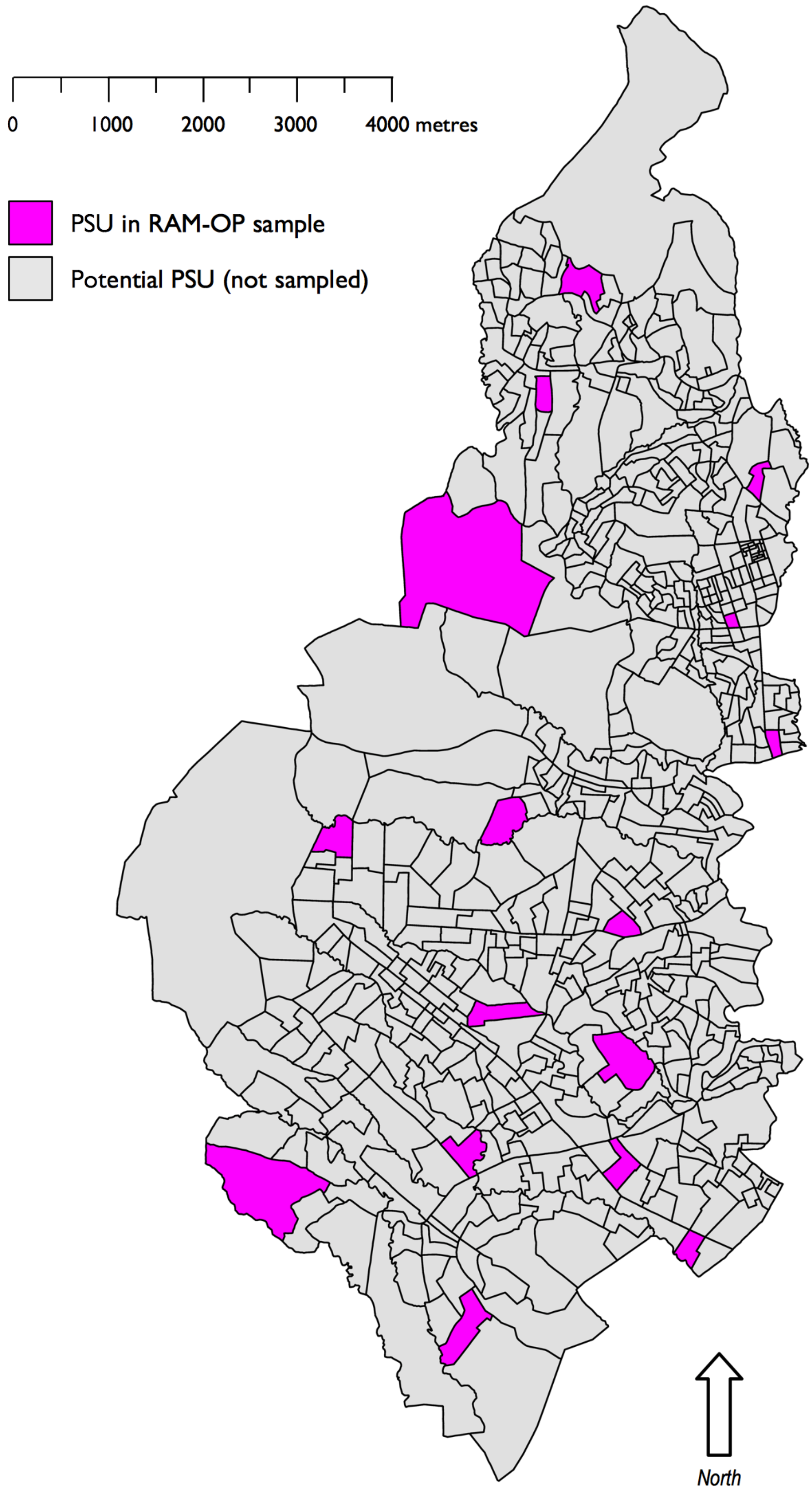


Figure 1.8: Example of an urban sample (list-based)

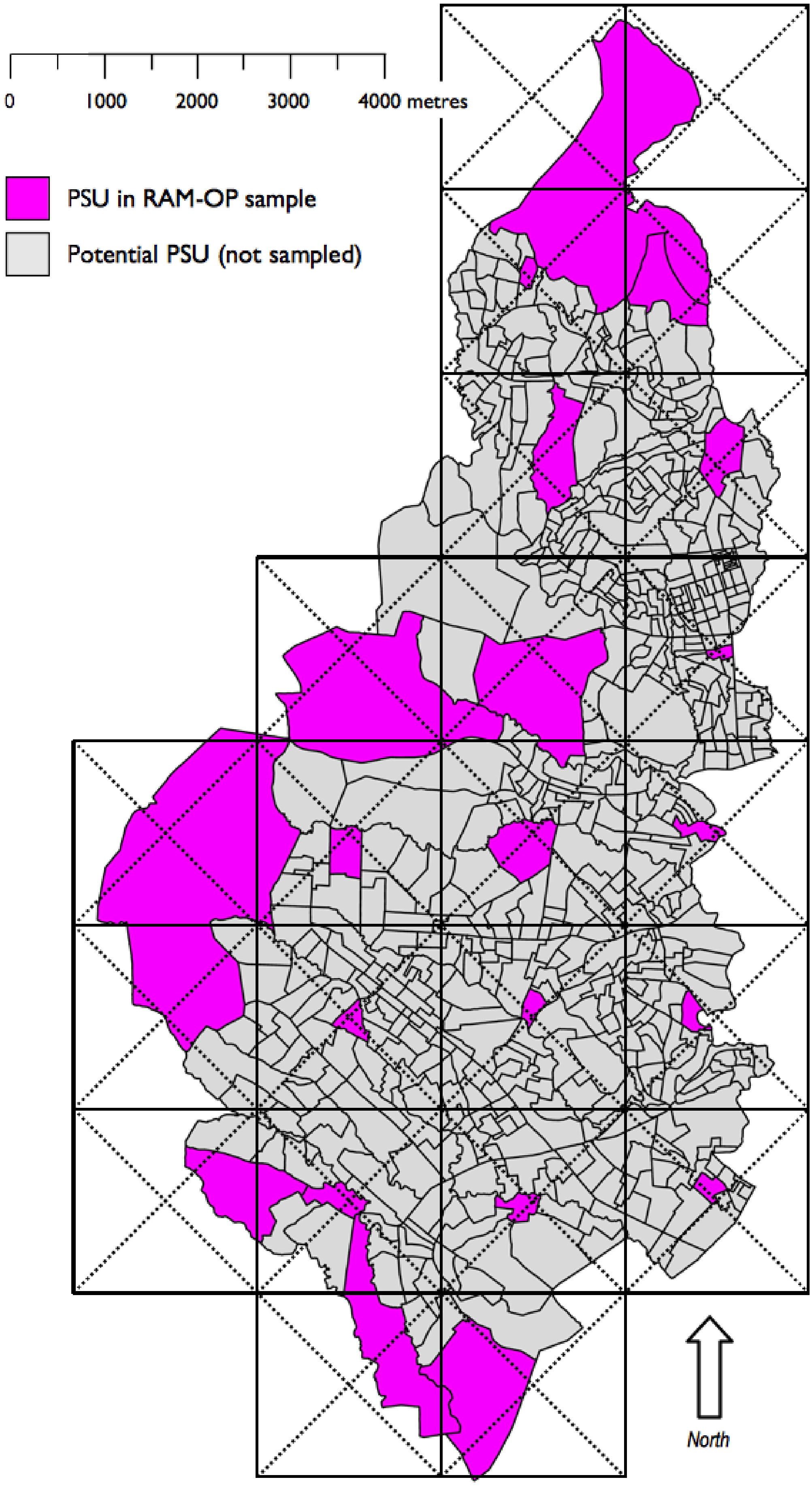


Figure 1.9: Example of an urban sample (map-based)

Note: In this example twenty-one (21) blocks have been selected. It can be difficult to achieve exactly the number of blocks that you need when using this type of sample. It is best to select more rather than fewer blocks than you need Here we would take our sample as $n = 10$ individuals from $m = 21$ blocks (overall $n = 210$).

1.7.3 The second stage (within-community) sample

The second stage (within-community) sample uses a map-segment-sample approach:

Map: Make a rough map of the community to be sampled. It is helpful to think of communities as being made of ribbons (i.e. lines of dwellings located along roads, tracks, or rivers) and clusters of dwellings.

Here is an example of a ribbon of dwellings:

Figure 1.10: Example of a ribbon of dwellings

Here is an example of a cluster of dwellings:

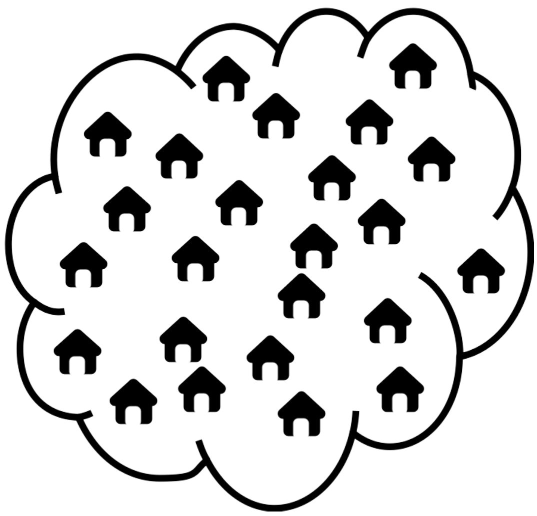


Figure 1.11: Example of a cluster of dwellings

Segment: Divide the community into ribbon and cluster segments defined by the physical layout of the community being sampled.

Sample: Ribbons and clusters are sampled in different ways:

- **Ribbons** are sampled using **systematic sampling**.
- **Clusters** are sampled using a **random walk** method.

Note: If a small community is selected that is likely to have fewer than the required number of eligible persons then **all** eligible persons in that community are sampled by moving door-to-door.

1.7.4 Mapping the community - single and multiple clusters

Some communities consist of a single cluster of dwellings:

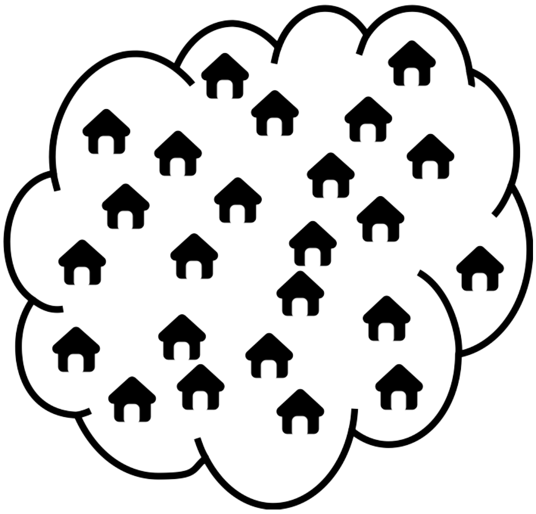


Figure 1.12: Example of a cluster of dwellings

or a set of clusters of dwellings:

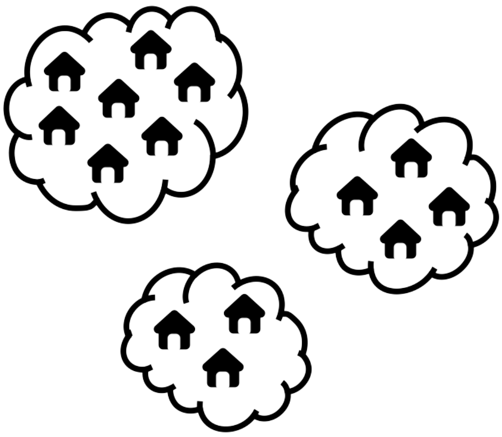


Figure 1.13: Example of a set of clusters of dwellings

For communities (or parts of communities) structured in this way we use a sampling method called the **random walk**.

1.7.5 Mapping the community - ribbon communities

Ribbon communities have dwellings arranged in a line:

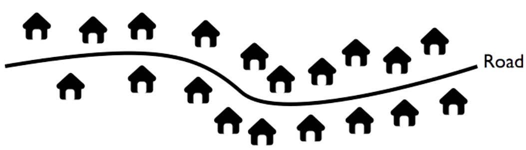


Figure 1.14: Dwellings arranged in a line

or in a several lines:

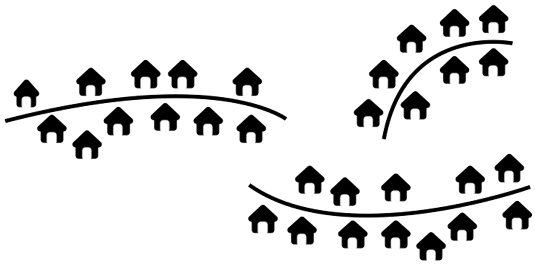


Figure 1.15: Dwellings arranged in several lines

For communities (or parts of communities) structured in this way we use a sampling method called **systematic sampling**.

1.7.6 Mapping the community - mixed communities

Some communities are a mixture of clusters and ribbons:

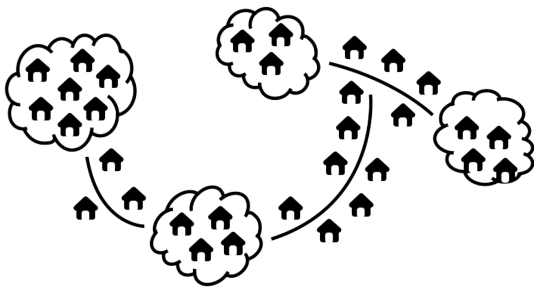


Figure 1.16: Mixture of clusters and ribbons

For mixed communities we use a mixture of the **random walk** method (in the clusters) and **systematic sampling** (along the ribbons).

Segmentation involves dividing a community into several parts and taking part of the within-community sample from each **segment**. With simple communities, segmentation is not required and we take a single sample from the entire community using the appropriate sampling method.

1.7.7 Segmentation

For more complicated communities we divide the community into several parts or segments, such as a community made up of several clusters:

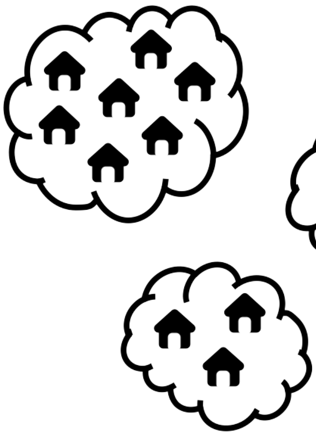


Figure 1.17: Example of a set of clusters of dwellings

or a community made up of several ribbons:

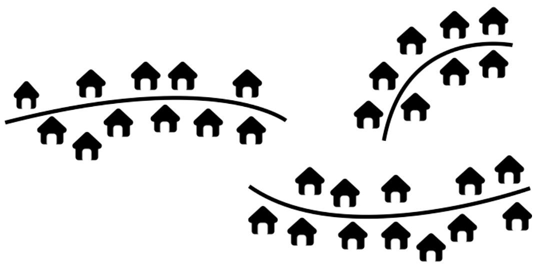


Figure 1.18: Dwellings arranged in several lines

or a mixed community:

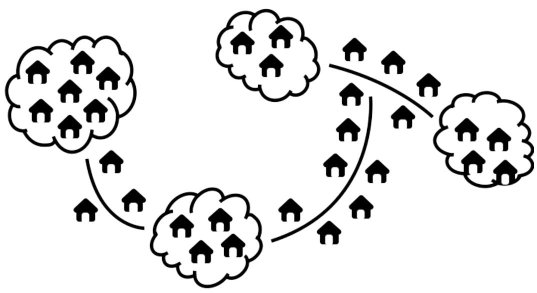


Figure 1.19: Mixture of clusters and ribbons

We take a small sample from each segment using the appropriate sampling method.

For example, with a community made up of three segments:

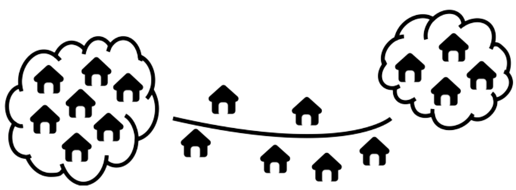


Figure 1.20: Community made up of three segments

we would take one third of the overall sample from each segment.

If the within-community sample size is twelve eligible subjects. we would sample four eligible subjects from each segment (i.e. $12/3 = 4$).

Dividing the sample up in this way means that we will sample from every part of the community rather than just one part of the community.

When taking the sample we use the random walk method to take part of the sample from clusters and the systematic sampling method to take part of the sample from ribbons.

Segments should be either ribbons or clusters but should **never** contain both a ribbon and a cluster. This is because clusters and ribbons are sampled in different ways.

A dwelling can only belong to one segment. Segments should **not** overlap.

1.7.8 Sample dwellings

All segments should be sampled.

If, for example, there are five segments in a community:

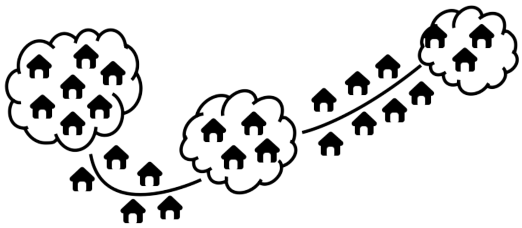


Figure 1.21: Community made up of five segments

and the within-community sample size is twelve eligible subjects, then you would plan to sample two eligible subjects from each segment (i.e. $12/5 = 2.4$ **rounded down** to two) and, if necessary, return to the **largest** segment to complete the sample.

All segments should be sampled, even if this means that you take a larger sample than you expected to.

Remember that different types of segment are sampled in different ways:

- Dwellings in **cluster segments** are sampled using a method called the **random walk**. This involves sampling houses by walking in random directions within the cluster.
- Dwellings in **ribbon segments** are sampled using a method called **systematic sampling**. This involves sampling houses at regular intervals along the ribbon.

We will look at each of these sampling methods in turn.

1.7.9 Random walk sampling

The **random walk** method is used to sample dwellings in **cluster segments**. Sampling proceeds as follows:

1. Move to the approximate centre of the cluster.

2. Select a **random direction** by spinning a bottle on the ground. The neck indicates the **sampling direction**. This is the direction you should walk in order to sample a dwelling. Walk in the sampling direction counting the dwellings that you pass. Sample the third **dwelling**. If there are no eligible persons in the selected dwelling then sample the **nearest** dwelling with an eligible person. Sample **all** eligible persons in the selected dwelling.

3. Apply the survey questionnaire for **all** eligible persons in the selected dwelling.

4. Select the next dwelling to sample by spinning a bottle and walking in the indicated direction. Count the dwellings you pass. Sample the **third** dwelling. If there are no eligible persons in the selected dwelling then sample the **nearest** dwelling with an eligible person. Sample all eligible persons in the selected dwelling. If you reach the edge of the cluster segment then return to the centre of the cluster and repeat step (2) above. Remember to keep count of the number of eligible persons sampled from the segment.

5. Stop sampling in the segment when you have sampled the required number of eligible persons from the segment. Since you sample **all** eligible persons in a selected dwelling, you may sample a few more eligible persons than expected. This is OK. Always sample **all** eligible persons in a selected dwelling.

If, when you have sampled all segments, you have not sampled twelve eligible persons, you should return to the **largest** segment to finish sampling using the appropriate sampling method.

The random walk method is illustrated in Figure 1.22.

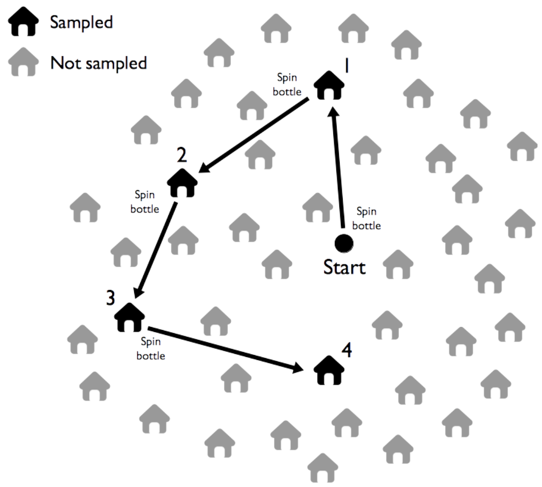


Figure 1.22: Random walk sampling in a cluster segment

1.7.10 Systematic sampling

The **systematic sampling** method is used to sample houses in **ribbon segments**.

Sampling proceeds as follows:

1. Move to one end of the ribbon segment.

2. Walk to the other end of the segment counting the houses that you pass.

3. Calculate the **step size** by dividing the number of dwellings in the segment by the required sample size for the segment. Use the **whole number** part of the result only. Do **not** round up.

4. Pick a random number between one and the step size. This is your **starting point**. Select the first dwelling to sample by walking along the segment counting the dwellings that you pass and sample the dwelling indicated by the **starting point**. If there are no eligible persons in the selected dwelling then sample the **nearest** dwelling in any direction with an eligible person. Sample **all** eligible persons in the selected dwelling.

5. Select the next dwelling to sample by walking along the segment. Count the dwellings that you pass. Sample the dwelling indicated by the **step size**. If there are no eligible persons in the selected dwelling then sample the **nearest** dwelling in any direction with an eligible person. Sample **all** eligible persons in the selected dwelling.

6. Stop sampling in the segment when you reach the end of the ribbon segment. This may mean that you sample extra eligible persons. This is OK. Do **not** stop sampling from a ribbon until you reach the end of the ribbon.

If, when you have sampled all segments, you have not sampled twelve eligible persons, you should return to the **largest** segment to finish sampling using the appropriate sampling method.

The systematic sampling method is illustrated in Figure 1.23.

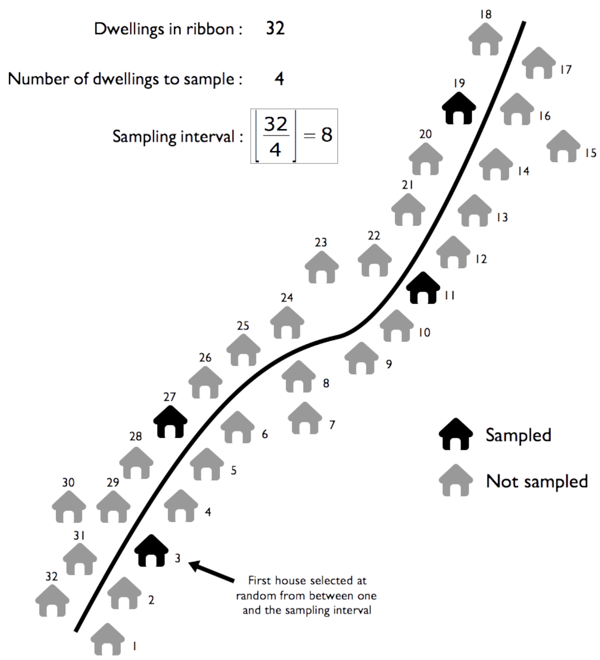


Figure 1.23: Systematic sampling in a ribbon segment

1.7.11 Sampling in urban settings

In urban areas the first stage sample is taken by replacing sub-districts with "sections" and communities with city blocks. Examples of sections may be administrative districts/sub-districts or electoral wards.

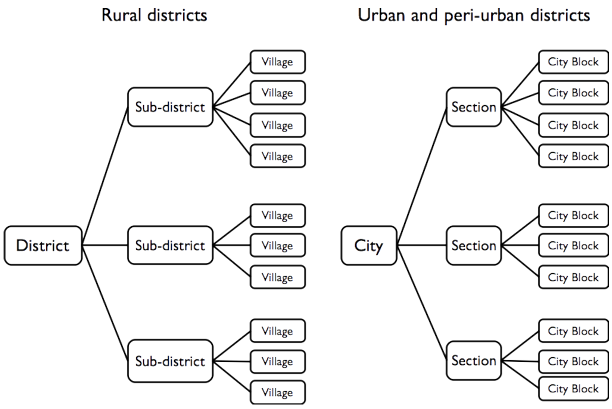


Figure 1.24: Administrative divisions in an urban setting

Census enumeration areas (EAs) are usually city blocks. Central statistics offices can usually provide lists of EAs by "section" and large-scale maps of EAs selected for sampling (See Figure 1.25 and Figure 1.26). These maps make it easy to locate EAs and their boundaries. The sample of EAs can be decided using list-based or map-based (CSAS) sampling.

In these settings, eligible persons may be sampled by moving from door-to-door. All dwellings in the selected block are sampled and all eligible persons in the selected dwellings are sampled. This means that all eligible persons in a selected block are sampled.

If city blocks are large then a type of systematic sampling may be used. With this method a rough map of the streets in the block is made and the number of doorways on each street is counted and copied onto the rough street map (as shown in Figure 1.27). The total number of doorways on all streets is calculated. A step size is calculated by dividing the total number of doorways on all streets by the number of dwellings to be sampled. A systematic sample along a route around the block that includes all streets in the block is taken. Streets can be sampled in any order. If you find that you have sampled all streets but have not yet sampled the required number of eligible persons then you should return to the street with the largest number of houses to collect the remainder of the sample.

The number of blocks to be sampled will depend on the expected number of eligible persons in each block. You should aim for an overall sample size of about $n = 192$. You should not sample fewer than $m = 16$ blocks.

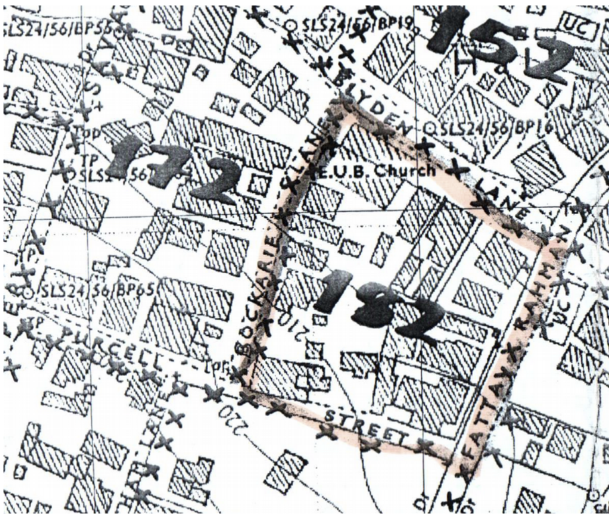


Figure 1.25: Enumeration area map for a city block in Freetown, Sierra Leone

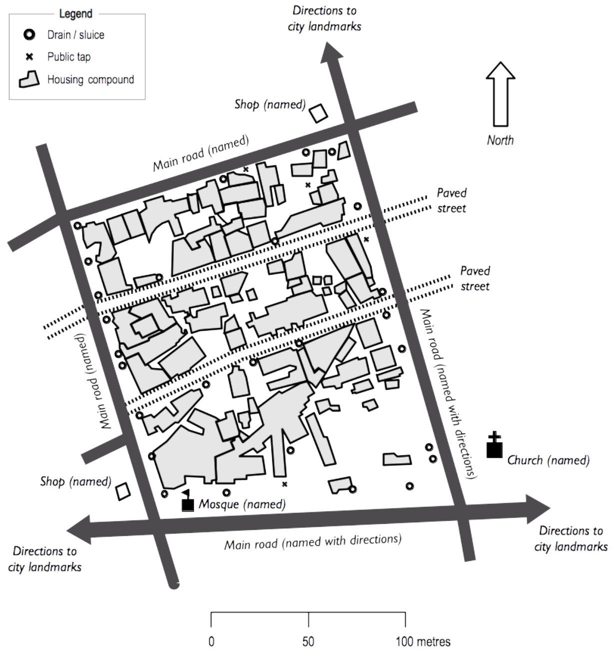


Figure 1.26: Enumeration area map for a city block in Addis Ababa, Ethiopia

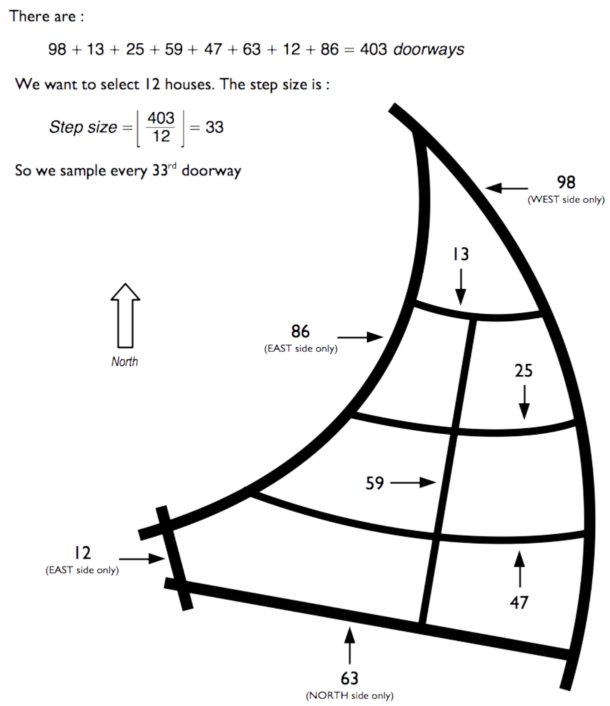


Figure 1.27: Systematic sampling in a city block

When useful lists and maps are not available then satellite imagery available though free services such as Google Earth (http://earth.google.com) may be used.

The quality (resolution) of the images available from these services is variable but is usually good enough to allow you to segment the town into small areas of approximately equal volume (approximately the same number of dwellings) in each:

Figure 1.28: Segmenting a town into smaller sampling areas

When creating segments using maps or satellite images it is a good idea to use main roads, rivers, canals, railway lines, public parks, etc as boundaries. This simplifies the segmentation process and also simplifies fieldwork by making areas and their boundaries easier to locate and sample.

The first stage sample can be list-based (such as where each area is numbered in a systematic north to south and east to west order and a systematic sample taken) or map-based (CSAS).

Larger scale "maps" of blocks to be sampled can also me made using satellite imagery (see Figure 1.29).

Figure 1.29: A large scale "map" of a city block made from satellite imagery

Chapter 2

Indicators

2.1 The RAM-OP indicator set

RAM-OP surveys collect and report on data for a broad range of indicators relevant to older people.

These indicators cover the following dimensions:

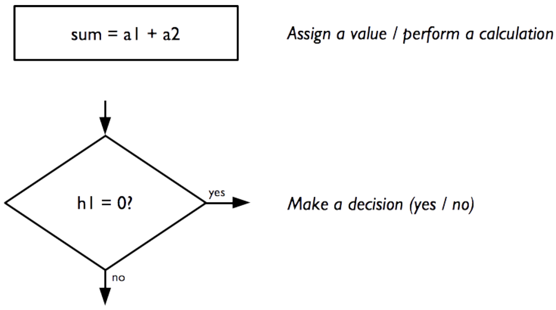
- Demography and situation
- Food intake
- Severe food insecurity
- Disability
- Activities of daily living
- Mental health and well-being
- Dementia
- Health and health-seeking behaviour
- Sources of income
- Water, sanitation, and hygiene
- Anthropometry and screening coverage
- Visual impairment

Data for a small group of miscellaneous indicators are also collected and reported.

The RAM-OP indicator set has been designed on a modular basis. Each module is a set of indicators relating to a single dimension from the list given above and is collected using a dedicated set of questions and measurements. This means that the RAM-OP questionnaire also consists of a set of modules.

Whenever possible, RAM-OP uses standard and validated indicators and question sets.

Indicators are described below, showing the questionnaire components that are used to collect and record the data required, and flowcharts of the process used to derive indicators from the collected data. Standard symbols are used. For example:



A non-standard symbol is used to show **recode operations**. A recode operation shows changes that are made to data so that it can be used to derive indicators without having to show many decision nodes in the flowchart. They are also used to specify what should be done with missing or out-of-range values. For example:

RECODE d1 (respondent)		
Old Values	New Values	Notes
1	1	subject
2	2	family carer
3	3	other carer
4	4	other
Others	1	subject

No change

For others values (including missing values) we assume the respondent is the subject

RECODE d2 (age)		
Old Values	New Values	Notes
888	NA	DK / refused

Set data for don't know / refused to NA (NA = not available / missing data)

2.1.1 Demography and situation

The demography and situation indicators are used to describe the survey sample and are derived from this questionnaire component:

d1	Who is answering these questions?	1 = Subject 2 = Family carer 3 = Other carer 4 = Other	[___]
d2	How old are you (age in years)?	888 = DK / REFUSED	[___][___][___]
d3	Sex	1 = Male; 2 = Female	[___]
d4	Marital status	1 = Single (never married) 2 = Married 3 = Living together 4 = Divorced 5 = Widowed 6 = Other	[___]
d5	Do you live alone?	1= Yes; 2 = No	[___]

Each of the questions yields a separate indicator:

RECODE d1 (respondent)		
Old Values	New Values	Notes
1	1	subject
2	2	family carer
3	3	other carer
4	4	other
Others	1	subject

Respondent types reported as separate indicators

RECODE d2 (age)		
Old Values	New Values	Notes
888	NA	DK / refused

Mean age is reported

Age-groups (50-59;60-69;70-79;80-89;90+) are reported as separate indicators

RECODE d5 (living alone)		
Old Values	New Values	Notes
1	1	Yes
2	0	No

Living alone is reported

Sex of the subject and marital status of the subject are also reported

2.1.2 Food intake

Food-intake indicators are derived from this questionnaire component. This data can be queried to yield a large number of useful indicators.

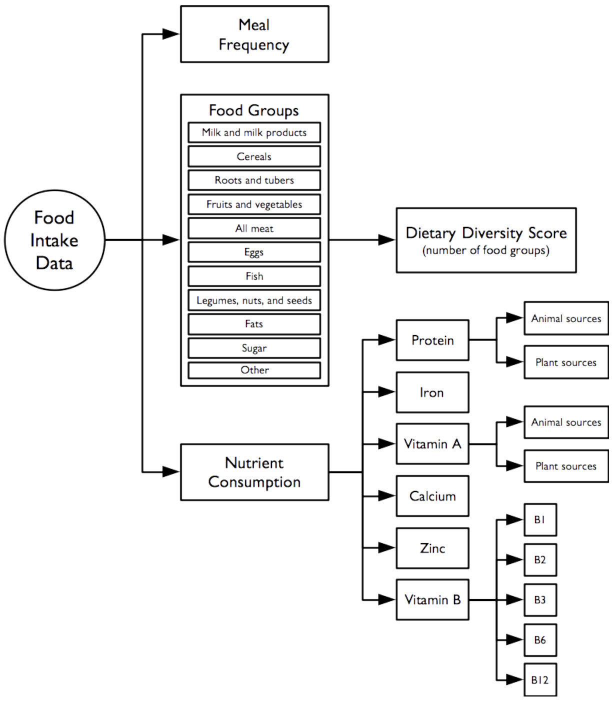
f1	How many meals did you eat since this time yesterday (Ask about breakfast, lunch, dinner, and snacks)?	Number of meals	[___]
f2	Since this time yesterday did you eat any of the following foods ...		
f2a	Tinned, powdered or fresh milk?	1 = Yes; 2 = No	[___]
f2b	Sweetened or flavoured water, “soda” drink, alcoholic drink, beer, tea or infusion, coffee, soup, or broth?	1 = Yes; 2 = No	[___]
f2c	Any food made from grain such as millet, wheat, barley, sorghum, rice, maize, pasta, noodles, bread, pizza, porridge?	1 = Yes; 2 = No	[___]
f2d	Any food made from fruits or vegetables that have yellow or orange flesh such as carrots, pumpkin, red sweet potatoes, mangoes, and papaya?	1 = Yes; 2 = No	[___]
f2e	Any food made with red palm oil or red palm nuts?	1 = Yes; 2 = No	[___]
f2f	Any dark green leafy vegetables such as cabbage, broccoli, spinach, moringa leaves, cassava leaves?	1 = Yes; 2 = No	[___]
f2g	Any food made from roots or tubers such as white potatoes, white yams, false banana, cassava, manioc, onions, beets, turnips, and swedes?	1 = Yes; 2 = No	[___]
f2h	Any food made from lentils, beans, peas, groundnuts, nuts, or seeds?	1 = Yes; 2 = No	[___]

f2i	Any other fruits or vegetables such as banana, plantain, avocado, cauliflower, coconut?	1 = Yes; 2 = No	[___]
f2j	Liver, kidney, heart, black pudding, blood, or other organ meats?	1 = Yes; 2 = No	[___]
f2k	Any meat such as beef, pork, goat, lamb, mutton, veal, chicken, camel, or bush meat?	1 = Yes; 2 = No	[___]
f2l	Fresh or dried fish, shellfish, or seafood?	1 = Yes; 2 = No	[___]
f2m	Cheese, yoghurt, or other milk products?	1 = Yes; 2 = No	[___]
f2n	Eggs?	1 = Yes; 2 = No	[___]
f2o	Any food made with oil, fat, butter, or ghee?	1 = Yes; 2 = No	[___]
f2p	Any mushrooms or fungi?	1 = Yes; 2 = No	[___]
f2q	Grubs, snails, insects?	1 = Yes; 2 = No	[___]
f2r	Sugar, honey and foods made with sugar or honey such as sweets, candies, chocolate, cakes, and biscuits?	1 = Yes; 2 = No	[___]
f2s	Salt, pepper, herbs, spices, or sauces (hot sauce, soy sauce, ketchup)?	1 = Yes; 2 = No	[___]

There are three related sets of diet-related indicators:

- meal frequency
- food groups consumed / dietary diversity
- indicators of nutrient consumption.

The indicator hierarchy is:



The data on the number of meals taken in the previous twenty-four hours forms a *meal frequency score*.

Food intake data from each subject is combined into a *dietary diversity score*. The dietary diversity score is a crude measure of food security. The dietary diversity score ranges between zero (i.e. no food groups) and eleven (i.e. eleven food groups). Higher values of the dietary diversity sore are associated with better food security.

The meal frequency score and the dietary diversity score follow:

- Swindale A, Bilinsky P, *Household Dietary Diversity Score (HDDS) for measurement of household food access: Indicator guide.*,Washington DC, Food and Nutrition Technical Assistance (FANTA) Project, 2006

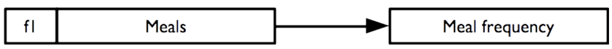
- Kennedy G, Ballard T, Dop MC, *Guidelines for Measuring Household and Individual Dietary Diversity*, Rome, Food and Agricultural Organization, 2010

The data on the types of food consumed in the previous twenty-four hours are analysed in order to determine the diet's content of specific micronutrients that are important for older people. This also follows Swindale & Bilinsky (2006) and Kennedy et al (2010), and:

- World Health Organisation, *The management of nutrition in major emergencies*, Geneva, WHO, 2000

2.1.3 Meal frequency

The meal frequency score indicator is the answer given to the first food intake question:

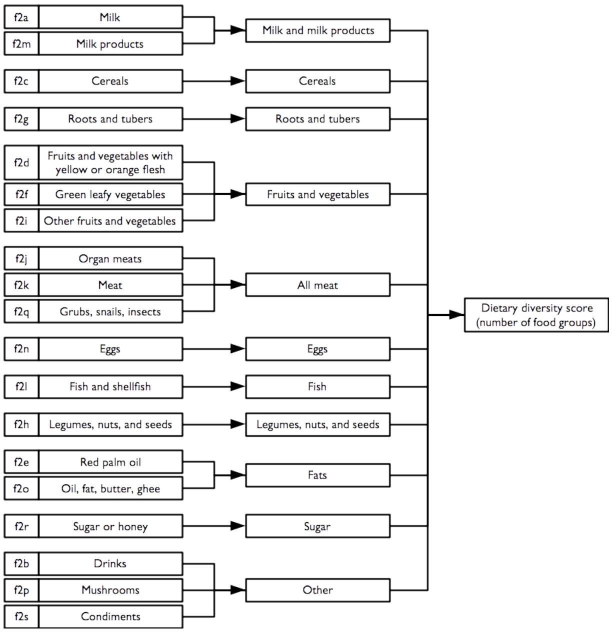


Meal frequency is a crude measure of food security.

Higher values of meal frequency are associated with better food security.

2.1.4 Food groups and dietary diversity

Questions relating to the consumption of individual food items / food types are combined to create food groups and the number of food groups consumed are counted to create a dietary diversity score:



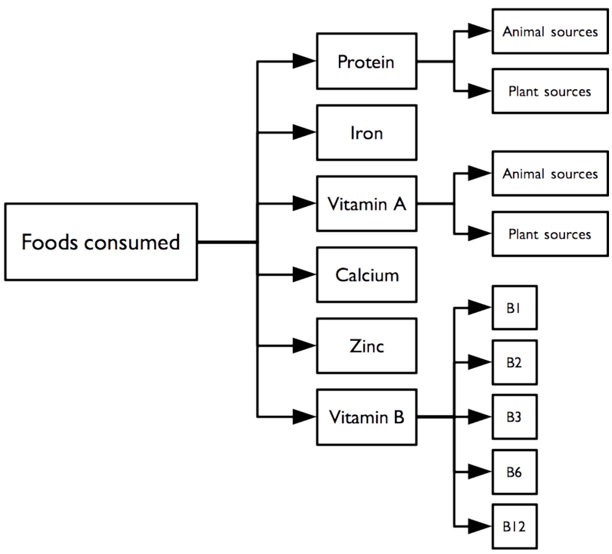
The consumption of the eleven individual food groups and the dietary diversity score are reported separately.

The dietary diversity score is a crude measure of food security. The dietary diversity score ranges between zero (no food groups) and eleven (eleven food groups). Higher values of the dietary diversity score are associated with better food security.

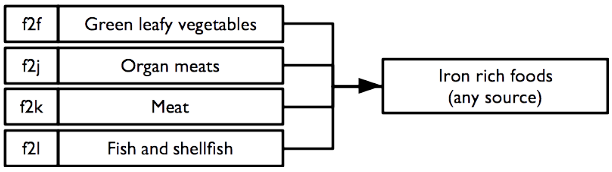
2.1.5 Indicators of nutrient consumption

Overview

Questions and combinations of questions relating to the consumption of individual food items and food types can be used to determine whether the reported diet is likely to be provide sufficient nutrients of various types:



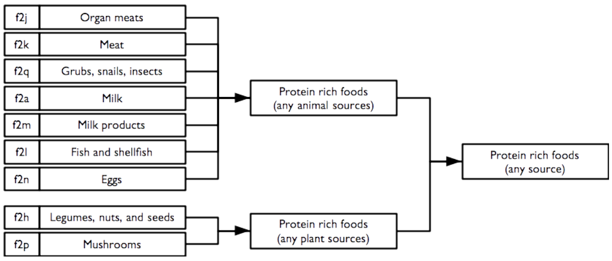
Each indicator is formed using logical "or" operations (i.e. the indicator is true if **any** of the constituent foods are consumed). For example, the indicator for the consumption of iron rich foods:



requires the consumption of one or more of green leafy vegetables, organ meats, meat, or fish and shellfish. Consumption of **any** of these foods is sufficient to indicate that the survey subject consumes iron rich food.

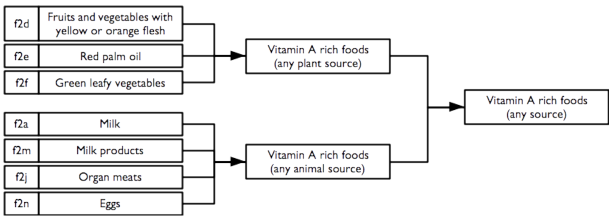
2.1.5.1 Protein rich foods

Indicators of consumption of protein rich foods from animal sources, plant source, and any / all sources are calculated as:



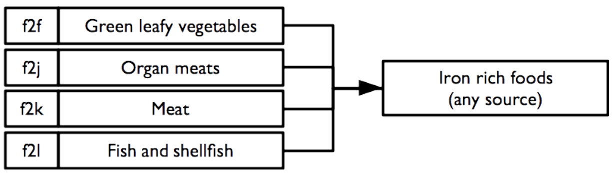
2.1.5.2 Vitamin A rich foods

Indicators of consumption of vitamin A rich foods from animal sources, plant source, and any / all sources are calculated as:



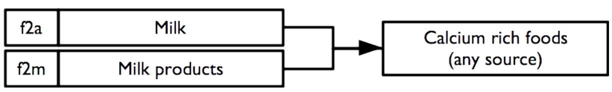
2.1.5.3 Iron rich foods

An indicator of consumption of iron rich foods from any / all sources is calculated as:



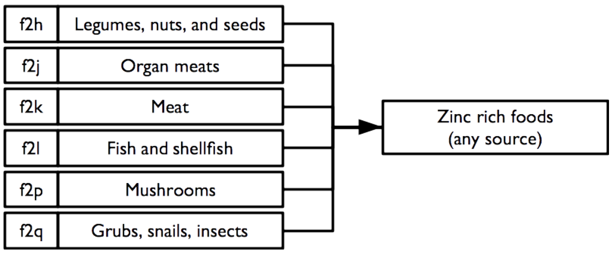
2.1.5.4 Calcium rich foods

An indicator of consumption of calcium rich foods from any / all sources is calculated as:



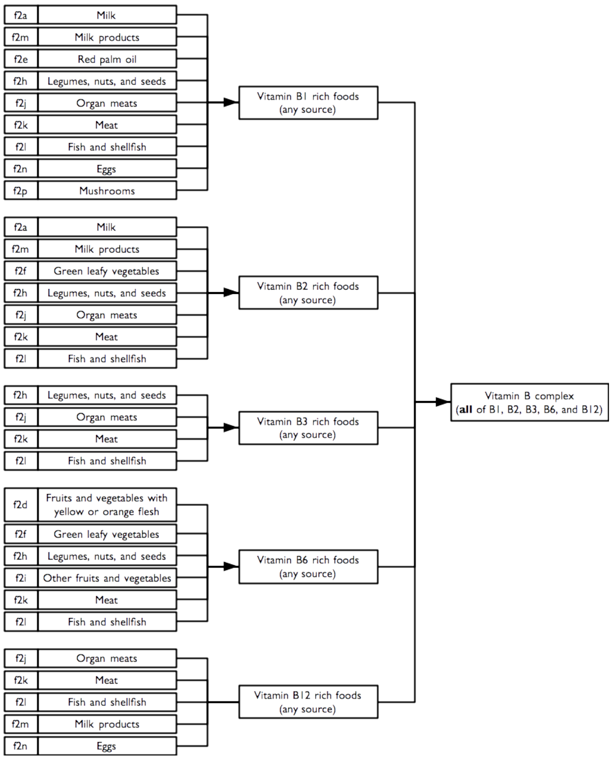
2.1.5.5 Zinc rich foods

An indicator of consumption of zinc rich foods from any / all sources is calculated as:



2.1.5.6 Vitamin B rich foods

Indicators of consumption of vitamin B rich foods from any / all sources are calculated as:



Note that the vitamin B complex indicator requires that at least one food from each of the B1, B2, B3, B6, and B12 rich food combinations is consumed.

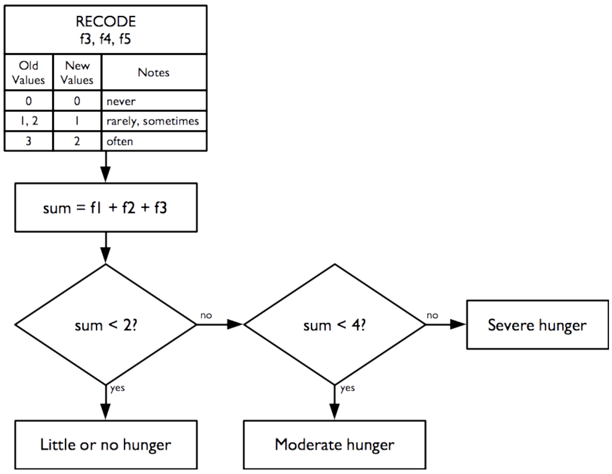
2.1.6 Severe food insecurity

An indicator of severe food insecurity (hunger) is derived from this questionnaire component:

Hunger – Ration - Relief

f3	In the past four weeks, how often was there ever no food to eat of any kind in your home because of lack of resources to get food?	0 = Never 1 = Rarely (1-2x) 2 = Sometimes (3-10x) 3 = Often (> 10x))	[___]
f4	In the past four weeks, how often did you go to sleep at night hungry because there was not enough food?	0 = Never 1 = Rarely (1-2x) 2 = Sometimes (3-10x) 3 = Often (> 10x))	[___]
f5	In the past four weeks, how often did you go a whole day and night without eating anything at all because there was not enough food?	0 = Never 1 = Rarely (1-2x) 2 = Sometimes (3-10x) 3 = Often (> 10x))	[___]

and is calculated as:



Chapter 3

The RAM-OP questionnaire

Chapter 4

Datasets

Chapter 5

Practical Fieldwork

Chapter 6

RAM-OP Software

6.1 Data entry

6.2 Data analysis

This manual covers analysing your data using the **RAnalyticFlow** workflow. An **RAnalyticFlow** workflow may be thought of as an *"app"* that makes it easy to analyse your survey data.

To use the **RAnalyticFlow** workflow you must install:

- **The *R Language for Data-Analysis and Graphics* (R)** : This is the *"engine"* which does all the work of analysing your data. You can get the R installation program from: http://cran.r-project.org. Following are links to download operating sofware-specific versions of R:
  - Download R for Linux
  - Download R for (Mac) OS X
  - Download R for Windowx
- **R packages** (libraries of functions needed to work with the **RAnalyticFlow** workflow) : You can install these from within **R** using the Package Installer function within R. The libraries needed are:

Package	Comments
rJava	Required: Used by **RAnalyticFlow**
JavaGD	Required: Used by **RAnalyticFlow**
codetools	Required: Used by **RAnalyticFlow**
foreign	Required: Opens **EpiData** (REC) files
car	Required: Used for PROBIT estimator
ggplot2	Desirable: Provides many plotting functions
data.table	Desirable: Speeds up working with large dataset

The Package Installer function can be called in R using the following command:

```
install.packages(c("rJava", "JavaGD", "codetools",
                   "foreign", "car", "ggplot2", "data.table"),
                   repos = "https://cloud.r-project.org/")
```

The `repos` argument in the R command above specifies the CRAN mirror from which you to download the package/s you want to install. Here we specify the cloud-based mirror for CRAN provided by RStudio. If unspecified, the installiation process will prompt you to select a mirror from which to download packages from. If you already know the URL of the CRAN mirror you want to use, specify this in the `repos` argument.

Note that **RAnalyticFlow** may require you to have **Java** installed. Check the instructions on the **RAnalyticFlow** download page and on this starter guide.

All of this software is open source and free to download, copy, and use. It will run on Windows, Mac OS X, and Linux (and other UNIX-like) operating systems. Your ICT department should be able to help you with installing this software.

In addition you will also need a copy of the **RAnalyticFlow** workflow and supporting files. These are available from:

http://www.brixtonhealth.com/ramOP.rflow.zip

You may need to extract the file from the ZIP archive before use if this is not done automatically.

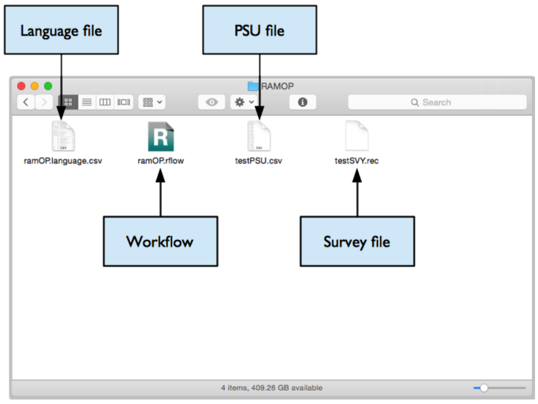


Figure 6.1: Directory structure of RAM-OP RAnalyticFlow package

Before starting to analyse your data you should create a project directory or project folder. This is just a normal folder or directory that can be created using your usual file manager (e.g. Windows ExplorerTM in WindowsTM or the FinderTM in Macintosh OS-XTM). The project directory or project folder should contain:

1. Your PSU file (here we assume this file is called testPSU.csv but it could have any name). This file must be a comma-separated-value (CSV) file.

2. Your survey data file (here we assume this file is called testSVY.rec but it could have any name). This file can be an EpiData (REC) file or a comma-separated-value (CSV) file.

3. The language file (always called ramOP.language.csv). This file provides text that is used in reports and graphics. The purpose of this file is to make the data analysis software produce reports in any language. This file must be a comma-separated-value (CSV) file.

4. A copy of the file ramOP.rflow.

When you have created the project directory or project folder with the required files you can start RAnalyticFlow.

Note: The `testSVY.rec` and `testPSU.csv` files are example data files and are distributed with the **RAnalyticFlow** workflow. You can use these files to practice analysing data using **RAnalyticFlow**, and as examples of RAM-OP survey data and PSU files.

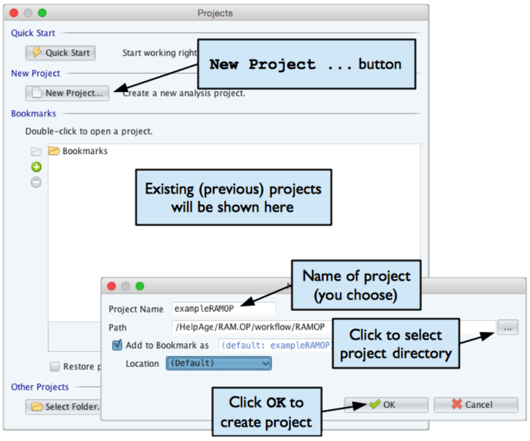


Figure 6.2: Creating an RAnalyticFlow project

Before you start work you will need to create a project for your survey:

1. Click the **New Project...** button
2. Give your project a useful (i.e. descriptive and memorable) name. This might be a name that describes the survey. For example, if the survey was done in the Kereinik locality of West Darfur in December 2015 you might use the name **WD.Kereinik.Dec2015.RAMOP**
3. Give the location of your project directory or project folder. This is the directory or folder which contains your survey data file, your PSU file, the RAM-OP language file, and a copy of **RAMOP.rflow** (see previous page). The location of the project directory or project folder (labeled "Path" by the software) that **RAnalyticFlow** selects automatically will almost always be wrong. You need to specify this manually.
4. Click the **OK** button

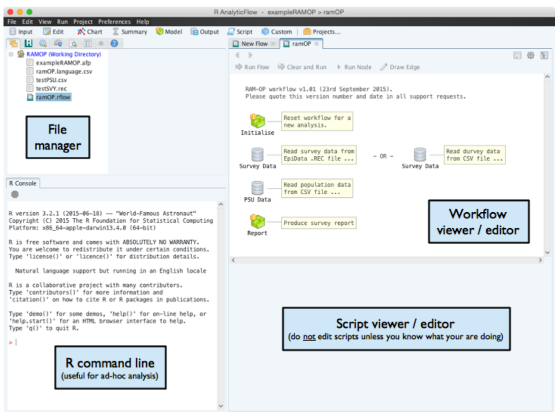


Figure 6.3: Open an RAnalyticFlow workflow

Double click the item named **ramOP.rflow** shown in the file manager pane of the **RAnalyticFlow** window. This will open the data-analysis workflow which will be shown in the workflow viewer / editor window of the **RAnalyticFlow** window.

Once you have opened the workflow you need to initialise it (i.e. load libraries, useful analysis function, and initialise the workspace for a new analysis):

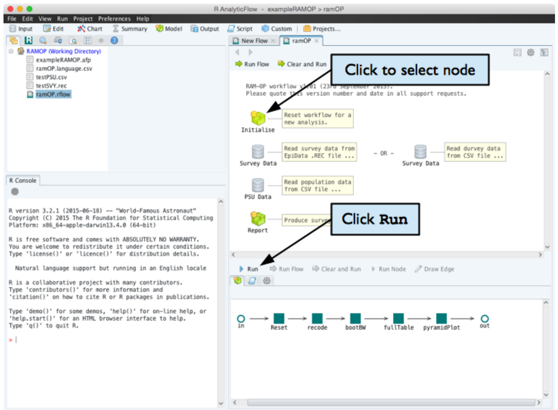


Figure 6.4: Run an RAnalyticFlow workflow

Once this is done, you should:

1. Retrieve your survey data. This can be in EpiDat (REC) format or CSV format. Select and run the appropriate **Survey Data** node and select the survey data file.
2. Retrieve the PSU date data. Select and run the **PSU Data** node and select your PSU file.
3. Produce the survey report and graphics. Select and run the **Report** node. This will take some time to complete because the analysis uses computer intensive techniques to make best use of the available data. The Report node/icon will have black lines around it has completed running the report.

Chapter 7

Conclusion

We live in an ageing world, where people aged 60 or over will be 2 billion or about 22% of the world's population by 2050.

Currently, two in three people aged 60 years or older live in developing countries. By 2050, nearly four in five older people will be living in the developing world.

The changing demographics of ageing combined with the increasing number of disasters will exert a disproportionate impact on the world's oldest and poorest.

In this context, identifying the needs of older people as accurately as possible is a necessity. More and more donors and UN agencies are now willing to include older people in their programmes. Age markers, to complement gender markers, will be disseminated very soon

RAM-OP is offering a fast, robust, reliable, tested and user-friendly way of assessing the needs of older people. It can be used in humanitarian situations as well as in development contexts. The modular structure of RAM-OP allows for adaptations, making it exhaustive or limited to essential indicators according to the immediate needs.

As more organisations start to use it, RAM-OP will evolve and improve. New versions of RAM-OP can be created (for example, RAM-OP for refugee or displaced people camps). We wish that a greater number of actors will start using RAM-OP and make it their own.