



# REMOTE DATA COLLECTION FOR FOOD SECURITY AND ECONOMIC VULNERABILITY

## PART 2 – IMPLEMENTATION GUIDELINES



ICRC

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## ABBREVIATIONS

<b>CATI</b>	Computer-assisted telephone interview
<b>EcoSec</b>	Economic Security Unit
<b>ICRC</b>	International Committee of the Red Cross
<b>IVR</b>	Interactive voice response
<b>MNO</b>	Mobile-network operator
<b>RDC</b>	Remote data collection
<b>RDD</b>	Random digit dialling
<b>SMS</b>	Short Messaging Service
<b>UAV</b>	Unmanned aerial vehicle

This is Part 2 of a review of remote data collection carried out to assess food security and economic vulnerability. The review – commissioned by the Economic Security Unit of the International Committee of the Red Cross – is divided into two complementary parts that are meant to be read together: there are numerous cross-references. Both parts of the review contain key practical recommendations. A general understanding of the background is needed for any exercise in collecting data remotely.

# RESPONSIBLE IMPLEMENTATION OF REMOTE DATA COLLECTION

The Information Age – characterized by significant advances in the information technology sector and by the creation of an interconnected network of people and communities – has brought about a social revolution. It has also made gathering information about people and places relatively simple, cheap and efficient. Some of the most valuable companies in the world have acquired vast amounts of money and power by collecting, storing and analysing data about people in order to predict what they want to see, eat, buy, etc.

Some humanitarian and development organizations have amassed data on millions of people over the past few decades. This process was greatly expedited over the last decade when surveys began to use relatively cheap methods of data collection, such as telephone interviews or SMS messages. While this large volume of data has been of great help to them in fulfilling their mandates, it has also imposed a grave responsibility to respect and safeguard the privacy and security of the people and communities that have entrusted them with their information. It is, therefore, more important than ever that these organizations put in place procedures for protecting the information of some of the most vulnerable people in the world.

## SELECTING THE RIGHT TOOL FOR REMOTE DATA COLLECTION

Choosing the right tool for remote data collection (RDC) is critical. It results in the collection of high-quality data; but it also saves valuable survey resources, such as the time, money and effort required to implement that particular RDC tool. This section describes some of the most important steps in selecting an RDC tool. In addition, the Annex contains a decision tree that can be of assistance in selecting a suitable mobile-based RDC tool.

**Identification of the target population:** The unit of analysis can be any one of many different things: individuals; households; communities; structures such as schools and buildings; or crops and vegetation. Typically, information on the characteristics, perceptions, and behaviour of people, or any information that requires interacting with people, is collected through mobile phone-based options. But information on areas and objects on earth that require monitoring from the sky is captured by satellite imagery and drones.

**Characteristics of the target population:** Once the unit of analysis or the target population has been identified, the next step is to reach into the population itself and analyse its characteristics. The population of interest might have specific socio-cultural and socio-economic characteristics in such areas as education, economic status, and cultural usage/taboo. The selection of RDC tools is heavily influenced by these characteristics. For example, SMS-based surveys are unsuitable for populations with high rates of illiteracy; mobile phone-based surveys are ineffective for surveying areas with low rates of mobile-phone ownership; women in certain communities may not be permitted to give interviews; and it will be very difficult data with Internet of Things sensors in areas without electricity, the internet or a telecommunication network. Thus, a formative study of the population must be carried out before selecting an RDC tool for a survey.

**Analysis of the operational environment:** Data-collection activities are also significantly influenced by the environment in which they are to take place. Some areas and some people might completely reject the use of drones for surveys and monitoring, because of security concerns arising from an ongoing conflict. Proper risk assessment is absolutely essential before undertaking data collection with RDC tools.

**Available funding:** Funding is the most important consideration in selecting an appropriate RDC tool. Implementation of every RDC tool comes with a price tag, which is dependent largely on the complexity of the operational context. Proper market research will help ascertain whether the desired RDC tool is financially viable, or whether a cheaper alternative has to be implemented instead. Some of the factors that can influence the cost of implementing various RDC tools, and ultimately influence funding as well, are listed below in the form of questions.

- What are the sample size and the extent of the area to be covered? If satellite imagery is to be used, what is the minimum required spatial resolution?
- Does a call centre have to be set up – for computer-assisted telephone interviews (CATIs), SMS or interactive voice response (IVR) – within the organization or can the services of a third party be employed?
- What is the frequency (bi-weekly, monthly, etc.) of RDC ?
- What are the rates for making a phone call or for sending IVR or SMS messages?
- How long will each interview be? If CATI is to be used, how many operators will be needed and for how long?
- What are the overall staffing requirements?
- What additional resources – drones, mobile phones, tablets, software applications, etc. – will have to be obtained?
- What is the cost of conducting preliminary field visits, preparing formative studies, and pilot testing RDC tools?
- Do community outreach activities have to be undertaken?

### **Conducting a formative study**

Formative studies seek to understand the various factors – technical, social, and geographical – associated with a target population, and what bearing they have on the selection of an RDC tool. Before conducting a study of this kind, secondary data on the population of interest – if available – should be analysed . This should then be followed by field visits if there are no access restrictions. A formative study also helps ensure that the communities know something about, and are also involved in, the process of project implementation: this is accomplished by listening to their views and priorities, as set out in the ICRC's Accountability to Affected Populations framework. The formative study should strive to answer at least the following questions:

#### **Technical study**

- Does the target population have access to mobile phones and the internet? What proportion of the population has access to phones and the internet?
- What is the quality of network coverage? Are there any areas where telecommunication networks are not available?
- How popular are social media applications like SMS, Facebook and WhatsApp?
- What about the availability of electricity? Are power outages scheduled regularly?

#### **Social study**

- What is the demographic make-up of the target population? Are mobile phones used mostly by young people? What section of the population tends to use social media more? What is the literacy rate among the population?
- Is there a correlation between phone ownership and such socio-economic variables as poverty and education? Do poor households have access to phones and the internet?
- How does the community view the use of electronic devices by members of the target population, such as women? Are there cultural restrictions on the use of phones to talk with or send messages to unknown people?

- When is it socially acceptable to make phone calls? During what hours of the day? When are members of the target population likely to be available to respond to survey questions?
- Are the questions to be asked socially acceptable?

### Geographical study

- Is the target area urban or rural? Is this a camp setting?
- Is the target population sparsely distributed over a large area?

### Conducting a risk analysis

There are situations in which technology can do more harm than good. The use of innovative tools and techniques can endanger the staff or the target community if a proper assessment of potential risks has not been undertaken in advance. Risk analysis should answer at least the following questions:

- How will the RDC tool be received by the community and other actors such as the government and non-state actors?
- Are there any activities – in progress or foreseen – that might endanger staff or equipment such as Unmanned aerial vehicle (UAVs)?
- Will the use of electronic equipment put local staff and communities at risk?
- Is there a risk of data being intercepted by actors such as national and foreign intelligence services, or non-state actors?
- Will the type of data being collected put respondents at risk?

## GENERAL GUIDELINES FOR RESPONSIBLE RDC

Data are at risk during each stage of the data-collection process, and these risks must be fully understood and mitigation measures put in place. This section describes all the stages that data go through, the potential risks, and the mitigatory actions. It follows the ICRC's guidelines for protecting personal data<sup>1</sup>, and its publications on data protection in humanitarian action<sup>2</sup> and on humanitarian futures for messaging apps.<sup>3</sup>

### Planning stage

This refers to the stage when an organization is getting ready to collect the data. At this stage, the following considerations must be taken into account:

**Ensuring data are collected for specific purposes:** The purpose of data collection must be clear to everyone involved and must have a direct bearing on the objectives of the study. Information that is widely collected for social surveys, such as religious or ethnic affiliation, can be used to identify areas where people belonging to a particular religion or ethnic group live, which can put them at risk. In addition, questions that could put respondents in harm's way (political opinions, religious beliefs, etc.) should not be asked. It is also important to ensure that only the minimum information necessary to fulfil the objectives is collected.

**Assessing the impact of data protection:** Before collecting data, an assessment should be made of whether the data collection might have an adverse impact on the target population or the organization itself. The impact assessment can shed light on important matters, for instance, whether higher protection standards should be implemented in that particular context; the assessment can also yield recommendations for revising data-collection tools and methodologies.

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<sup>1</sup> ICRC, *ICRC Rules on Personal Data Protection*, ICRC, Geneva, February 2020.

<https://www.icrc.org/en/publication/4261-icrc-rules-on-personal-data-protection>

<sup>2</sup> ICRC, *Handbook on Data Protection in Humanitarian Action*, 2nd ed., ICRC, Geneva, May 2020.

<https://www.icrc.org/en/publication/handbook-data-protection-humanitarian-action>

<sup>3</sup> ICRC, *Humanitarian Futures for Messaging Apps*, ICRC, Geneva, March 2017.

<https://shop.icrc.org/humanitarian-futures-for-messaging-apps-print-en>

**Trust-building and consultations with local communities:** Engaging with local communities can reveal risks associated with the use of electronic data-collection tools, the sensitivity of the questions being asked, the acceptability of the survey's methods, etc. Community consultations are also necessary for preparing potential respondents or communities for the data collection, to reassure them and ease any apprehension they might feel; this can result in a higher rate of participation.

**Finding the right partners for data collection:** If the organization decides to collaborate with a third party to collect data, then due diligence must be conducted to ensure that the service provider has a good reputation and that there are adequate data-protection procedures in place. It must, however, be noted that the ultimate responsibility for protecting information rests with the organization commissioning the data collection and not the service provider.

### **Collection stage**

This refers to the stage when the data collection has commenced and respondents are being contacted for interviews.

**Establishing a legitimate basis for data collection:** This is an important activity to ensure that the data are collected lawfully and fairly. It can take various forms: by obtaining the consent of respondents; or by basing the data collection on the vital interest of respondents, the public interest or the legitimate interest of the ICRC, or on the necessity of fulfilling a contract or a legal obligation.

Whenever possible, consent should be chosen. It is important to ensure that the respondents know what they are consenting to, so they should be given all the necessary information: their right to refuse to provide consent; the type and purpose of data collection; the mechanism for sharing data with other persons/institutions; and the process by which they can request data.

**Assessing the risk of using the data-collection tool in question:** The safety and well-being of the respondents, and of ICRC staff, should be of paramount importance when conducting a survey. For example, in conflict-affected areas, SMS surveys can put respondents at risk, as the messages remain on the phone until they are deleted, and can be searched by security forces or armed groups. In such circumstances, telephone interviews or IVR might be better options, as they don't leave digital trails on respondents' phones. When carrying out telephone surveys, find out in advance what the safest times are for calling. Keep in mind that in some conflict-affected areas the use of mobile phones is forbidden. Elsewhere, the RDC tool might itself be at risk of damage, because it arouses suspicion: drones are particularly susceptible to such distrust. In case of messaging apps, ensure that end-to-end encryption has been enabled by default.

### **Post-data collection**

Some important considerations to keep in mind, after the completion of data collection, are listed below:

- Ensure that data are handled properly when validating or cleaning; that changes are recorded accurately; and that data are stored in standard formats.
- Remember that the inferences that can be drawn from the data are limited by such factors as the survey design and the population reached or excluded. In this case, it is important to bear these limitations in mind while drawing conclusions. Wrong conclusions can result in the exclusion from assistance of those who are most vulnerable.
- Data must be stored in highly secure environments and access to data must be tightly controlled. As data pass through various stages, they can be on different devices at different times. Hence, care must be taken to secure data properly at every stage.
- If data have to be shared with other parties, ensure that they agree to abide by the data-protection standards set out in the data-sharing agreement.
- Develop and implement a policy for disposing of data safely, once they are no longer needed.
- Make sure that there are mechanisms in place for survey participants to make queries and ask for their data. This can be accomplished by opening a hotline for the purpose, or through complaints-and-feedback mechanisms.

# IMPLEMENTING RDC TOOLS

RDC tools are widely used, particularly to gather data from areas that are hard to reach owing to insecurity, remoteness or other reasons. Increasingly, these tools are also becoming a part of monitoring systems that require high-frequency data collection, given their advantages – in terms of money, time and effort – over the traditional face-to-face interview.

RDC tools are one aspect of surveying a population of interest, so their successful implementation depends on the entire survey process. This section describes the implementation of RDC tools within the context of a survey that goes through the various stages described in the sections below. It should also be noted that the guidelines are applicable mainly to mobile-based RDC, which is the most widely used method of collecting data remotely.

## CHALLENGES FOR RDC IN CONFLICT SETTINGS

Some of the challenges facing organizations that plan to implement RDC tools in conflict settings are described below:

The risk to respondents, of providing information to organizations using RDC tools, is significantly more serious than in other circumstances, such as disasters. Respondents might be persecuted by the state as well as non-state armed groups, if the information provided by them is deemed to be sensitive.

The use of drones and similar tools for data collection can cause more suspicion as these devices have been used as weapons and for surveillance.

SMS-based surveys leave a digital trail on respondents' phones, which can be searched by the armed forces. In addition, making telephone calls in areas where the use of phones has been forbidden can put respondents at risk.

It is also important to understand the data-protection regulations in effect in a conflict setting. A government can make use of its emergency powers to force organizations to hand over the data and then use them for their own purposes.

## Engage with stakeholders to define the scope of work

Stakeholders are the people, ICRC departments, or external institutions that have a stake in the RDC project. It is important to engage with them for the duration of the data collection. The following matters must, at the very least, be discussed and agreed upon by all the stakeholders:

**Information expected:** The type of information required by the stakeholders should be discussed and agreed upon. It must be kept in mind that there are RDC tools that are not capable of capturing open-ended information or data on highly complex issues. These limitations should be disclosed at the outset so that there are no false expectations of the output. This also ensures a general consensus on precisely what type of information is to be collected, stored and analysed. For example, telephone-based RDC can be used for remote programme monitoring being, to track the progress of project implementation as well as outcomes and/or impact. Monitoring through telephone interviews is already being conducted by many delegations on an ad hoc basis; usually, a mixed approach is employed, consisting of some combination of face-to-face data collection among existing beneficiaries (assessment, registration, etc.) and one or several monitoring activities that require data collection (beneficiary verification, post-distribution monitoring, etc.). Remote situation monitoring that is telephone-based makes it possible to track changes in the project's geographical area, and in the wider environment, by collecting data from beneficiaries or randomly selected members of the population (security and access, food security, etc.), or from key informants such as traders (prices, the functioning of the market, etc.).

**Method:** The first issue to be settled is at what level changes are to be monitored: the individual (through a panel survey) or the whole group (through a cross-sectional survey)? The longer the period covered by the data collection, the richer and more valuable the data are likely to be. However, this comes with its own risks: respondents might start dropping out because they have lost interest, phone numbers might change and no notice given of the fact, and so on. Long-term panels are also susceptible to “panel decay”: panel samples are representative when they are selected, but this changes over time because characteristics of the sample change (e.g. age). A rotating panel is often used in the humanitarian sector, whereby a predetermined proportion of sample units is replaced at regular intervals; this also helps to make up for unresponsive participants and/or for people who have lost interest in participating in the survey.

A cross-sectional survey collects data to make inferences about a population of interest at a particular point in time (snapshot). Respondents to cross-sectional surveys are not intentionally sampled again; but if the survey is repeated periodically (e.g. various monitoring exercises), a respondent to one monitoring exercise might be randomly selected for a subsequent one. In panel surveys, individual respondents are followed over time, which helps to track changes among those individual respondents/households between various monitoring exercises, as opposed simply to tracking overall trends. One advantage of panel surveys is that they enable repeated use of the same phone numbers and help to build rapport with the respondents. In addition, panel data in general are considered to measure change more precisely than cross-sections of the same sample size taken repeatedly, because the variables – the region, village, household, individual etc. – remain constant between rounds of data collection.

**Any specific priority groups or areas:** Sometimes more detailed information on particular groups or areas may be required, most probably because of an ongoing programme or one being planned. This information is usually collected by stratifying samples by the parameters of interest. It will, however, add to the overall budget because of the increase in work.

**Frequency of updates:** The frequency of data collection (bi-weekly, monthly, annually, etc.) should be discussed and established in advance. More frequent data collection is desirable if the situation is expected to change frequently; it will also make things easier for respondents because they will be asked to remember what happened a few days, not a few weeks, ago. However, greater frequency also means greater susceptibility to bias, unrepresentativeness and respondent fatigue. Less frequent data collection is preferred when indicators change more slowly; however, it increases the risk of lower rates of response caused by respondents changing phones and SIM cards or losing interest in the process.

**Reporting structure:** The report and how to disseminate it are also matters that must be discussed and settled.

### **Decide how to select respondents for telephone interviews**

Various issues must be considered before selecting respondents:

**Use of existing phone numbers collected in past exercises in data collection:** This can be done by asking respondents of traditional face-to-face surveys (e.g. during assessment or registration) to agree to a follow-up phone survey. Using these phone numbers has this advantage: because detailed information on these individuals or households is already available, sampling can also be easier (by location, wealth, social status, etc.). The preceding rounds of face-to-face data collection can be used to explain the objectives of the telephone survey and secure cooperation (and in some cases, this can also be used to distribute phones) in order to boost response rates.

**Partnering:** Use mobile-phone databases – accessible through partnerships with a call centre or an MNO, for instance – in order to call randomly selected people. Telecommunication companies often maintain a list of phone numbers of subscribers willing to participate in surveys. As in the methods below (collaborating with institutions or random digit dialling), a baseline needs to be established over the phone, in order to understand population characteristics and inform the sampling strategy.

The recommendation is to collaborate with institutions (e.g. government ministries, unions, religious organizations, universities), or projects, that maintain databases containing phone numbers (members of associations, beneficiaries, etc.). Ensure that these lists are up to date and representative of the population. Randomly selected mobile-phone users in the areas of interest can then be contacted, based on the sampling strategy.

**Random digit dialling (RDD):** RDD – calling phone numbers generated at random – can also be used when working with a partner. To draw representative samples through RDD, auxiliary information is required. To determine the appropriate sampling approach, a dataset that is known to be representative, such as a large-scale face-to-face national household survey or a recent population census, could be used in combination with demographic and location information collected at the assessment stage.

**Selection of respondents within households:** Typically, adults in a certain age range who are able to answer questions on behalf of their households are eligible to participate in a telephone interview. The issue under study might require specific kinds of respondents (breadwinners, traders, displaced communities, etc.). If the data collection does not specifically require the participation of heads of households, the interviewer may establish a list of all household members during data collection in the field and select a respondent at random, based on the pertinent criteria. It must be kept in mind that the same respondents should be interviewed during every round of the survey.

### **Decide on the type of RDC implementation**

A major decision that has to be made when employing an RDC tool is whether to set it up in-house or outsource it to an external service provider. In an in-house set-up, every aspect of data collection, and for the duration of the process, is managed by the organization itself; in an outsourced set-up, all the activities are conducted by the third-party service provider. The following considerations can help the ICRC determine the most suitable model for implementation:

- If data collection requires access to a global telephone database, then the outsourced option is better, as external service providers can access phone numbers through MNOs.
- The choice also depends on whether there is enough capacity – that is, staff – within the ICRC to set up an internal RDC system. If data collection is to be conducted in-house, it might require working with existing staff, using staff from Community Contact Centre or hiring extra staff. Interviewers can successfully conduct between 10 and 15 interviews a day. Identifying staff members who are computer-literate, and acquainted with the data-entry software used (e.g. Device Magic Web Client), is vitally important. Ideally, the staff members involved should have prior experience as an interviewer and/or operator, be fluent in English and all the local languages, and have good communication skills (oral and written). Female interviewers will be needed in some contexts, as female respondents tend to be more receptive to calls from women. In addition, the recommendation is to appoint someone to provide daily supervision of the telephone interviewers, conduct quality checks, and compile/report the relevant statistics on a regular basis.
- If the data-protection policies of the third-party service provider are a source of concern, or if the ICRC has strict guidelines for protecting and sharing data, then an in-house set-up is preferable, as it offers the ICRC a great degree of control over the data being collected.
- If the system is to be used for long-term data collection spanning several years, then the in-house set-up makes better sense; it is also likely to be more cost-effective over a longer period.
- Third-party service providers may not be available in some countries, or when they exist, may not be able to fulfil minimum expectations.

It should be noted that a mixed-mode approach can be used for setting up an RDC system. For example, the organization may decide to host the data and conduct the analysis and reporting in-house, but use a third party to collect the data.

#### GUIDELINES FOR SELECTING A THIRD-PARTY SERVICE PROVIDER

**Expertise and experience:** The service provider should have significant technical expertise in providing RDC services and several years of experience with RDC tools.

**Partnerships with MNOs:** It is important that the service provider have a partnership with most if not all of the MNOs operational in the areas of interest.

**Data protection and information security:** Identify where and how data are stored and whether it creates data-protection risks.

**Knowledge transfer:** Service providers that are also keen to build the pertinent capacities at the commissioning organization should be given preference.

### Sample design

‘Sample design’ refers to the rules by which the units of analysis are selected for a sample. It is often large populations about whom information is sought. For example, health-care planners in a country might want to know what proportion of the population uses soap to wash their hands, as this information could then be used, for instance, to provide subsidies on soap. Since they cannot ask everyone in their country about soap usage, they select a number of households or people, measure their soap usage, and make inferences about the larger population. The sample design essentially defines the process by which these people are selected for the survey. Some of the most important considerations to keep in mind, when designing a sample for RDC, are described below in the form of questions and statements:

- Is an up-to-date sample frame available for use?
- Is everyone in the target population reachable by mobile phone? If not, what proportion is? Is that enough to proceed with the mobile-phone-based survey?
- Do all the target areas have network coverage? Absence of coverage will mean that those areas will not be represented in the estimates.
- Do the respondents have access to mobile phones? For example, a survey asking about dietary practices in a household might decide that mothers are to be the respondents. If women in a particular community are not allowed to use phones, then the reliability of the results of the entire survey is open to question.
- The frequency of data collection can also affect sample design, as sample sizes for high-frequency surveys will probably decrease with each round, because of the expense involved.
- Sample design can be either panel-based – where the same areas/respondents are surveyed periodically – or cross-sectional, where areas/respondents are randomly selected for each round. Another option is to implement a rotation-based design,<sup>4</sup> which is a mix of panel and cross-sectional sample designs.
- Sample designs are also affected by the degree of precision required of the estimates and stratification. Greater precision requires a larger sample size, which then means a more expensive and time-consuming survey. If separate estimates are needed for different geographical areas or demographic characteristics, then sample sizes will have to be increased.
- Finally, there is the matter of expense: sample designs cost money. Hence, it is important to how much money is available, in order to design the sample according to what is financially feasible.

### Design the checklist

This is one of the most crucial steps in any survey, as it influences both the quality of the data and the validity of the findings. Care must be taken to ensure that the checklists fit or are adapted to the RDC environment. This section applies mainly to telephone-based RDC tools. Some of the factors to consider are described below:

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<sup>4</sup> Paul J. Lavrakas, “Rotating panel design”, *Encyclopedia of Survey Research Methods*, 1 January 2011. <https://dx.doi.org/10.4135/9781412963947.n500>

- The total number of questions that can be asked in a remote survey is limited (a maximum of 10–20 questions). In general, telephone interviews can ask more questions than IVR or SMS-based surveys because of the involvement of human operators. Particularly when it is difficult to keep their phones charged, ‘respondent fatigue’ can cause people to hang up before finishing the survey. There is also the possibility that the selected respondents may be at work or unwilling to spend much time answering questions. Ideally, a survey-related interaction should last 10 to 15 minutes at most.
- The questions themselves need to be short, especially in SMS- or IVR-based surveys. Language is an important factor. The questions must be translated into a language understood by the local community.
- The questions should be clearly worded, non-leading, and adapted to the local context, and should result in respondents choosing one of the options available. Care must be taken not to provide too many ways of answering each question. Open-ended questions should be used sparingly.
- Avoid complex question modules. Complex questionnaire modules (e.g. household expenditures), which take a long time to complete, do not work as well on the telephone.
- Use detailed scripts for interviews. Particularly if a complex question is unavoidable, make sure that it is well-constructed and easily understood by both the call centre interviewer and the respondent. This is only one example of the usefulness of a good interview script.
- Use visual aids. Particularly if a complex question is unavoidable, consider using visual aids: for example, a set of laminated cards with pictures, to which respondents can turn for help in answering a question; or a paper template for respondents to calculate their income and expenditure in a structured way at home, which can then be verified during the phone call.
- Verify the identity of respondents early on in the questionnaire. After making contact, the interviewer should use data on name, age, and sex to assess whether the person answering is the originally sampled respondent. Because people in some contexts people may be expected to move, these questions should periodically include a query about the current location of the respondent.
- Use the telephone call to verify information. For example, identifying all the members of a household, and key demographic information on them, can be done over the phone, but is easier in face-to-face surveys. Confirming household information already collected by face-to-face means – to assess changes in the composition of households – can, however, be done over the phone.
- Use contextual knowledge. Interviewers cannot observe the respondent’s surroundings (living conditions, assets, etc.). They should therefore use what they themselves know about the context to rephrase or clarify questions that might elicit inaccurate answers.
- It is always better to pre-test questions before including them in the final survey. Studies have shown that RDC tools cannot collect all indicators with the same degree of reliability.
- Develop standard interview scripts and data-entry tools. Scripting the questionnaire involves translating the questionnaire into a file that enables easy data entry. Interviewers should be able to read the script, ask the survey questions, and enter the data at roughly the same time. This will produce data of better quality. A good data-entry tool should include all the scripts, and the data-entry fields should have data validation rules and skip logics. See the section on resources for examples. Tip: use the Web Client option in Device Magic to facilitate data entry on your laptop.
- Establish guidelines and/or standard procedures for interviewers. This may include anticipated questions or issues they may encounter, such as the definition of a ‘household’ or answer options of specific questions. See the section on resources for examples
- Create a template for reporting call status and statistics. This could include data on respondents who answered the call and agreed to participate in the survey; participants who answered and accepted after several calls; all calls attempted, including those to which there was no answer; and so on.

## Validation of survey tools

Before the survey is implemented, the tools and methodologies to be used must be validated. This step helps refine the survey tools and increases confidence in the success of the RDC. It becomes especially important when the success of the survey is highly dependent on technical, social and environmental factors, and on other factors such as security. The following tasks can be performed to validate survey tools:

**Focus-group discussion:** Focus-group discussions allow for refinement of survey tools, especially the questionnaire. Questions found to be objectionable to the community should be removed. Focus-group discussions also help to raise awareness – and establish the legitimacy – of the approaching data-collection activity.

**Pilot survey:** Pilot surveys help validate or invalidate assumptions made during survey design. They also help test the adequacy of the survey tools. It is especially important to conduct a pilot survey for RDC tools as it helps measure the actual effectiveness of the tool. A pilot study may not guarantee ultimate success but it does increase the likelihood. Data collected during a pilot study help to identify issues with the data-collection tool and improve data quality.

**Redesign survey:** The outcomes of the focus-group discussion and pilot survey can result in the indicators, sample design, and data-collection tool being redesigned. These adjustments can go a long way towards ensuring the success of RDC-based surveys.

## Training/Workshop

After all the survey instruments have been properly validated, the staff can be trained in the use of the tools. The importance of this step cannot be overstated.

- If telephone-based interviews are to be used, operators must be trained in interviewing people over the phone, and in other areas as well. For example, training in communicating with people affected by conflict can be quite important, because many of them might be in a traumatized state.
- In SMS- and IVR-based surveys, operators will need guidance for dealing with issues related to data management and to monitoring of responses.
- When implementation has been outsourced, all the external participants must be made aware of specific organizational requirements, including those pertaining to data protection.

## Data collection

After the pilot survey has been completed and the necessary adjustments made, the survey can finally proceed as planned. For RDC-based surveys, the following actions must be taken so that the data collection can be completed on time and high-quality data collected.

**Roles and responsibilities must be clearly defined:** There are many actors in the survey process, so it is important to assign clearly defined tasks to each of them. For example, in a mobile-based survey, the different actors will be given specific roles, as shown below.

TITLE	ROLES AND RESPONSIBILITIES
Survey coordinator	Supervising operators Creating detailed weekly/monthly plans for the calls Continuous monitoring of plan vs achievements Allocating calls among operators, as needed Resolving conflicts and disagreements Compiling, on a daily basis, the data received from operators

TITLE	ROLES AND RESPONSIBILITIES
<b>Call-centre operators</b>	Maintaining a register of survey respondents (identified by phone number) Placing a certain number of phone calls on a daily/weekly/monthly basis Entering data under the supervision of the survey coordinator Submitting clean data to the survey coordinator Reporting all technical problems immediately to the survey coordinator
<b>Information and Communication</b>	Ensuring that the calls can be made
<b>Technology staff</b>	Assisting the call operators whenever necessary

**Do daily reviews of the data collected:** Data collected by the RDC tools must be reviewed daily, especially during the first few days of data collection. This helps determine the quality of the data and the causes of data-collection errors. For example, if the answer to a particular question sounds incoherent, then perhaps the question wasn't phrased properly; the survey can then be halted temporarily and changes made.

**Provide the data-collection team with helpful commentary regularly:** Commenting regularly on the progress of the survey, and the quality of the data received, helps to keep everyone aware of the current state of the survey and to ensure that necessary changes are made. For example, In the case of telephone interviews, discussions can be organized to make sure that all the operators understand the questions in the same way.

**Update the database of phone numbers regularly:** The phone-number database should be routinely updated through regular field visits or by verifying numbers through calls to their owners.

**Do not rush respondents:** Respondents in face-to-face surveys may not hesitate to take time to answer questions, but they may not feel the same degree of ease in telephone surveys. They may feel rushed on the phone. This is something that interviewers should be aware of. Interviews should not be unreasonably extended affairs, but it is important not to rush respondents into answering, or hurry through the questions; respondents should be given enough time to answer in order to maintain the quality of the data being collected.

**Always repeat key elements of questions/answer options:** Always repeat the unit of measurement, currency, answer options, and reference period. Respondents to telephone surveys, unlike those responding to an face-to-face survey, have to rely on their memory to remember units of measurement, answer options and reference periods. Therefore, answer options, and the reference period, unit of measurement, currency, etc., should always be repeated for questions requiring detailed responses.

**Use regular intervals:** In cases of continuous data collection, to minimize drop-out rates and unresponsiveness, phone calls should be made at regular intervals and within the same time window. Ideally, respondents will have been asked during the baseline interview to indicate their preferred phone number and when it would be most convenient for them – time and day – to take a call.

**Use the same interviewer for respondents:** Respondents should, to the greatest extent possible, be contacted by the same interviewer every time, as this will build goodwill and commitment among them. It will also enable them to develop relationships, with interviewers, that are a little more personal; to get used to the interviewer's voice of the interviewer; and generally, to become less apprehensive about the whole process.

**Quality control:** The supervisor should be able to listen in on interviews (predetermined or at random) and to intervene or make corrections on the spot; he or she should also be able to listen to recordings, if they are available. Comparing face-to-face data and remotely collected data can help identify potential errors.

#### **GOOD PRACTICES FOR COLLECTING DATA THROUGH TELEPHONE INTERVIEWS**

There are four scenarios for each call that an interviewer makes: the respondent is reached through a direct call and the interview is completed; the respondent is not reached directly, but through a tracer (family, friends, etc.), and the interview is completed; the respondent is not reached, but is retained in the sample; the respondent drops out of the data-collection exercise. The design of a telephone-interview sample should involve strategies to address non-response and attrition. Some tips for conducting phone-based surveys are listed below: Sample people who have good network reception, on average.

Create commitment to the survey among respondents: to that end, make sure that they have formally consented to participate in the survey; secure the signatures of the head of the household and the respondent – if they are different people – to document this consent. This also ensures that the nature of the survey has been explained to the head of household and may prevent domestic conflicts later on (e.g. in case the respondent is female).

Collect alternative numbers during baseline data collection, as well as the following: preferred daytime and night-time phone numbers; information on when each respondent prefers to be called; contact details of household members who own mobile phones; and contact information pertaining to relevant people who aren't part of the survey (family, friends, and neighbours). This will ensure that respondents can either be reached or be traced.

Conduct preliminary rounds of calls: start calling respondents soon after the household visit, during the finalization of baseline data collection. This is to stay in touch with respondents, maintain or establish trust, and prevent early attrition.

Send the respondent or household an SMS message; after you have received confirmation of message delivery, indicating that the phone is on and covered by the network, make the call. Create respondent groups, by selecting group leaders, carrying out group awareness and training, encouraging teamwork in tracing respondents, etc.

Ensure community engagement through meetings to introduce the survey to the community or through printed materials. Explaining the survey to the entire community helps to implement it, fosters acceptance for it, and reduces the likelihood of conflicts. Ensure that respondents are thanked for their participation.

Ensure that sensitization activities and consultations are conducted among the community to be surveyed. If women are to be interviewed, sensitization activities with men acquire an added importance, especially in areas where gender norms could be an obstacle to conducting phone-based surveys involving women. Identify optimal times for phone surveys with men and women to minimize non-response, especially among women.

## **Data management and analysis**

In surveys carried out by organizations in the humanitarian and development sector, the amount of data collected by RDC tools can increase exponentially in a short period. This has consequences for data analysis. For example, with each survey round, comparisons and summary statistics that have to be made or prepared will also grow at a great rate. It means that stand-alone tools like Microsoft Excel will not be up to managing and analysing the data over the long run. These taxing storage and analysis requirements can be addressed by using the methods described below:

**Store individual data files in a secure database server:** A long-run survey will create hundreds of individual data files, possibly across many different locations. This makes storage and analysis very difficult. To avoid such a scenario, it is better to have a system whereby these stand-alone files can be imported into a centralized and secure database server, which can then be easily accessed by data-analysis and visualization tools.

**Create automated scripts:** Automated scripts will connect to the secure database server and allow the analyst to identify errors in data, such as outliers, or to duplicate data entries with just a single click of a button. The scripts that produce summary statistics should also be designed to automate basic statistical analysis.

**Use online data visualization tools:** Online visualization tools greatly automate the process of generating data graphics. Interactive dashboards could be created so that users can select and change indicators and generate the data that they need.

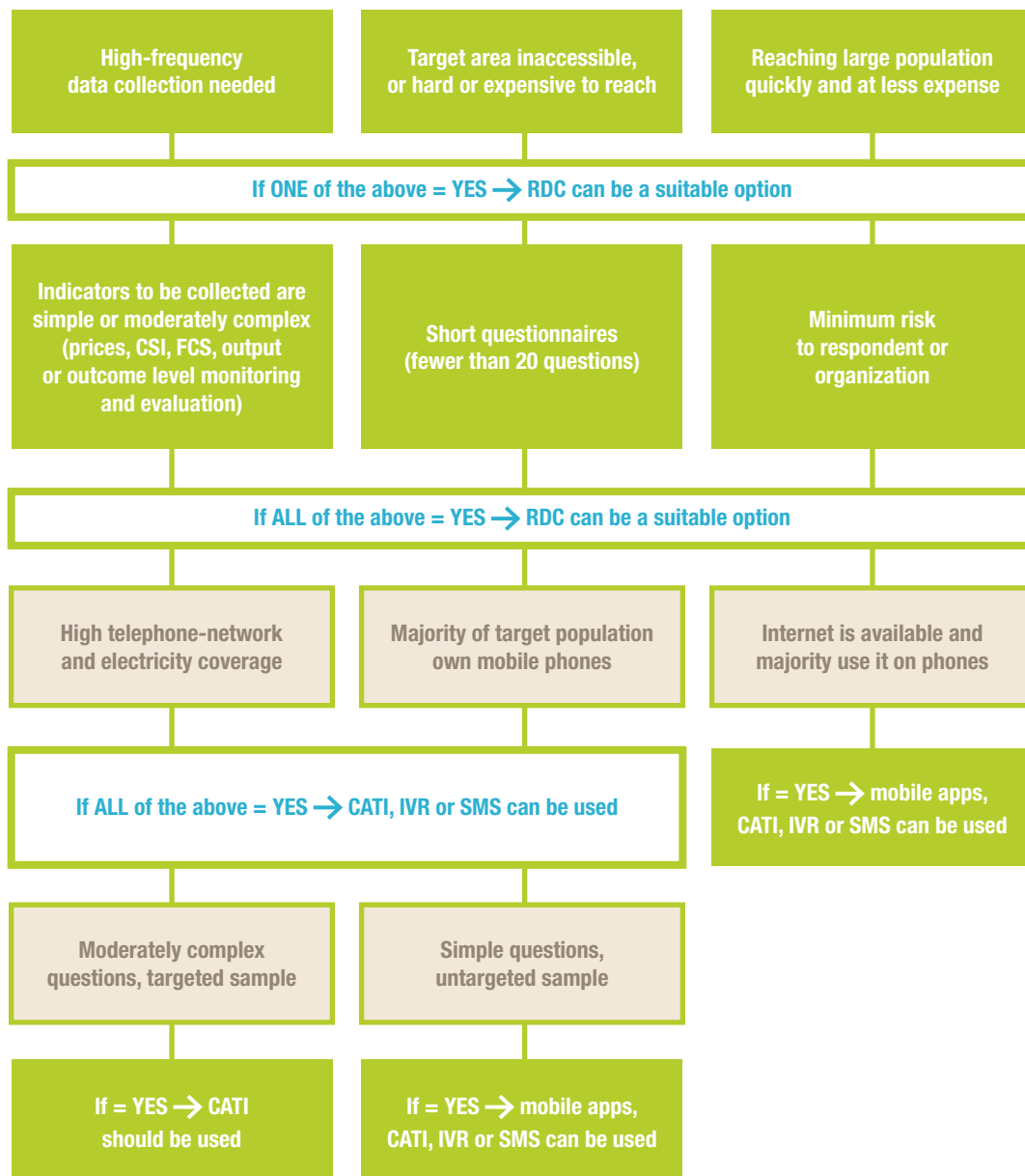
## **Report and communication**

The results and estimates generated by the data analysis must be communicated to the target audience. This may take various forms: technical estimates, presentations, dashboards, reports, etc.. For many of them, this is perhaps the most relevant stage. Before communicating the findings of the survey, the following considerations must be taken into account:

**Know your audience.** Target audiences will have different profiles and need different types of information. They may be colleagues, management, donors, governments, or the general public. They will not be seeking the same kinds of information from the survey. Hence, information must be organized or arranged to meet the specific requirements of the target audience.

**Create tailored communication outputs.** Once the target audience and their information needs have been identified, then a suitable means of communicating that information can be selected and prepared. Technically literate audiences will benefit from reports highlighting statistical outputs such as standard errors, confidence intervals, or significant tests; donors might be interested only in knowing whether their money has altered peoples' lives to any extent; and external audiences can be reached through Web-based communication methods such as blogs and Twitter feeds.

# ANNEX: MOBILE-BASED RDC DECISION TREE



The ICRC helps people around the world affected by armed conflict and other violence, doing everything it can to protect their lives and dignity and to relieve their suffering, often with its Red Cross and Red Crescent partners. The organization also seeks to prevent hardship by promoting and strengthening humanitarian law and championing universal humanitarian principles.