



Marine and Coastal Monitoring
(MACMON) Framework:

A guide for implementing household and key informant interviews



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1. Background and intent

The Marine and Coastal Monitoring (MACMON) framework (Gurney and Darling 2017, Gurney et al. 2019) was developed to support the Wildlife Conservation Society (WCS) in identifying the social and ecological outcomes of their coral reef management activities. The MACMON framework comprises ~90 variables that are organized under

Nobel Prize Winner Elinor Ostrom's social-ecological systems framework. Data are elicited using underwater ecological surveys, household and key informant interviews, and publicly available secondary data. This short guide is intended to guide the implementation of the household and key informant interviews.

2. Introducing the interview instruments

The MACMON Framework includes two interview instruments that were designed to be used together to better understand the social dimensions of coral reef fisheries management. These are:

1. Key informant interviews.

These involve interviewing people who because of their experience, position and knowledge can provide extensive insight on a particular issue. This interview instrument is also appropriate for eliciting information that is unlikely to differ between individuals (e.g. presence or absence of infrastructure such as schools). Key informants should be chosen based on their knowledge of marine governance and management in the study site. This may include people in leadership positions in, for example, village government, traditional systems of authority, marine management, and fisheries associations. It may also include people who **(1)** are not involved directly in marine governance (e.g. leaders of women's groups, youth groups, church groups and village development committees); and **(2)** are not in leadership positions but who are knowledgeable about the study site (e.g. people who have lived in the village a long time, elderly people). Aim for three or four key informant interviews in each study site, making sure that each key informant represents a different group (e.g. do not select four people from village government). Focus groups of 3-5 individuals who complete one interview are also an option. You do not have to choose the same type of key informant (e.g. all leaders) – it is more important to select the person based on their knowledge and expertise, (which may be indicated by how long they've lived in the village).

2. Household interviews.

These involve interviewing an individual and include questions about the individual as well as their household. Household interviews are intended to be implemented with a larger number of people than key informant interviews. Therefore, these are useful for understanding variation in experiences and opinions in a population. Select households using a systematic random sampling, whereby a sampling fraction of every *i*th household (e.g. 2nd, 3rd, 4th, etc.) is determined by dividing the number of households in the village by the number of interviews you plan to undertake (i.e. the sample size). Use a stratified sampling approach to select who to interview within a household. This will involve regularly checking how many interviews have been done with men and women, and other key social subgroups relevant in your study site (e.g. age groups, ethnicities etc.). See 'Sampling – choosing respondents' below for more detail, including how to select respondents in settings other than villages.

Both the household and key informant interviews use a mixed-methods approach, including **closed-ended questions** (the respondent can choose an answer from a limited set of pre-determined answers, e.g., a 5-point Likert scale) and **open-ended questions** (the respondent is not restricted in how they respond and can provide more detail and description of personal opinions or experiences). In general, closed-ended questions provide **quantitative** data and open-ended questions provide qualitative data. Given that quantitative data is quicker and easier to gather and

analyze, it tends to be collected for a larger number of respondents than qualitative data. Quantitative data is therefore useful to examine relationships between indicators and variation in these relationships among the different sectors of the population. Qualitative data generates more in-depth insights and is useful for explaining the relationships evident in quantitative data and for capturing information that is not able to be quantified and/or identifying issues that were not anticipated by the researcher.

Importantly, the MACMON interview instruments capture the respondent’s perception of their reality. Sometimes the respondent’s perception or understanding of a place may differ from your own. This is OK so long as the respondent has understood the interview question correctly, and you have not influenced their answers. There are no wrong or right answers. We are interested in understanding the respondent’s perceptions because values, attitudes and beliefs contribute to an individual’s sense of their own wellbeing and also, drive their behavior. Therefore, the approach taken to collecting and interpreting biological and social data can be quite different. When using social data it is important to consider who provides the information and why they hold that perception (especially if it is different from your own).

3. Study design – choosing study sites

When choosing sites to implement the MACMON interview instruments it is important to consider different study designs. These study designs always involve a ‘management’ site, where there is some form of resource management or conservation activity taking place, e.g., a customarily managed area. Typically we focus on management or conservation activities that are being undertaken in that village in particular, rather than management or conservation activities that are being implemented across a larger area, such

as the district or country (e.g. national fisheries rules determined by the Ministry of Fisheries). These study designs can sometimes include a ‘control’ site, where the form of resource management or conservation activity being undertaken in the ‘management’ site is absent. Typically, the MACMON interview focuses on villages in the ‘management’ category. However, control sites can also be useful but care should be taken in choosing control sites as part of the experimental design (see next page). The three main study designs are:

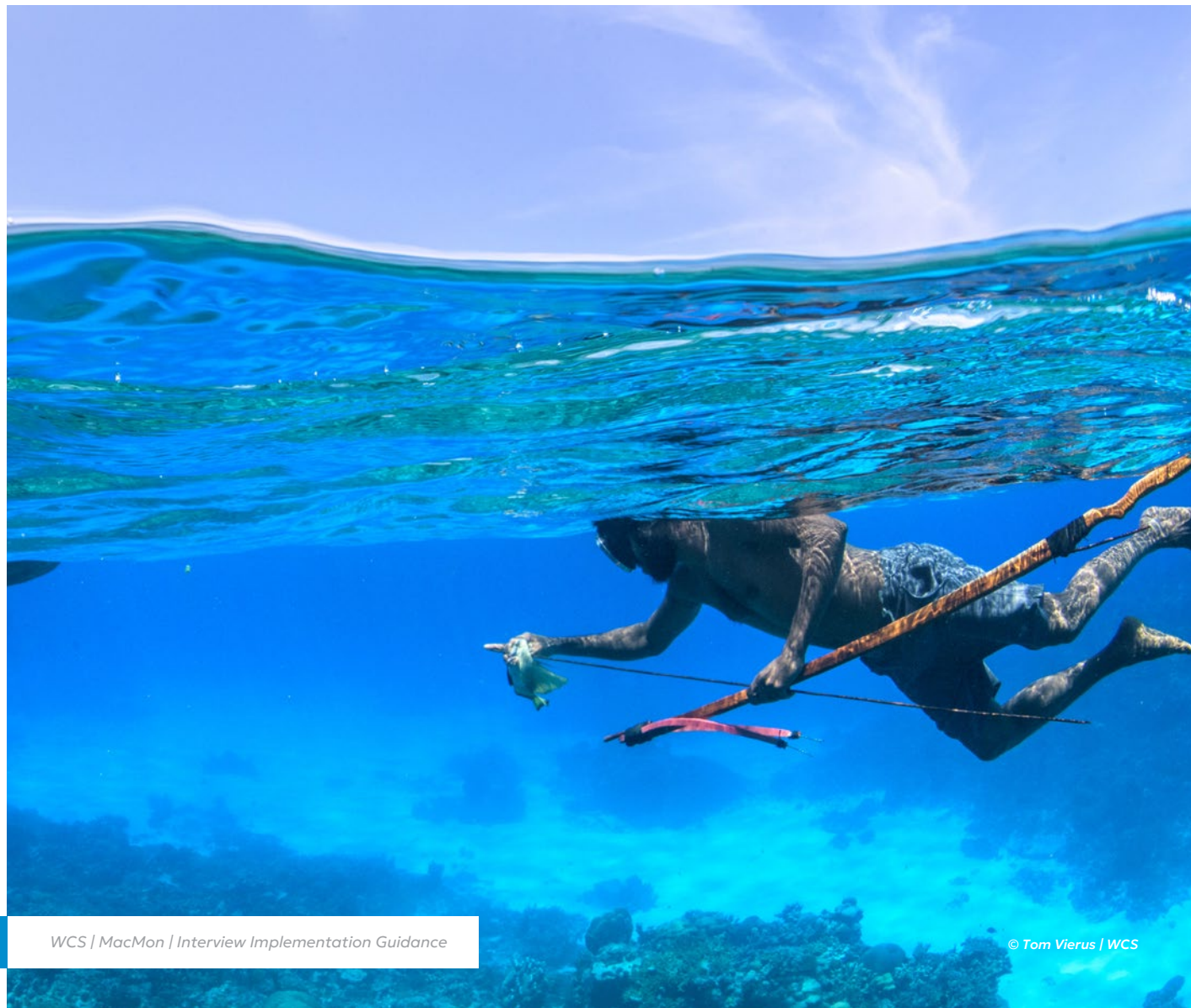
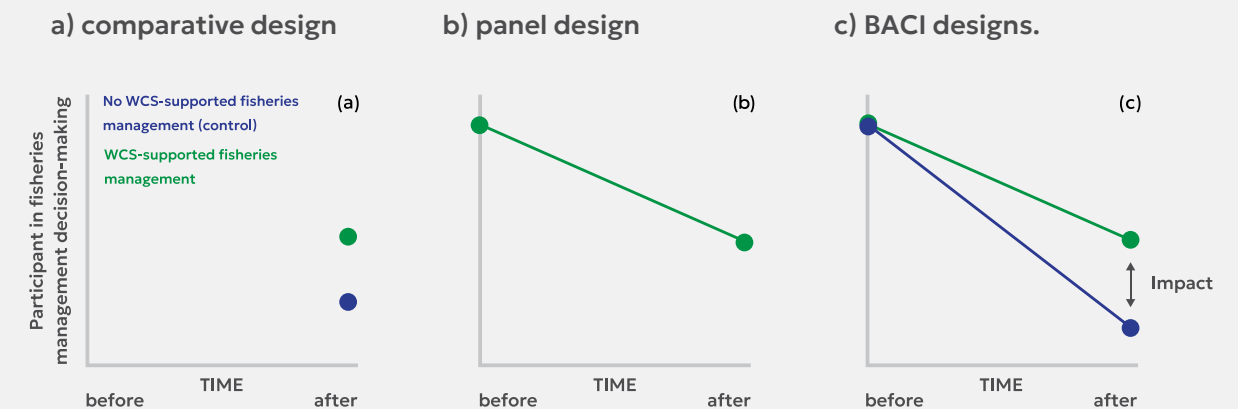


Figure 1

Figure 1. Alternative study designs to examine the relationship between presence of WCS-supported fisheries management projects and participation in decision-making about marine resources, including:



1. Comparative design (Fig. 1a).

This involves collecting the same data for two or more sites that differ with respect to a variable of interest. When this variable is fisheries management, it is important to consider whether differences between the fisheries management site and the control site are due to reasons other than fisheries management and whether these differences existed prior to management.

2. Panel design (Fig. 1b).

This involves collecting the same data at multiple points in time and examining whether outcomes of interest change in response to changing conditions (e.g. time since fisheries management started). There are no control sites. Often the study unit is a village but it could also be an individual respondent. When examining the effect of fisheries management on outcomes using this design, it is important to consider whether the changes seen in outcomes can be attributed to management or whether they are a result of other changes (e.g. construction of a road).

3. Difference-in-difference or Before-After-Control-Impact (BACI) designs (Fig. 1c).

This involves examining two or more sites that differ with respect to a variable of interest over time. This approach helps control for initial differences between sites and the effects of drivers that occur at the same time as the variable of interest.

When selecting study sites for a comparative or BACI design, it is critical to ensure that sites are as similar as possible apart from the variable you wish to measure. For example, consider a project in which the variable you wish to measure is “presence of a marine protected area (MPA)” and the outcome is “human wellbeing”. The MPA site and control site (without the MPA) should be as similar as possible in terms

of the factors that affect wellbeing (the outcome of interest), and these factors could include market access, levels of formal education, land tenure, material wealth etc. The MPA and control sites should also be as similar as possible in terms of the factors that would influence the original implementation of the MPA, which may include strength of decision-making, coral cover, fish abundance etc.

4. Sampling – choosing respondents

Different approaches should be used for selecting respondents for the household and key informant interviews.

4.1 Household interviews

When selecting respondents for the household interviews, the aim is to ensure that the sample is a good indicator of the study site (i.e. representativeness), so that by analyzing the data from the respondents we can generalize the results back to the population of the entire study site. To ensure a representative sample, a mixture of systematic random sampling and stratified sampling should be used. Select households using a systematic random sampling, whereby a sampling fraction of every i th household (e.g. 2nd, 3rd, 4th etc.) is determined by dividing the number of households in the village by the number of interviews you plan to undertake (i.e. the sample size):

For example, if you have time for 20 interviews in a village and there are 200 houses in the village, $200/20 = 10$. So every 10th household in the village should be selected for a household interview. Determining the number of interviews to undertake in each village will depend mostly on the time and money available. However, a minimum of 30 households for each village is typical. If time and money are not limited, aim to interview the same proportion of households in each village. It is common to aim for 10% of households (although ideally the proportion should be based on the expected variability of the data collected). Importantly, regardless of the sample size, a systematic random sampling approach to selecting households is essential.

Although it is common to select the household head for an interview, this approach can lead to an unrepresentative sample (e.g. mostly men interviewed). To address this issue, draw on a stratified sampling approach to select who to interview within a household. This will involve regularly

checking how many interviews have been done with men and women, and other key social subgroups relevant in your study site (e.g. age groups, ethnicities etc.). If a particular group is underrepresented, once a household is selected the interviewers should aim to select a respondent from within the household that is part of the underrepresented group. Make sure the respondent has lived in the village for at least one year. Note that some questions involve timeframes (e.g. question 18 and 37, which involve asking respondents to reflect on how things have changed over the last five and 3 years, respectively). In this case, change the timeframe to “over the time you’ve lived in this village.....”

An important additional consideration is the timing of the interviews, both in terms of the season and the time of day in which the interviews take place. This can influence who is available to be interviewed and therefore, the representativeness of the sample.

Sometimes you will conduct interviews outside villages settings where selecting households as described above is not possible. In these cases compile a list of the total pool of potential respondents and select respondents from the list using the same systematic random sampling approach described above. For example, your study may focus on a particular group of fishers (e.g. in Kenya, fishers belonging to a particular BMU, or in Fiji, Indo-Fijian fishers). Compile a list of the names of all the fishers in this group (with advice from a key informant). Put the list in alphabetical order (or some other approach to ensure the order is random). Select fishers using a systematic random sampling, whereby a sampling fraction of every i th fisher (e.g. 2nd, 3rd, 4th etc.) is determined by dividing the number of fishers on the list by the number of interviews you plan to undertake (i.e. the sample size). For example, if you have time for 20 interviews and there are 200 fishers on the list, $200/20 = 10$. So every 10th fisher from the list should be selected for an interview.





4.2 Key informant interviews

A purposive sampling approach should be used to select respondents for the key informant interviews. This involves selecting respondents based on the anticipation that their experience and position can provide extensive insight on a particular issue. For the MACMON key informant interviews, candidate respondents may include people in leadership positions in, for example, village government, traditional systems of authority, marine management, fisheries associations etc. It may also include people who **(1)** are not in leadership positions but who are knowledgeable about the study site (e.g. people who

have lived in the village a long time, elderly people); or **(2)** are not involved directly in marine governance (e.g. leaders of women's groups, youth groups, church groups and village development committees).

Usually one key informant interview should be conducted with one respondent. However, focus groups of three to five individuals who complete one interview are also an option. **A rule of thumb is to aim for three to four key informant interviews per site.**

5. Tips and tricks for conducting an interview

First step of all interviews – conduct the informed consent process. Before starting a household or key informant interview, the interviewer must obtain the permission of the potential respondent to participate in the interview (i.e. informed consent). The informed consent process is achieved when the potential respondent has received (and understood) information given by the interviewer about the goal of the research, voluntarily consented to participate in the interview, understood that they may withdraw from the interview at any time, and that the information that they give will be confidential.

5.1 Probing

Probing is a technique that interviewers use to clarify a response or get more information about a particular issue. This technique is used with open-ended questions when collecting qualitative data. Common probing techniques include:

1. Echo

This involves repeating the last point the respondent has said. This probe demonstrates to the respondent that the interviewer has understood what they have said and encourages the respondent to continue the explanation.

2. Silence

This involves remaining silent once the respondent appears to have finished answering a question. This provides time for the respondent to reflect and potentially expand on their answer.

3. "Tell me more"

This involves encouraging the respondent to expand on their answer by asking a questions such as *"Why do you think that?"*, *"Why do you feel like that about it?"*, *"What do you mean when you said...."*, without steering respondents in any one direction.

5.2 Consistency in responses

Throughout household and key informant interviews, interviewers should be mindful of whether responses are consistent. Inconsistent answers will be particularly evident where closed-ended Likert-scale questions are paired with open-ended questions. Consider for example Q26 in the household interview:

26a. In general, do you think the distribution of the positive and negative impacts from the management here is fair ?

Very unfair	Unfair	Neither	Fair	Very fair	Dont know ?
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26b. Why?

If the respondent answers ‘very fair’ to 26a, but in 26b they outline examples of where management is unfair, there is inconsistency in responses. When this occurs, revisit questions to be sure the respondent understands the question and use probing to uncover reasons for inconsistencies. It is very important that these inconsistent results are picked up during the interview rather than during the data analysis process when it is too late to go back the inconsistent response with the respondent.

5.3

Dealing with similar questions

Questions 22 and 23 that deal with impacts of management to the community of people living in the village and impacts of management to the individual are similar and the respondents may ask why they are being asked the same question twice. Whether respondents think this is the same question will depend on country and whether the culture is more or less individualistic (i.e. where the focus is one oneself rather than the community to which one belongs). For cultures that are more collectivist (opposite to individualistic), such as Fiji, respondents may answer similarly to both questions. This is fine. If respondents ask whether question 22 and 23 are the same, explain that we have to two questions so that we can identify/find out when a respondent is affected differently by management than other people in their community (i.e. who are the winners and losers of management?).

5.4

Which management activities are we interested in?

Typically, MACMON focuses on management or conservation activities that are being undertaken in that village in particular, rather than management or conservation activities that are being implemented across a larger area, such as the district or country (e.g. national fisheries rules determined by the Ministry of Fisheries). Question 21 in the household interview ask respondents to describe all rules and traditions regulating fishing in the study site. Sometimes respondents mention national-scale fisheries rules – this is fine. But, when you move onto questions 22-33, please try to get respondents to focus on the rules they identified in question 21 that are being implemented in their village in particular. If they don’t know of any rules and cannot answer question 21, skip questions 22-33.



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5.5 Recognizing and reducing bias

There are two main sources of bias that need to be considered when undertaking the MACMON household or key informant interviews:

1. Interviewer bias

Given our backgrounds and identities (e.g. gender, religion, interests etc.), we all have biases which can influence how we ask questions and how we interpret data. **When conducting an interview, be aware that the tone you use, and how your phrase a question could lead or prompt the respondent to give a particular answer.** It is particularly important to be mindful about how you ask questions when you already have an opinion about what the answer should be – remember we are interested in the respondents’ perceptions even if it differs from reality or your own opinions. To avoid this form of bias, use simple questions that do not lead a respondent to give a particular answer. When recording qualitative data and conducting quantitative or qualitative analyses consider confirmation bias, whereby the interviewer selects or omits data based on whether those data support their hypothesis or not. To overcome this form of bias, consider all data and continually re-evaluate your impressions, responses and actions.

2. Response bias

This form of bias occurs when participants respond inaccurately or falsely to question. There are several different forms of response bias to be aware of. **Social desirability bias** refers to the tendency for respondents to respond in a way that they think is likely to be seen favorably by others, including the interviewer and people who may be listening to the interview. To overcome this form of bias always phrase questions and respond answers in a way that doesn’t suggest whether you agree or disagree with the respondent. Also, try to interview the respondent by themselves, without family, friends or others listening. **Sponsor bias** is a form of social desirability bias which refers specifically to when a respondent answers questions in a way that aligns with the interests of the interviewers’ organization. To help overcome this form of bias try to keep your affiliation with WCS as unobtrusive as possible. For example, avoid wearing WCS logo T-shirts, or consider hiring and training local students to conduct the interviews instead of WCS staff. This is a difficult form of bias to deal with because of course you do have to tell the respondent which organization you are from. However, avoid describing the organization and it’s beliefs and activities in detail.

6. Recording data

6.1 Avoiding blank responses

It is very important to record an answer for every question. Never leave a question blank (without an answer) even if the respondent does not give an answer. Instead, use the following responses as follows:

1. ‘Don’t know’

if respondent doesn’t know the answer.

2. ‘Not applicable’

if the question is not relevant to respondent.

3. ‘No answer’

if respondent does not want to answer the question.

6.2 Mid-scale responses for Likert-scale questions

Likert-scale questions are those that have a pre-determined number of responses on a scale, e.g. a five-point scale of agreement (‘strongly disagree’, ‘disagree’, ‘neither’, ‘agree’, ‘strongly agree’). Note that there is a difference between mid-scale responses (e.g. ‘neither’) and a ‘don’t know’ response. For example, consider Q18 in the household interview:

18. Over the past 5 years has the number of fish in the sea around here changed?
(If respondent says ‘no’, circle ‘no change’, if respondent says yes, ask If so, how has it changed? (Please circle one option)).

Decreasing a lot	Decreasing	No change	Increasing	Increasing a lot	Dont know ?
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The respondent may not be a fisher or have anything to do with fisheries or spend time in the ocean so they might not know (i.e. ‘don’t know’ response) if the number of fish has changed. Alternatively, an experienced fisher who is very knowledgeable about fish populations might respond ‘no change’ because they think that fish populations are neither increasing nor decreasing.

7. Additional guidance for project leader

6.1 Piloting

Piloting an interview instrument in the field is an important step of constructing the interview instrument. For example, it’s important to check that each question yields the information that it is intended to. The MACMON household and key informant interview instruments have already been piloted in the field so do not require alteration.

However, if the interview instruments include new questions please pilot them in a “test” village (not one of your study sites) during the process of developing the interview instruments and prior to assembling an interview team. This provides space to identify issues or problems with the new questions and develop alternative options.

6.2 Translation

When translating the MACMON household and key informant interviews into different languages also make sure to use a back-translation procedure. This involves having one person translate the interview from English into another language and then a different person translates the interview back into English. Each WCS country program should store a version of the MACMON interview instruments that have been translated into the main language used in that country. These can be used for each new round of interviews, ensuring that the interview instruments are not re-translated for every new project.

6.4 Training

Training the interview team will usually take a minimum of two days. This is preferably done before the interviewers are in the field. A suggested agenda for the training is as follows:

1. Familiarise team with study

Provide an overview of the project for which the interviews are being undertaken. Making sure the interview team understand the purpose and importance of the study is crucial and will ensure that the team is more efficient and effective in administering interviews.

2. Familiarise team with interview

Provide an overview of MACMON and the interview instrument, including the overall structure of the sections of the interview. As a group, read through each question with explanation about what each question is trying to ascertain (i.e. what it is an indicator of), how it should be asked and recorded. Discuss translations. Project leaders should ensure that each interviewer understands the questions and is comfortable with administering the interviews.

6.3 Selecting interviewers

Make sure the interviewer team has equal numbers of men and women. In many cases women speak more freely with another woman and vice versa. Consider other cultural norms around interaction between different social groups.

Consider the dialect that is spoken in the study site and whether you need interviewers that are fluent in that dialect.

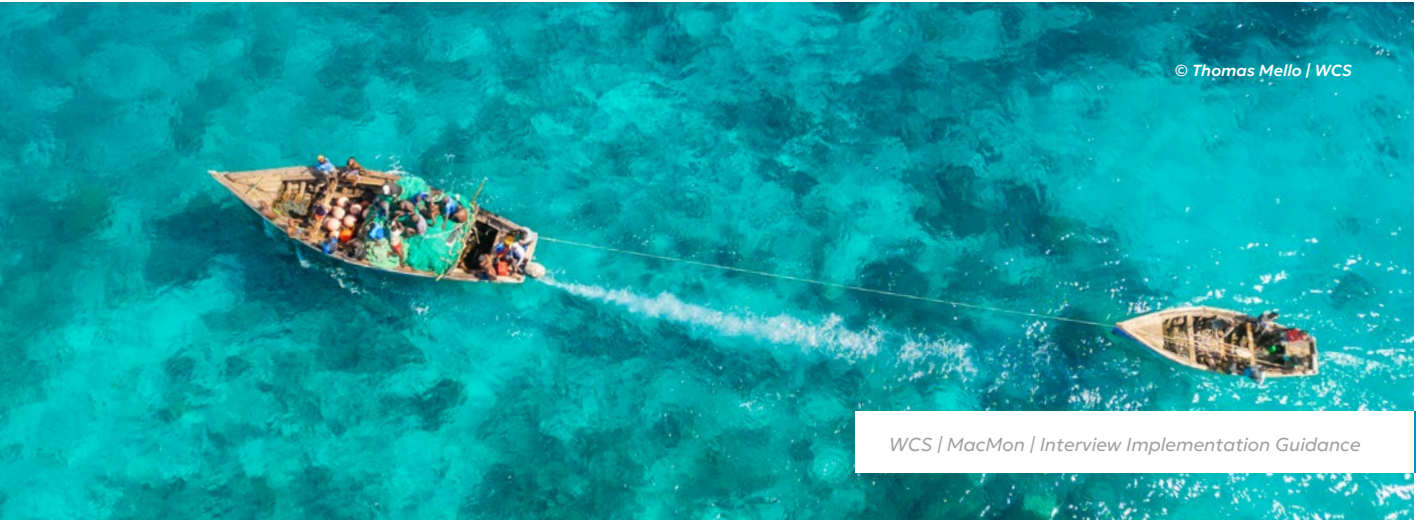
The interviewer with the most experience conducting interviews should conduct the key informant interviews.

3. Practice undertaking interviews

First, have an experienced interviewer conduct an interview with the rest of the group watching. Then, divide into pairs with each person in the pair taking a turn to administer the interview.

4. Pilot the interview in the field

The interview team should spend half a day practicing administering interviews in the field, with interviewer conducting two interviews. The interview team leader should check through each completed interview to check whether data are being recorded correctly and there are no trends in the answers according to who administered the interview. This field location should not be revisited later for data collection. If new questions are added to the MACMON interview instruments, this is also an opportunity to pilot these questions to ensure that they are readily understood and capture the desired information.





6.5

Data checking in the field

The interview team leader should check every interview the day that the interview was undertaken to ensure that all questions have been answered and that there are no inconsistencies in answers. Highlighter pens are very useful for marking

the question that needs following up with the interviewer. If the interviewer does not provide a sufficient response to the team leader's question(s), the interviewer should clarify the issue with the respondent the next day at a time suitable for the respondent.

6.6

Entering data

Ideally, data should be entered as soon as possible following the interview. This way, if any questions are missing an answer or if you identify any inconsistencies (see above) in the responses, this can be corrected by returning to the respondent. Additional time at the end of each interview day should be budgeted for: 1) data entry by each interviewer (e.g., into the offline Kobo Toolbox), and 2) checking over the entered data sheets by the field team leader. Before leaving for the village, make sure each interviewer has practiced entering in a 'test' interview into offline Kobo Toolbox, and that all computers are prepared for offline use of the Kobo Toolbox forms.

In the event that data cannot be entered in the field, it is imperative that each interview is carefully checked for completeness and consistency of responses, ideally by another interviewer and the field team leader. This should be done at the end of each day. Missing or unclear questions should be highlighted and returned to the interviewer, who should then return to the respondent to complete the interview.

6.7

Confidentiality of data in the field

Ideally, data should be entered as soon as possible following the interview. This way, if any questions are missing an answer or if you identify any inconsistencies (see above) in the responses, this can be corrected by returning to the respondent. Additional time at the end of each interview day should be budgeted for: 1) data entry by each interviewer (e.g., into the offline Kobo Toolbox), and 2) checking over the entered data sheets by the field team leader. Before leaving for the village, make sure each interviewer has practiced entering in a 'test' interview into offline Kobo Toolbox, and that all computers are prepared for offline use of the Kobo Toolbox forms.

6.8

Confidentiality of data in the office

Similarly, data in the office should not be left out in public places where others might be able to access and read the surveys. The handling and protection of data will likely be detailed out in an Institutional Review Board (IRB) application. It is important that each team members knows what their office policy is on data protection, and what the IRB documents state on the safe storing of data files. In general, a good practice is to make sure the survey forms are in a locked cupboard or room, with only those authorized to handle the surveys have access to them. Electronic files should not be placed on public hard drives, with access only granted to authorized individuals.



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