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Qualitative Research Protocol

ABCG project documenting human responses to changes in weather and climate in Africa

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AFRICA BIODIVERSITY COLLABORATIVE GROUP

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1. Introduction

This document introduces the qualitative research protocol for interviews that will be undertaken with stakeholders as part of the ABCG project documenting unplanned human responses to changes in weather and climate. The methodology for this research is qualitative as opposed to quantitative – i.e. the data that will be collected is mainly in the form of text and not numbers.

There are some key differences between qualitative and quantitative research methods (although they are complementary). Key qualitative research methods include interviews and focus groups. In both cases there are themes to be explored but, unlike a survey where the questions are predetermined and asked in a set order, the interview or focus group is more of a guided discussion. This allows the interviewer to explore unanticipated related issues that might arise whilst facilitating the discussion back to the research themes as and when necessary. In this way qualitative research can yield very rich explanatory data for patterns and trends, whilst quantitative research tends to be more descriptive.

Whilst it yields very rich data, qualitative research requires that the interviewer be very skilled. (S)he must be well prepared in terms of familiarity with research themes. At the same time (s)he must listen actively to the responses and be ready to further explore interesting issues that arise whilst still ensuring that the conversation remains on topic. Given the need for such skills, this document elaborates some good practices in preparing for undertaking qualitative research[1] before arriving at the protocol that will be used in this study.

2. Principles of qualitative research

To explain qualitative research, we need to review what "methodology" is – which is *how* we do research. Methodology therefore includes both the methods/tools that we use, as well as the paradigms within which these methods/ tools are grounded. Qualitative research (and quantitative research) can be understood as arising out of different paradigms, or ways of seeing the world.

2.1 Comparing research paradigms

The positivist paradigm is based on the notion that an "objective reality" exists, and that we can measure it scientifically. Based on this belief, the scientific method involves developing hypotheses – or ideas about how things work – and then testing them, a mode known as hypothetico-deductive. Under the positivist paradigm research takes place to confirm ideas identified from existing theories (the hypotheses), and the aim is to look for generalizability – or the ability to apply findings from one place to a wider scale. Positivist research is often based on numbers and statistical analysis (quantitative research).

[1] The good practice advice on qualitative research is based on Vincent, K. and Cull, T., 2015: Resource Guide. Training of Trainers for Climate Risk Adaptation Facilitators and District Planning Officers, Training Manual Prepared for the Pilot Program for Climate Resilience, Zambia, 125p.

In contrast to the positivist paradigm, the phenomenological, or existentialist, paradigm is based more on subjective experiences – instead of believing that an objective reality exists separate from us, it takes into account that we all see and experience the same phenomena in different ways. For example, men and women and adults and children can experience, be impacted and narrate the same event in different ways. Following this belief, research under the phenomenological/ existentialist paradigm is less concerned with testing theories and creating generalizable truths, and more concerned with seeking explanation of why people view things in a particular way. Ideally this explanation arises from the interviewees themselves, and not the researchers, whose way of seeing things may cloud their assessment of a situation. In contrast to numbers, the data arising from research under a phenomenological/existentialist paradigm is usually presented as text (written and visual images) (known as qualitative data).

Figure 1 exemplifies why qualitative research under a phenomenological/existentialist paradigm is critical. We can all look at the same picture, but different people see different things. Some people looking at this picture see a vase (white on a blue background), other see two silhouettes of people (blue on a white background), and others can see both. The key factor with qualitative research is that there is no one answer – everyone's opinions and perspectives count (known as "multiple narratives").

Figure 1: What can you see?

2.2 Strengths of qualitative research

Qualitative research has many strengths. Firstly, qualitative methods yield a rich depth of data (since the data is often words, as opposed to numbers, you can end up with many, many pages!). What you find out is often informed by, and in turn complements, what you may have already determined from other methods (for example quantitative survey research, documentary analysis regarding issues and problems). It can bring these more superficial data sources to life by adding extra dimensions of explanation – so, for instance, it enables us to go further than merely looking at *what* adaptation practices exist, but *how* and *why* they exist.

Another major strength of qualitative research is the capacity to be flexible and modify plans if necessary, as the results of preliminary exercises unfold. This is in stark contrast to quantitative research, where rigid survey protocols are typically developed in advance. Whilst qualitative research should take place within a well-considered implementation plan, it is highly advisable that daily reflexivity and consideration of the appropriateness of guiding questions takes place. Should any new ideas have emerged, or any have proven irrelevant, it is possible to make modifications for subsequent research in order to ensure appropriateness to the circumstances.

2.3 Weaknesses of qualitative research

Of course there are also some weaknesses with qualitative research. Some people say that there is poor reliability, although this can be managed by sound research procedures. Qualitative research is not normally representative, unlike positivist research – but this is not the aim. Rather than attempting to represent the whole sample, the idea is to look at a range and then investigate deeper into why these circumstances exist. With this information, we can explain the circumstances or context that would be required for replication of the practices elsewhere.

It is also important to note that the data quality is dependent on the ability of the researcher – qualitative research is hard to do well. It requires that the researcher be very well prepared with research questions and methods to answer those questions, but requires constant reflexivity and analysis of how relevant the questions are to emerging findings. Sometimes something unexpected can arise and it is down to the researcher to be flexible with the approach to ensure that this is explored, if relevant to the initial research objectives.

2.4 How to be a good qualitative researcher

Researchers need to have various skills in order to be able to undertake qualitative research that yields rich, explanatory data. Perhaps most important is the need to be curious, and constantly question what you find out. Imagine yourself as the children's character "Curious George" (figure 2), or recall what it was like when you were a toddler and always questioning everything. To be a good qualitative researcher you need to show curiosity and continually ask the question "why?" in order to get beyond a superficial level and really investigate why people perceive things in the way that they do.

Figure 2: Curious George

The need for further probing is one of the factors that distinguishes qualitative research from quantitative research. In a more structured quantitative survey there will likely be a set question, to which a response is sought (and recorded), and then another set question. In qualitative research, however, the not having structured, set, questions but rather themes for exploration provides the

researcher scope to follow up on each response. For every one answer, there are often numerous follow-up questions that can be asked. For example, in a focus group situation you might start off with a probing question along the lines of "we are interested to know what major events have played a role in community life in your village". During discussion it may become apparent that there was a conflict with a neighbouring community 20 years ago; a major flood 10 years ago; and a locust attack that destroyed crops 5 years ago. In qualitative research, that is only the first line of answers. Potential follow-up questions which are still relevant to the research purpose might include:

- How did each event affect your village?
- How did it affect the livelihoods of men and women? (to further investigate gender differences you could then follow by seeking the reasons for any differences)
- What were the effects on natural resources/biodiversity?
- Which event do you consider was the worst? Why?
- Which one do you hope does not occur again in the future? (an alternative way of determining which one was deemed the worst)

Figure 3 provides a schematic outline of the difference between superficial, quantitative-style, surveys and explanatory interviews/focus groups. Another way of visualising this is to think of "peeling the layers of an onion" (figure 4). The first question is like the outer layer, but you will need to probe with further questions to peel back more layers to get to the underlying root of the issue at hand.

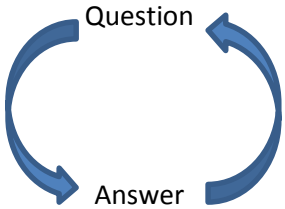
Superficial quantitative style	Explanatory interviews/focus groups
Question ↓ Answer ↓ Question ↓ Answer	

Figure 3: Schematic outline of the difference between superficial quantitative-style surveys and explanatory interviews/focus groups.

Figure 4: Qualitative research requires asking many questions to get to the root of an issue, and is therefore like peeling back the layers of onion

The process of exploring emerging issues requires that the interviewer chooses when to use different types of questions, and also uses language that is appropriate and can be understood by the interviewees. Open ended questions, in which there is no set answer, play an important role in qualitative research. Sometimes closed ended questions are required in follow-up, in order to clarify certain details; but an interview led by closed ended questions in the superficial quantitative style outlined in figure 3 will not lead to an in-depth discussion which is what we are aiming for in qualitative research. For some examples of open and closed ended questions, see table 1. Close ended questions are those that can be answered with a simple "yes" or "no" and should, as far as possible, be avoided when undertaking qualitative research.

Table 1: Examples of open and closed ended questions

Open ended	Closed ended
How has the weather affected farming?	What are your sources of water?
In what ways do you use the canals?	Do you fish local waters?
How do you decide what crops to grow?	Do you have a clinic in your village?

The climate change field encompasses lots of jargon. If you are interviewing someone with a technical background in the subject it may be appropriate to use the scientific jargon. If, however, you are interviewing or conducting focus groups with non-specialists, it is often necessary to change the wording you use in order that they understand the nature of the question. Not doing this may lead to false negatives, if a "no" answer is counted in the negative but actually means "we don't know". Figure 5 exemplifies how this may happen. This meeting of elderly men and women in southern Malawi were first asked "Who has witnessed manifestations of climate change?" and nobody raised their hand. The question was then asked "Who has noticed that rainfall patterns are changing?" – to which the majority of the room raised their hands. Using jargon may lead to the false conclusion that climate change is not being observed. The second question, on the other hand, gives rise to potential for many follow up questions. Some examples might be:

- In what way have rainfall patterns changed?
- How has this affected natural resources/biodiversity?
- How has this affected your livelihoods?
- How do you deal with these changed conditions?

Since it is so critical to respond to emerging issues, it is very hard to plan exactly what questions to ask. Instead we develop the themes which we want to explore. Any of the examples here might be the first "line of enquiry" – but the answer to each question is likely to determine the direction in which the interview or focus group subsequently proceeds. Your role as the interviewer is to give interviewees the space to talk, whilst also being mindful of directing the discussion back to the broad topic should it digress too far.

Who has witnessed manifestations of climate change?

Who has noticed that rainfall patterns are changing?

Figure 5: How you ask the questions is important in qualitative research

3. Documenting human responses to changes in weather and climate in Africa and subsequent impacts on biodiversity

3.1 Background and purpose

Far removed from decision-making bodies and financial resources, rural communities in Africa are often left to their own devices to cope and adapt to changes in weather and climate. Because coping strategies and autonomous adaptation responses go largely undocumented, we miss important opportunities to learn from the experiences of these communities and integrate learning into conservation planning efforts. We wish to understand how people are really responding to the changes around them, by gathering information to answer the following research questions:

What changes in weather and climate have been observed and over what time period?
What effects do these changes have on:
(a) livelihoods
(b) natural resources/biodiversity?
How are people responding to these observed changes in weather and climate?
What are the implications of these responses for:
(a) livelihoods
(b) natural resources/biodiversity?

Are responses leading to maladaptation? Why?
How can successful responses be enabled?

Whilst conducting interviews with a variety of community members would be ideal, time and costs associated with the fieldwork mean that it is most practical to speak to selected key informants at the grassroots level. Key informants will be community leaders or field workers who, whilst not always able to speak officially on behalf of the community, will be able to give an overview based on their observations and experience.

3.2 Instructions

The interview protocol comprises seven sections. The first section has closed ended questions that provide background to the interviewee. Completing that can be done by asking simple questions and accepting an answer, which should be relatively straightforward. Subsequent sections relate to the various research questions. Since this is qualitative research, we provide here the themes which need to be explored. However, this is not a question-and-answer survey protocol. You will need to direct the discussion around these issues to "peel back the layers of the onion" and interrogate the reasons behind people's "first line" responses. Since we cannot predict how people will respond, it is neither possible nor desirable to attempt to provide a list of questions. However, by way of example, some potential opening probing questions are provided for each theme. There are also some boxes from previous research to highlight how you might further probe emerging answers. The protocol without the advice is provided in annex A.

3.1.1 Background information

Name	Explain that their responses will be anonymized and the name is just for you to analyze the responses
Position, e.g. lead farmer	The reason that this person has been selected as a key informant
Contact information	
Size of household	Note household is defined as the people that normally live together under one roof (i.e. don't count relatives that have migrated to town, are studying in a different location etc.)
Sex of household head	
Age of household head	
Years of education completed	
Number of years living in the area	
Primary source of livelihood	
If crop farming, what is their farm size?	
If livestock farming, how many livestock do they have and what type?	e.g. 2 cows, 10 goats…
If fishing, what is their daily catch?	

Please note that the above template was designed for interviewing an individual person. If you were to speak to a group of people, for instance in a focus group setting, then you would need to adjust the template in order to remove, add or, at least rephrase, the questions to reflect the fact that the answers arise from a group of people.

3.1.2 Observed changes in weather and climate

Example starting question: Have you noticed any changes in the weather?

Answers may refer to temperature, rainfall, winds, storms, extreme events (e.g. droughts, floods, and tropical cyclones). Remember not to just stop at the first answer. If an interviewee says "yes, it rains less than it used to", you can further probe that with questions such as:

When does it rain now? (e.g. months) How is that different to the past? When did you first start to notice the changes?

The conversation may highlight that it rains now over 3 months instead of 4 previously. A potential avenue to explore might then be the nature of rainfall – for example does it rain steadily over those three months? Are there more storms? Are there dry days? Is this different from before?

When you feel you have a good understanding of changes that have occurred with rainfall, it is important to remember the original question so you might then ask "Is that the only change you have observed?" The interviewee might then say "No, we also have a lot more very hot days now". And then you would probe the nature of the changes relating to temperature, and so on until you are sure that you have given the interviewee the chance to identify and explain all the changes that (s)he has observed.

Potential lines of questioning/ themes (i.e. these are not questions!) for different weather parameters include:

Temperature

- dry season temperature, rainy season temperature, length of cold periods, length of hot periods

Rainfall

- more/less overall, longer rainy season, longer dry season, length of dry spells during rainy season, intensity of rainfall events. Remember to specify months, since the "normal" rainy season differs from country to country

Wind

- frequency of high winds and timing of occurrence, intensity during dry season, intensity during wet season

Extreme events

- floods, droughts, heatwaves, tropical cyclones

Note that this list is non-exhaustive, nor will all options apply to all interviewees – it is merely an indication of types of responses you may expect to hear and will then need to ask further questions about.

3.1.3 Effects of observed weather and climate changes on (a) livelihoods and (b) natural resources/biodiversity

When investigating the effects of observed weather and climate changes on (a) livelihoods and (b) natural resources/biodiversity it is important to be aware that other stresses will also play a role. Other stresses also need to be investigated so that that relative importance of weather and climate.

An example of an opening question might be "How has your life been affected by these changes?" (for livelihoods) and "What affect has this had on your local environment?" (for natural resources/biodiversity). In reality, the two are likely to be closely related, since livelihoods in these areas are likely to be natural resource-dependent. For biodiversity you may wish to probe further on whether they have noticed the loss of, or a change in, particular plants/trees/animals, and whether they attribute this to the weather or other driving factors (e.g. overexploitation).

Potential themes that may arise and should be explored further include:

- Crop production levels
- Animal production levels
- Fisheries catch
- Vegetation cover and type
- Forest resources

For all themes you should interrogate the nature of changes and perceived reasons for them. It may be due to weather and climate, or it may be due to other factors such as soil erosion/poor land quality, or pollution or illegal tree felling.

3.1.4 Responses to changes in weather and climate

Having investigated the changes that have been observed and the impacts on livelihoods and natural resources, the next theme to explore is what people have done in response. To start on this theme it would be possible to ask an open-ended question, such as "and how have these changes affected you and the way you make a living?" OR you could ask similar questions based on the responses from the previous themes (and that would be a good example of adapting the line of questioning to respond to what arises whilst still addressing key themes). So, for example, if someone mentions that they are producing less rice than previously, you could respond to that by asking how they manage – which will likely lead the conversation into responses (which may include changing seed type, diversifying livelihoods etc.).

The types of potential responses that you might hear mentioned include use of new crop varieties (e.g. different species, short/long cycle, drought resistant, etc…), use of new livestock species, irrigation, fertilizer/application of other inputs, crop diversification, conservation agriculture, adoption of mixed crop and livestock farming systems, changing planting dates, planting trees, soil conservation, shift/increase in farming/grazing location, encroachment into protected areas, migration (young people leaving, less labor, but may then provide another income source), selling assets (e.g. livestock, jewelry), borrowing, use of forest/wild plants (wood, fruits, roots), hunting animals, relying on assistance from governments/NGOs. **Note that this list is non-exhaustive, nor will all options apply to all interviewees – it is merely an indication of types of responses you may expect to hear.**

3.1.5 Consequences of these responses for (a) livelihoods and (b) natural resources/biodiversity

What are the implications of these responses for (a) livelihoods and (b) natural resources/biodiversity?
Are responses leading to maladaptation? Why?

The next two research questions are all related and will require you to analyze the responses in order to determine whether they are sustainable or not. It will not be necessary to ask such questions to the respondents but, for example, if you realize that a certain response is unsustainable you may wish to probe that further to see if there are additional implications. It might be, for example, that in a fishing community people report felling mangrove trees to sell the wood as a response to declining fish catch. In this case, you will need to probe how many people are doing this (and for how long they have been doing this), and then investigate whether there are adverse consequences of this action, i.e. have they noticed an increase in coastal flooding?

Other examples of unsustainable responses may include increased human-wildlife conflict, increased competition for resources (water, food, land), increased wildlife mortality, wildlife moving to/away from communities, increased land degradation, change in biodiversity, changes in water supply, lowered levels of income and wellbeing. **Note that this list is non-exhaustive, nor will all options apply to all interviewees – it is merely an indication of types of responses you may expect to hear.**

Maladaptations, or maladaptive actions are "actions that may lead to increased risk of adverse climate-related outcomes, increased vulnerability to climate change, or diminished welfare, now or in the future" (IPCC AR5 Glossary). Successful adaptations are sustainable responses that ultimately reduce vulnerability to hazard exposure.

If responses are sustainable it can give us hints as to what needs to be put into place to change unsustainable responses into sustainable ones.

3.1.6 How successful responses can be enabled

It is possible that there will be fewer examples of successful responses than unsuccessful (unsustainable or maladaptive ones). In this case it is important for us to be able to understand why there are few successful responses and to investigate the factors that act as barriers. When asking questions about barriers it is very easy for people to get caught up in the need for more money. If this arises (which it likely will!) it will be important to probe beyond that and ask what people would need the money for. Examples might be improved inputs (e.g. chemicals, improved/hybrid/early maturing seeds), access to more/better quality land, irrigation, opportunities to process/safely store/commercialize production.

Potential probing questions might include:

- Do you know in advance if any weather or climate hazards are likely to occur? (e.g. when the rains are likely to come and whether they'll be similar to usual, if winds/storms are predicted, if a flood or tropical cyclone is expected) How do you know? (e.g. early warning systems, information transmitted by disaster management committees, NGOs etc.)
- If you hear of an impending weather or climate hazard, do you do anything different to prepare? If so, what do you do? If not, why not? (this gives you the opportunity to investigate people's

barriers – it could be lack of technical knowledge in terms of knowing what to do, it could be lack of human capacity, for example inability to herd all their animals to higher ground – so not just financial barriers)

- If there is no access to weather forecasts and early warning systems for weather and climate hazards…how would access to early warning information enable you to reduce the likely negative impacts of such events? What would you do differently? How would you like to receive this information? (e.g. radio, cellphone, personal communication from friend/family/extension officer or other government staff/NGO?)

3.3 Writing up your findings

A critical component of the qualitative research process is to transcribe your data – typing up your notes. This should be done as soon as possible after the interview, whilst the experience is still fresh in your mind, and you can elaborate on your notes and add in any additional thoughts or observations you might have made (for example, reluctance to discuss certain issues). Without effective transcription of your data, all the effort you have put into the research can be rendered useless.

All your transcriptions should contain the following information at the top of the file:

Your name:
Research location: (e.g. community name, if conducted in person)
Date and time: (e.g. Monday 8th July, morning)
Other information: (if more than one person took notes of the same group, you might like to add their name here for easy cross-reference later)

Since this research is not following a structured survey, it is not possible to have a template that outlines questions with a space to complete answers. Instead you should structure your Word document write up around the themes that you explored. That means they should include the line of question, and the resulting discussion. It does not have to be in the form of "interviewer asked….." and "person X replied….", but the direction of the interview should be clear. Ultimately your notes should be a clear and self-explanatory record of the research – particularly since it is likely that other people will be using them to analyse and write up the data.

Table 2 gives examples of some information taken from qualitative interviews that is not adequately elaborated so that a third party could understand it. Potential (but a non-exhaustive list of) questions raised by each statement are italicised. This highlights the importance of ensuring that your notes do not raise questions among the readers.

Table 2: Examples of transcribed qualitative research and queries on meanings

"Uses weather forecasts from radio" • *Are these forecasts helpful?* • *In what way?* • *How do they impact on the farmers actions?* In one section "More rain nowadays" and the very next section "Less trees result in less rain"

Here there is an obvious contradiction which needed to be clarified

In response to a question on "Have any of these technologies helped?" the interviewee said that they were advised by government to move away from valleys and landslide areas (after it had started flooding)

- *Did they take this advice and leave?*
- *Where did they go?*
- *Were there any challenges of relocating for problems did they experience?*
- *Did they come back to the same place after the water had receded/ the risk of flood had passed?*

"She moved to her current plot in 2010. Soil fertility has increased since then."

- Why has the soil fertility increased? (The way this is written it makes it sound like the move led to increased soil fertility…)

Annex A-Interview protocol

Name	
Position, e.g. lead farmer	
Contact information	
Size of household	
Sex of household head	
Age of household head	
Years of education completed	
Number of years living in the area	
Primary source of livelihood	
If crop farming, what is their farm size?	
If livestock farming, how many livestock do they have and what type?	
If fishing, what is their daily catch?	

Themes to explore:

1. Observed changes in weather and climate (including temperature, rainfall, winds, storms, extreme events (e.g. droughts, floods, tropical cyclones)

2. Effects of observed weather and climate changes on (a) livelihoods and (b) natural resources/biodiversity (e.g. crop production levels, animal production levels, fisheries catch, vegetation cover and type, forest resources; also bearing in mind the consider the importance of weather and climate relative to other drivers of change)

3. Responses to changes in weather and climate (what people are doing to get by in the face of these changes)

4. Consequences of these responses for (a) livelihoods and (b) natural resources/biodiversity (including analysis of the sustainability of these responses – for both livelihoods and natural resources/biodiversity - and whether or not they are maladaptations)

5. How successful responses can be enabled (including extent of early warning and preparation, barriers to preparation and anticipatory adaptation, what is needed to enable adaptation to occur)