Resource Guide

Training of Trainers
for
Climate Risk Adaptation Facilitators and District Planning Officers
Livingstone, January 2015

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INTEGRATED DEVELOPMENT SOLUTIONS

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List of Acronyms

AR4	Fourth Assessment Report
AR5	Fifth Assessment Report
CBA	Community-Based Adaptation
CEDAW	Convention on the Elimination of Discrimination Against Women
CFCs	Chlorofluorocarbons
CRAFs	Climate Risk Adaptation Facilitators
CMIP-5	Climate Model Intercomparison Project 5
CSAG	Climate Systems Analysis Group
CSIR	Council for Scientific and Industrial Research
CSOs	Civil Society Organisations
CVCA	Climate Vulnerability and Capacity Analysis
DDCC	District Development Coordinating Committee
DDMC	District Disaster Management Committee
DMMU	Disaster Management and Mitigation Unit
DPOs	District Planning Officers
DRR	Disaster Risk Reduction
EBA	Ecosystem-Based Adaptation
FGD	Focus Group Discussion
GBV	Gender based violence
GCM	Global Climate Model
GCRA	Gender-sensitive Climate Risk Assessment
GHG	Greenhouse gases
GIDD	Gender in Development Division
GISS	Goddard Institute for Space Studies
GIZ	German Technical Cooperation
HADCRUT	Hadley Centre Climatic Research Unit
IFC	International Finance Corporation
IPCC	Intergovernmental Panel on Climate Change
IUCN	World Conservation Union
LDC	Least Developed Country
M&E	Monitoring and Evaluation
NAMA	Nationally Appropriate Mitigation Actions
NAP	National Adaptation Plan
NAPA	National Adaptation Programme of Action
NDMC	National Disaster Management Committee
NDMTC	National Disaster Management Technical Committee
NGO	Non-Governmental Organisation
NOAA	National Oceanic and Atmospheric administration
NDP	National Development Plan
PAIM	Participatory Adaptation Implementation Manual
PDMC	Provincial Disaster Management Committee
PPCR	Pilot Program for Climate Resilience
RCP	Representative Concentration Pathway
RSS	Remote Sensing Systems
SADC	Southern African Development Community
SRES	Special Report on Emissions Scenarios

UN	United Nations
UNDP	United Nations Development Programme
UNEP	United Nations Environmental Programme
UNFCCC	United Nations Framework Convention on Climate Change
ZCCN	Zambia Climate Change Network

Glossary

Definitions **in bold** are taken from the Participatory Adaptation Implementation Manual, Volume One, Participatory Adaptation Planning (*no date*)

Adaptation assessment	**Identifies options that help communities to adapt to climate change effects. We assess adaptation activities in terms of effectiveness, efficiency and feasibility.**
Adaptation technologies	**Include both scientific and traditional technologies. We focus on a mixture of local and external innovations, knowledge and practices that have proved effective in adapting to climatic hazards.**
Adaptive capacity	**Refers to the ability of a system or a community to adjust to climate change effects, to moderate potential damages, to take advantage of opportunities, or to cope with the consequences.**
Climate	**Means the "average weather". It describes the average and variations in the temperature, wind and rain, over a period ranging from months to thousands of years.**
Climate change	**Refers to changes in the average and/or variability of the weather – a change that lasts for long periods. Climate change is caused by the accumulation of greenhouse gasses in the lower atmosphere, usually by humans releasing greenhouse gasses coming from the use of fossil fuels.**
Climate change adaptation	**The initiatives put in place that reduce the vulnerability of the natural environment and people to actual or expected climate hazards.**
Climate hazards	**The potential occurrence (i.e. the risk element) of climate events which may cause loss of life, injury, and damage or loss of livelihoods, property, infrastructure, farming systems, services and environment. They can be caused by slow changes (incremental changes) in the climate over years or by extreme weather events. Some hazards start slowly, such as the increasing seasons with poor rainfall or droughts. Others are sudden such as heat waves or floods.**
Climate resilience	**The strength of the natural environment, the people and their assets and means of livelihoods to withstand climate hazards and to rebuild themselves. We can strengthen our resilience by planning for climate change.**
Climatic risk	**The likelihood of harm to life, property and the environment that would occur in a given place if a hazard took place. Climate risk estimates the likelihood of the impact due to a combination of hazard events interacting with vulnerable social or physical conditions. If conditions are made less vulnerable the impacts of the hazard may be less severe.**
Coping	**Refers to the use of existing skills, resources or knowledge to face and manage adverse climate conditions or disasters to survive during and immediately after climate-induced hazards.**
Disaster risk reduction	Action taken to reduce the risk of disasters and the adverse impacts of natural hazards, through systematic efforts to analyse and manage the causes of disasters, including through avoidance of hazards, reduced social and economic vulnerability to hazards, and improved preparedness for adverse events

Gender	A social construct that defines what it means to be a man or woman, boy or girl in a given society – it carries specific roles, status and expectations within households, communities and culture. Individuals may also self-identify as neither male or female, or both male and female.
Gender equality	(or equality between women and men) The equal enjoyment by women, girls, boys and men of rights, opportunities, resources and rewards. A critical aspect of promoting gender equality is the empowerment of women, with a focus on identifying and redressing power imbalances. Equality does not mean that women and men are the same but that their enjoyment of rights, opportunities and life changes are not governed or limited by whether they were born female or male.
Gender equity	The process of being fair to women and men. To ensure fairness, strategies and measures must often be available to compensate for women's historical and social disadvantages that leads to equality.
Mainstreamed (Local Community and Ward and Integrated) Development Plans	**Normal development plans developed at the community, ward, district or provincial levels which have taken climate change (and adaptation strategies) into account. They enable communities to understand the uncertainty of climatic conditions and plan effectively adaptation programmes.**
Maladaptation	**Refers to an action or intervention that increases vulnerability to climate change.**
Sex	Biological differences between men and women.
Vulnerability	**The degree to which a community, asset or physical system is susceptible to, and unable to cope with, impacts of climate hazards.**
Weather	**The behaviour of the atmosphere on a day-to-day basis. A description of the weather includes daily temperatures, relative humidity, sunshine, wind and rainfall.**

1. Introduction

The purpose of the resource guide is to provide additional and supporting information to the Training of Trainers course for Climate Risk Adaptation Facilitators (CRAFs) and District Planning Officers (DPOs). Like the Training of Trainers course, it includes a combination of theory and concepts (on climate change and its impacts; on the importance of being gender-sensitive, and on adaptation and disaster risk reduction) and techniques and methods on how to use qualitative research to inform inclusive, participatory processes at community level. This includes outlining tools, and the management of the community-driven process that will be used in the gender-sensitive climate risk assessment (GCRA), as well as being of more general use for participatory GCRA-type assessments in other communities in which you may not have previously worked. Information on training and facilitation skills, which is intended to be helpful for planning additional training and awareness raising, as well as the community facilitation, is also included.

In order to simplify the material included, the following colour key has been used to identify various categories of information:

	Additional sources of information
	Case studies and examples
	Exercises and games
	Definitions
	Research Skills
	Training Skills

Training tips: Introductions and Ice-breakers

The introductory session of a training course is very important as it sets the tone for the whole training course. During this session, the trainer or facilitator should put the participants at ease and energise them. Icebreakers are a great way for participants and the trainer(s) to get to know each other and to feel relaxed.

There are a number of different icebreakers including:

- Each participant (starting with the trainer) explains the meaning or reason/ history behind their name or nickname.
  For instance, "My name is Grace and I was named after the doctor who delivered me". This ice-breaker is especially useful when participants live in different countries, or regions of a country, as it allows participants to more easily remember what may be foreign names. Nicknames and the reason behind them often introduce humour into the session which is a great way to put people at ease.
- Each participant tells the group 3 things about themselves – 2 are true and 1 is false and the rest of the group has to decide which the falsehood is. This works best when the truth is stranger than the falsehood!
- If you have a group of people who do not know each other, a good icebreaker is to divide them into couples and get them to interview each other. Each interviewer can then introduce the

interviewee back to the group as a whole. The trainer may want to provide some examples of the types of questions that should be included in the interview.

When choosing your icebreaker, be conscious of your group dynamic. It is important that your activity be culturally appropriate and not make anyone feel uncomfortable. No one should be forced to reveal extremely personal information or participate in a stressful environment. And, of course, bear in mind that what is personal to some may not be personal to others.

Make sure that you allocate more time than you think you need for the introductions and/ or the icebreaker exercise but also be strict about keeping to the task. If, for instance, you have only asked participants to tell the group their name and the organisation they work for, do not then allow them to give a long speech about all the current projects they are involved with!

It is always a good idea to try and get a sense of the level of knowledge present among participants. You can do this by asking participants to outline their expectations for the training course. Ask them to write down one expectation on a piece of paper or card (they may have more than 1 expectation in which case they should write each expectation on a separate card). If you have planned and prepared well you should be able to link at least some, if not all, of these expectations to the overall aims and objectives of the workshop. If you cannot make these links then you need to be flexible and adjust your training so that some of the expectations are met or, if this is not possible, clearly explain why not. The added advantage of this approach is that by continually referring back to the expectations and how you are addressing them, you can demonstrate to your audience just how relevant and useful your course is.

During the introductory session, you should make sure that all participants understand the key aims and objectives of the course. It is at this point that you can link the expectations of the participants to these aims and objectives. There are a number of ways of doing this – one suggestion is to have each objective on a flipchart-sized piece of paper and have these objectives stuck on a wall. You can then read out the expectations and stick them onto the objective that most closely matches the expectation.

The introduction is also the opportunity to go over the structure of the training course, highlighting any important points (for example, a change in venue for one session or the meeting time before embarking on a field work exercise). You may also want to agree to "rules" of the course (for example, mutual respect, one speaker at a time, no mobile phones, etc.).

Training tips 1: Introductions and ice breakers

Box 1. For more ideas for ice-breakers, take a look at:

Creative Icebreakers, Introductions, and Hellos for Teachers, Trainers, and Facilitators.
Available online at
http://sharepdf.net/view/46362/creative-icebreakers-introductions-and-hellos

Box 1: Ideas for ice-breakers

2. Qualitative Research

In this section we give an introduction to qualitative research, which underpins the participatory methodologies that are used at community level to determine risk and vulnerability (as well as other aspects of community development).

Qualitative research, methodology and paradigms

To explain qualitative research, we need to review what "methodology" is – which is *how* we do research. It therefore includes both the methods/tools that we use, as well as the paradigms within which these methods/ tools are grounded.

Paradigms need to be considered when we talk about qualitative research. Paradigms are dominant patterns of thought, sometimes even pre-conceived ideas that change over time when evidence shows them to be proven/ disproven. An example is smoking, which was once seen as exotic, but as evidence came to light we realised that it is poses a health risk. Another example is Genetically Modified Organisms (GMOs) – once considered a solution to food insecurity, there is now recognition that they have adverse environmental impacts. These are paradigm shifts in belief. Paradigms are important because they determine what you want to know, how you ask the questions, with whom you will speak (e.g. only men or only women or only a certain livelihood, social, age or interest group) and how the results are analysed. Participatory community-based assessments, such as the GCRA, reflect a paradigm shift that tells us that the views of poor, rural people are important – in the past we always assumed that western science knew best.

Now we are going to discuss two paradigms: positivist (which gives rise to quantitative research), and phenomenological/ experiential, which leads to qualitative research. Gender-sensitive qualitative research also implies an explicit quest to differentiate views and perspectives from men and women and give equal attention to each group's ideas.

Positivist paradigm

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 generalisability – 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**).

Phenomenological/existentialist paradigm

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 to 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 generalisable truths, and more concerned with seeking explanation of observed phenomena. Ideally this explanation arises

from the research subjects 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), others see two silhouettes of people (blue on a white background), and others can see both.

Figure 1: What can you see?

Training tips: What makes a good trainer?

Practice and knowing your content are the two most important aspects of what makes a good trainer. There are however, a few other things you can do to improve your performance:

- Stay relaxed and calm;
- Be open and honest;
- Be a good listener - do not panic when the group is silent; wait patiently for them to think about what they want to say;
- Do not interrupt people;
- Do not make judgements of people's responses (for example, saying that 'this is good, and that is bad') or humiliate anyone;
- Do not let arguments dominate the discussion; encourage participants to re-focus on the main topic;
- Be aware of language barriers; let people talk in the language in which they are most comfortable (and ask someone else to translate if needed). If necessary, use visual aids and body language to help overcome language barriers;
- Make eye contact, stand up and move around, speak slowly, use your voice (intonation);
- Make your training as interactive as possible - involve and engage participants. Ask questions and invite participants to tell their stories;
- Use humour if natural for you, and smile;
- Choose words, stories, numbers, and cases that capture interest (use real examples to illustrate your points);
- Address concerns, questions, issues as raised by participants, while sticking to the main messages you want to get across

Training tips: Training Facilitation Techniques

There are many different facilitation techniques that can be used in a training course and it is best to try and vary these techniques as much as possible to keep participants interested and involved.
We have already introduced you to the value of using games and icebreakers. A few more of the more common and effective facilitation techniques are:

1. Presentation and discussion: most common method used in training course and workshops. In order to be effective, the trainers must plan how the session will work.
    - What are the intended outcomes? This will determine how much time should be allocated to the presentation and to the discussion and also determines how best the discussion should be facilitated. Is not fruitful
    - How should the discussion be managed? Discussions usually work better in small groups. If there are lots of issues that need to be discussed and time is short then you may want to consider allocated each small group with one issue to discuss and then plan time when each group can report back on their discussion
    - Facilitator's role is key! Needs to make sure discussion doesn't veer off track and that intended outcomes are met. May also need to act as the recorder of information
    - Whilst the discussion can arguably be the most useful part of any presentation and discussion session, fruitful discussion will not happen without a useful presentation that acts as a prompt. But it is important that the presenter keeps to the allocated time in order to ensure adequate time for discussion

2. Brainstorming: Participants are asked to 'brainstorm' ideas about a particular subject. Every suggestion is accepted without criticism or comment and written down on the flip chart. Brainstorming tis useful because it shows what is already known about a topic. The group then discusses the ideas when all suggestions have been recorded.

3. Nominal group technique: often brainstorming generates lots of ideas and there is a need for grouping them somehow. One way to do this is through the nominal group technique where all of the points are written on a post-it or piece of card and stuck on the flipchart. The whole groups gathers around and looks for patterns in the diverse ideas, grouping similar ideas together.

4. Buzz groups: Participants discuss ideas/experiences in pairs or threes for a few minutes, sitting where they are in the larger group or plenary discussion. Good for getting discussions going, enabling participants to explore ideas before speaking in the larger group.

5. Case study: A case study outlines a realistic situation that participants can use to turn theory into practice. It enables group members to apply new information, insights and ideas to a realistic situation relevant to their work.

6. Demonstrations: A demonstration is usually used to teach a skill. The trainer show the group the whole skill in addition to breaking it down into its component parts. Ideally the participants will then practise the skill.

7. Group work: Small groups carry out specific tasks or activities. These encourage people to share experience and knowledge, encourage participation and develop a co-operative approach to working.

8. Role play: The acting out of a real situation. A situation or problem is outlined and group members are assigned parts and asked to act it out. Role play can help group members find a solution to a problem. It may help them to understand others' viewpoints and may produce changes in attitudes or behaviour.

Training tips 2: What makes a good trainer

Box 2. Research skills: Being a good qualitative researcher: asking probing questions

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. 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".

Probing questions are important because they give the people being interviewed "a voice" - an opportunity to control the direction of the interview. Furthermore, probing questions are an important strategy for finding out more detail and drawing out further information.

Probing questions are especially important when asking questions on sensitive issues such as gender and power relations. This is because issues such as relations between household members are not generally spoken about openly and direct questions could be regarded as rude and may sour the relationship between interviewer and interviewee.

When seeking more detail there are a number of different types of probing questions you can use, depending on what is being said, and what you want to further discover:

1. for **clarification** when the respondent uses vague or unclear language or when you need more detail
   - *What exactly did you mean by "a bad season"?*
   - *What, specifically, will you do during the planting season?*
   - *Can you tell me more about the flood?*
2. to find out the **purpose** of a statement. Sometimes a respondent will say something where the purpose for saying it is not clear or you want to ask them to justify their statement/ dig for underlying reasons
   - *Why do you say that?*
   - *What were you thinking about when you said last year was a bad year for your village?*
3. for **completeness** and **accuracy**. Use probing questions to check that you are getting a full and accurate account. Also, sometimes people make genuine mistakes (and sometimes deliberate!) which you may want to check
   - *Is that all? Is there anything you may have missed out?*
   - *How do you know that is true?*
   - *Do you think everyone in the village thinks the same? If not, why not?*
4. to establish **relevance**. Use probing questions if the respondent seems to be going off-topic, you can check whether what they are saying is relevant to the main topic of the interview
   - *That is very interesting. Can you explain to me how receiving a pension helps you be a better farmer?*
   - *Can you please help me to understand how what you are saying is related to my question (about …)*
5. for **emphasis**. Can use the same words or can rephrase the question (especially if they did not fully understand it the first time)
   a. *Where did you go?* and then *What places did you visit?*

   Can also repeat what they have said, but with added emphasis
   b. *The government provided <u>no</u> assistance?*
6. to ask for **examples**. Can ask for specific examples when the respondent is being vague or can be used as a polite way of checking truthfulness
   - *Sorry, I don't understand. Can you help me by giving an example?*
   - *Could you give me an example of when you …*
7. as an **extension** question when the respondents have not given you enough information about something, you can ask them to tell you more
   - *Could you tell me more about that please?*
   - *And what happened after that?*
   - *Then…??*

8. for **evaluation** purposes to discover how judgemental respondents are and how they evaluate something
   - *How good would you say the farming extension officers are in this part of the country?*
   - *How do you know the government plans for this village are, in your words, "worthless"?*
   - *What are the good and bad points about this situation?*
9. to find out how people feel about something you can ask **emotional** probing questions. These are particularly useful if the respondent is talking in the third person or otherwise unemotionally and you want to find out how they feel
   - *So how did the drought affect <u>you</u>?*
   - *How do <u>you</u> feel about your husband having to go to South Africa to work?*

Box 2: Research skills: Being a good qualitative researcher: Asking probing questions

The subjectivity of research

Because qualitative research recognises that research is subjective, it requires us to be aware of the role we, as researchers and facilitators, play in the process, as we are not neutral. The research process is laden with values. Reflexivity is the term used to recognise and analyse the subjectivity involved in a research process, being aware of our role and how our presence and facilitation influences the results that we obtain.

Potential bias in qualitative research is complicated as there are not only preconceptions and values of the researcher to the researched; but also of the researched relative to the researcher. This is illustrated in cases where people tell you what they think you want to hear. There is a very famous example of a development agency in India supplying cows to one village. When another development agency arrived in a neighbouring village in an attempt to determine development needs relating particularly to food security, the villagers told them cows, assuming that was the only option. However in a Hindi society, cows are not eaten and thus do not contribute to food security!

Strengths of qualitative research

Qualitative research has many strengths and is particularly important to use when planning community interventions and soft adaptation.

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 within a community is often informed by, and in turn complements, what you may have already determined from other methods and sources (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. For example, after conducting a national household survey of poverty, you might decide that some of the results require additional analysis and you might decide to conduct qualitative research to get a deeper understanding of these issues. After your qualitative research, you will be able to add depth to the nature of poverty – for example the ways in which the community is poor and the reasons, in addition to the outcome.

Since qualitative research does recognise that people have different opinions and worldviews, findings of qualitative research offer the opportunities to identify these different views and perceptions in reality. This can have important implications for development planning, as it can

illuminate the type of interventions that the community would like to prioritise in order to improve its well-being. Such depth of information and context-specific understanding is very difficult to obtain by other methods. It also offers research participants the opportunity to empower themselves with knowledge. Through participation in the research process they are able to distil, and collectively identify, issues of which they are inherently aware, but perhaps have not critically examined within community fora.

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, when rigid survey protocols are usually developed in advance of arrival in the field (and, indeed, have little flexibility for change because the same instrument is typically then being used in a number of communities for comparison). 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 exercises to ensure appropriateness to the location. This ensures that the research is truly addressing community needs, and not inadvertently being driven by the perceptions of the non-community members (i.e. the researchers).

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 generalisable, unlike positivist research – but this is not the aim. Qualitative research recognises the importance of context. However, since context is important, and qualitative research cannot necessarily be transferred from one context to another, it does require a significant time-involvement in each community and is therefore often best built in ongoing Monitoring and Evaluation (M&E) processes and conducted over time.

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 well the questions are relevant 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.

Figure 2 shows an example of how the skill of the researcher counts in terms of their capacity to communicate effectively. It is important not to assume knowledge, nor to ask leading questions, and to use language appropriate to the audience. This is a community group in Malawi. They were first asked “Who has witnessed the manifestations of climate change?” – complex language referring to a particular concept (climate change). No one raised their hand. When the questions was re-phrased as “Who has noticed that rainfall patterns are changing?” many people raised their hands. Here you can see how a poor researcher may not pick up the community’s reality.

Who has witnessed manifestations of climate change?

Who has noticed that rainfall patterns are changing?

Figure 2: How you ask the questions is important in qualitative research

3. Introduction to Climate Change and Implications for Zambia

This section outlines the causes of global climate change and sources of evidence; the methods used to project how the climate will change in the future; as well as specific climate change projections for Zambia and the impacts that these will have on various sectors.

The Greenhouse Effect and Enhanced Greenhouse Effect

The greenhouse effect is a natural phenomenon which keeps the earth at a temperature suitable for life. A number of trace gases, known as greenhouse gases, exist in the atmosphere. Greenhouse gases include water vapour, carbon dioxide, methane, ozone, nitrous oxide (NOx) and chlorofluorocarbons (CFCs). Figure 3 shows a diagrammatic representation of the functioning of greenhouse gases.

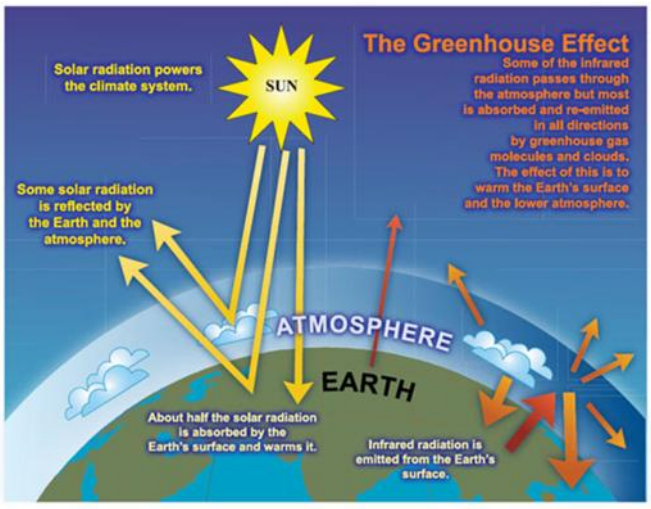


Figure 3: How greenhouse gases produce the greenhouse effect

Greenhouse gases allow incoming short wave radiation from the Sun to pass through them. Although some incoming short wave radiation from the Sun might be reflected from the Earth when it reaches the surface (for example, ice surfaces such as glaciers and ice caps reflect this radiation), the majority of it is absorbed by the Earth. In absorbing this short wave radiation from the Sun, the Earth heats up. As it heats up, the Earth emits its own radiation. As the Earth is much cooler than the Sun, the radiation emitted by the Earth is long wave, or infrared. Whilst greenhouse gases can let short wave radiation through, they trap the majority of the outgoing long wave infrared radiation that has been emitted by the Earth, and then they re-emit it in all directions, including back towards Earth. In this way, the greenhouse gases function as a "blanket" in the atmosphere, keeping the Earth's temperature warmer than it would be if they were not all there and all outgoing long wave the infrared radiation from the Earth was lost to space. This is called the greenhouse effect as the mechanism is similar to that of greenhouses which are used for cultivation in cooler climates, because the glass traps the heat and does not allow it to escape.

The greenhouse effect is essential to life on Earth because without it, average temperatures on Earth would be -18^{0}C (minus 18), which is too cold for humans to survive. With the greenhouse effect, average temperatures on Earth are around 5^{0}C. So the phenomenon is not only natural, it is essential for humans. However, human activity is now increasing the concentrations of greenhouse

gases in the atmosphere. The result is that the blanket is getting "thicker", and even more outgoing long wave infrared radiation from Earth is being trapped – thereby increasing global temperatures. Table 1 outlines some of the human sources of greenhouse gas emissions.

Table 1: Human sources of greenhouse gases

Gas	Sources
Carbon dioxide (CO2)	Burning fossil fuels (industry, transport, domestic heating)
Methane	Anaerobic bacteria in rice fields, cows, sewage
NOx	Burning fossil fuels, fertilisers
CFCs	Aerosols (although this has now been reduced due to the success of the Montreal Protocol)

Increasing greenhouse gas concentrations

Industrialisation has been a major source of increasing greenhouse gas emissions. The following graphs show how levels of various greenhouse gas emissions have changed over time. Figure 4 shows that levels of carbon dioxide in the atmosphere have been steadily increasing since 1960, when the Mauna Loa measuring station was first installed (the up-down variation reflects seasonal variation – typically more carbon dioxide is emitted in winter, when there are fewer plants and trees absorbing it, than in summer).

Whilst we have only taken systematic observations of greenhouse gas emissions for the last 50-60 years, we can look to the historical record to compare with levels of emissions over the last thousand years. There are various scientific techniques available to determine historical concentrations: looking at isotopes of oxygen from ice cores, peat bog sediments, and also dendrochronology – the study of tree rings). Figure 5 shows that carbon dioxide, methane and nitrous oxide levels were all fairly stable until the 19th century (coinciding with the beginning of industrialisation).

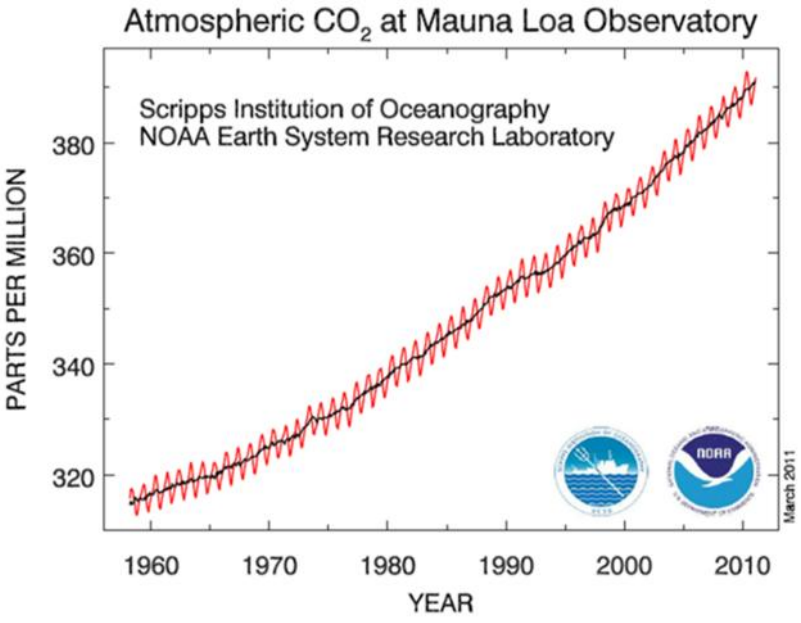


Figure 4: Atmospheric CO2 concentrations at the Mauna Loa Observatory

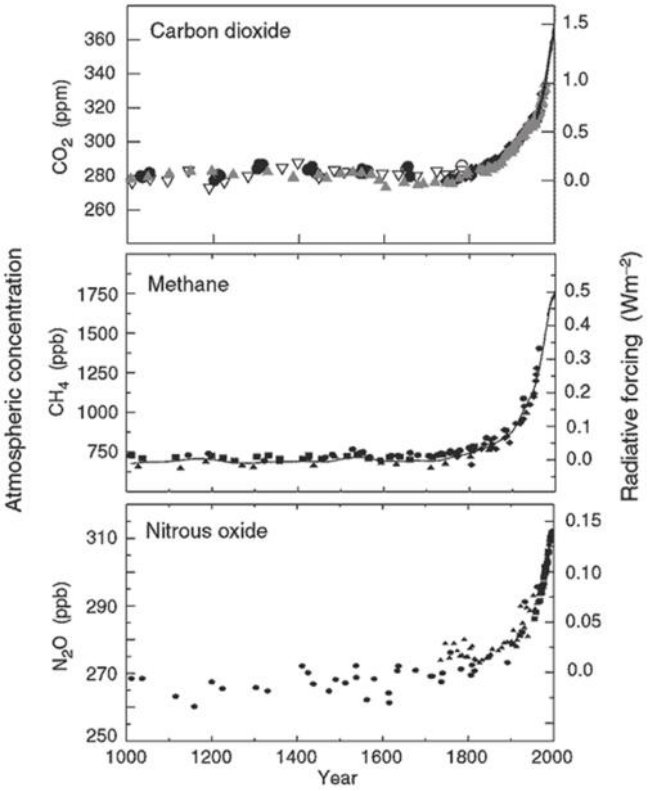


Figure 5: Increasing GHG concentrations over the last 1000 years

The relationship between GHGs and temperature

Based on our understanding of the mechanism of the greenhouse effect, we know that greenhouse gases play a role in regulating global temperature. We also know that, as a result of human activities, the concentrations of greenhouse gas emissions in the atmosphere have been increasing since the 19th century. Figure 6 shows the extent of temperature anomaly from a long-term average, according to 5 different sources (GISS, HADCRUT, NOAA, RSS, UAH). The general trend for temperature since 1910 is an increase, with a particularly sustained increase since 1970.

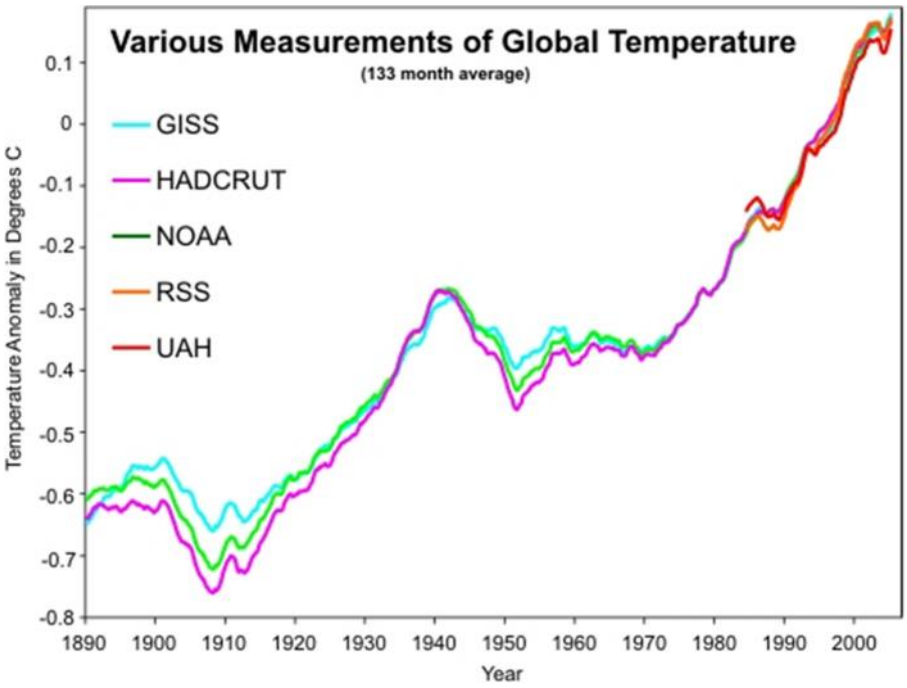


Figure 6: Recent changes in temperature

It is not just the temperature of the land that has changed – the temperature of the oceans has too. Oceans cover 70% of the earth's surface, and are important not only in their own right, but because the ocean circulation patterns are closely related to atmospheric circulation patterns. Figure 7 shows the combined mean temperature anomalies (difference from the long-term mean) for the earth as a whole (top diagram), the northern hemisphere (middle diagram) and the southern hemisphere (bottom diagram), taking into account both land and sea temperatures. Since 1970 trends have been almost exclusively for a positive variation from the long-term mean.

This is why the Intergovernmental Panel on Climate Change (IPCC) – a group of scientists convened every 5 or so years by the world's governments to assess the state of knowledge on climate change – in their 2013 Fifth Assessment Report (AR5) concluded that "warming of the climate system is unequivocal, and since the 1950s, many of the observed changes are unprecedented over decades to millennia. The atmosphere and ocean have warmed, the amounts of snow and ice have diminished, sea level has risen, and the concentrations of greenhouse gases have increased".

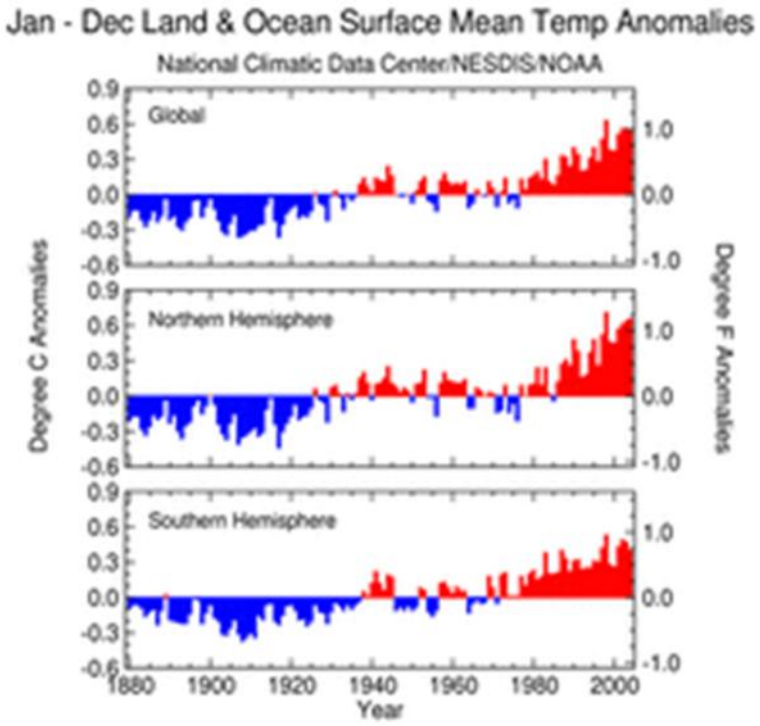


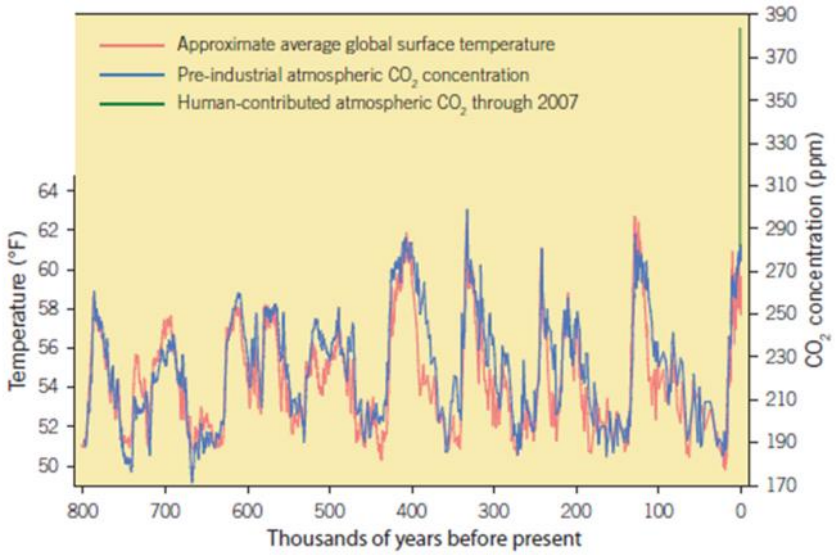
Figure 7: Evidence for changes in sea and ocean surface temperature (SST)

How do we know whether observed impacts are natural or human-induced?

This has always been the big question in the United Nations Framework Convention on Climate Change (UNFCCC) – where, for many years, debates were over whether observed impacts are natural or human-caused. The reality is that we do not have two Earths to compare (one with humans and one without), but there is evidence that the range of change in the last century or so exceeds that which has been observed in the last 800,000 years.

We have proof that greenhouse gas concentrations have increased as a result of human activity and that, because of the role that greenhouse gases play in the atmosphere, this has affected global temperature. It is important to remember, however, that changes in climate are not new if we look to geological time scales. Over geological time scales, the climate has changed in the past, such that, for example, areas which are currently temperate have previously experienced glacial periods. Greenhouse gas concentrations in the atmosphere can also reflect natural phenomena – such as volcanic eruptions. Over the long term, temperature change can also reflect slight changes in the Earth's axis around the sun (Milankovitch cycles). Figure 8 shows the very close relationship between greenhouse gas emissions and global temperature (the blue and red lines, respectively) over geological time scales. Both have fluctuated, but follow the same patterns. What is particularly important to note in this diagram, however, is the green line, which reflects human-contributed CO_2 (as one of the most important GHGs). The green line shows clearly that since the industrial revolution CO_2 emissions have increased well beyond any levels known in hundreds of thousands of

years before the present. This shows us that, although GHG levels and temperature have changed in the past for natural reasons – and these cycles will continue, superimposed on that are human emissions which are affecting temperature to an extent far greater than could be expected without human emissions – based on data from the last 800,000 years. In fact, additional data (not shown here) shows that the current rate and magnitude of changes in CO_2 concentrations have not been matched in the last 15 million years. In the Fifth Assessment Report, the IPCC concluded "Human influence on the climate system is clear. This is evident from the increasing greenhouse gas concentrations in the atmosphere, positive radiative forcing, observed warming, and understanding of the climate system; …This evidence for human influence has grown since the Fourth Assessment Report. It is *extremely likely* that human influence has been the dominant cause of the observed warming since the mid-20th century." (Christensen et al, 2013).



Global average surface temperature (left axis) and atmospheric CO_2 concentration (right axis) over the past 800,000 years as determined from Antarctic ice cores and direct atmospheric CO_2 measurements.

Figure 8: GHG and temperature over the last 800,000 years

Projecting future climate change

So we know what has happened in the past, based on a combination of systematic observation through weather stations (and GHG monitoring) – but what about what will happen in the future?

Future projections of climate change are made using Global Climate Models (GCMs). A variety of these exist around the world, typically housed in major meteorological services and institutions around the world – for example Met Office/Hadley Centre in the UK, Max Planck Institute in Germany, and the National Oceanic and Atmospheric Administration (NOAA) in the USA. These computer models attempt to capture global climate processes, based on our knowledge of them, which are then run in an attempt to simulate reality.

Three main types of GCMs exist: atmospheric, oceanic and coupled atmosphere-ocean. Coupled atmosphere-ocean is theoretically the best since, as we mentioned above, there is a close

relationship between oceanic and atmospheric circulation. However, that relationship is so complex that it is not always possible to parameterise the various interactions and feedbacks and include them in the model. By virtue of being more complex, coupled atmosphere-ocean GCMs are also more expensive to run, and require a greater amount of computing power.

As well as modelling climate, such models need an input of how we see the emission levels of GHGs changing over time. If, for example, we continue on a carbon-intensive growth path, emitting lots of fossil fuels, there will be higher concentrations of GHGs in the atmosphere, and the effect on temperature is likely to be greater than if we take tough political decisions to cut emissions (for example through the UNFCCC). To take these various plausible futures into account, scenarios – or plausible socio-economic futures – are used. The Fourth Assessment Report (AR4) used a suite of four families based on the Special Report on Emissions Scenarios (SRES). These four families range from "continue to use fossil fuels as normal" to "full policy restrictions on fossil fuel use" (Nakićenović et al, 2000). The AR5 uses a different set of scenarios known as the Representative Concentration Pathways (RCP), which take a different approach and instead focus on different concentrations of greenhouse gases in the atmosphere and how that will variously affect projections (see Box 3).

Box 3. Scenarios

GCMs use scenarios to model future climate. The first set of scenarios developed by the IPCC was the Special Report on Emissions Scenarios (SRES) which describes a range of possible scenarios of future socio-economic development based around four families: A1, B1, A2 and B2. These storylines assume different paths of development for the world, greater weight being given to environmental (B family) or economic (A family) considerations, and more global (A1, B1) or regional (A2, B2) development. Each of these scenarios has an associated emissions pathway for the period 2000-2100, describing the amount of greenhouse gases (and other atmospheric gases) likely to be emitted through human activity in the future (Nakićenović et al, 2000).

The Representative Concentration Pathways do not attempt to predict future emissions trajectories but instead concentrate on the radiative forcings in watts per square metre in 2100 that will result from certain concentrations of greenhouse gases in the atmosphere. As with SRES, four RCPs have been proposed: RCP2.6 (a situation of peak and then decline), RCP4.5, RCP6, RCP8.5 (highest levels of emissions) (van Vuuren et al, 2011). Rather than trying to predict what circumstances will lead to certain concentrations, the RCPs use as inputs the different concentration levels and their climate effects (in which there is higher certainty), and then from that it is possible, based on different trajectories, to assess what circumstances would give rise to those levels of concentrations (shared socio-economic pathways).

Box 3: Scenarios

The projections generated by GCMs can be displayed as a map, or as a graph. GCMs are not good for high resolution (although some regional climate models exist too) – so we cannot say with accuracy that there will be *x* degrees change in *y* location. Figure 9 shows a graphical representation of one GCM run under 3 different SRES scenarios. The black line shows change over the 20th century according to the model (we use this to compare with reality to give an indication of the likely accuracy of the model in representing the various processes). If concentrations of greenhouse gases remained constant at 2000 levels, we could expect an increase in temperature of approximately 0.6^{0}C (this is partly due to the lifetime of GHGs in the atmosphere). Temperatures are projected to increase by between 1.8^{0}C (under the most conservative socio-economic scenario, B1 – the blue line) and 4.5^{0}C (under a fairly rapid growth scenario, A1). The bars to the right of the diagram show alternative scenarios, including A1F1, which is "business as usual". A range is shown because various

different GCMs have been used (known as ensembles – see below), and the results differ slightly according to how they parameterize the climate variables.

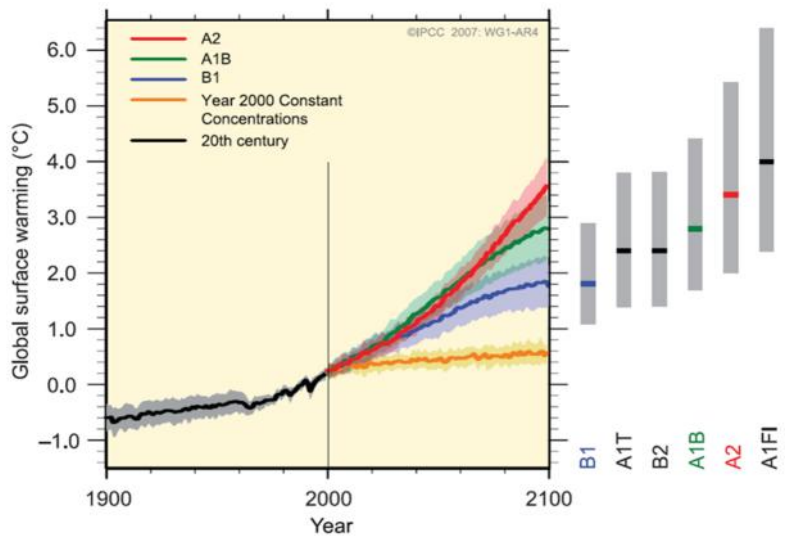


Figure 9: Scenarios of global temperature change (IPCC, 2007)

Figures 10 and 11 show the updated temperature change projections for December-February and June-August that were published more recently in the AR5, using the RCPs. Although it is not, strictly speaking, possible to compare the AR4 and AR5 projections, because they use different scenarios, it is important to note that the projected range of potential temperature change has increased.

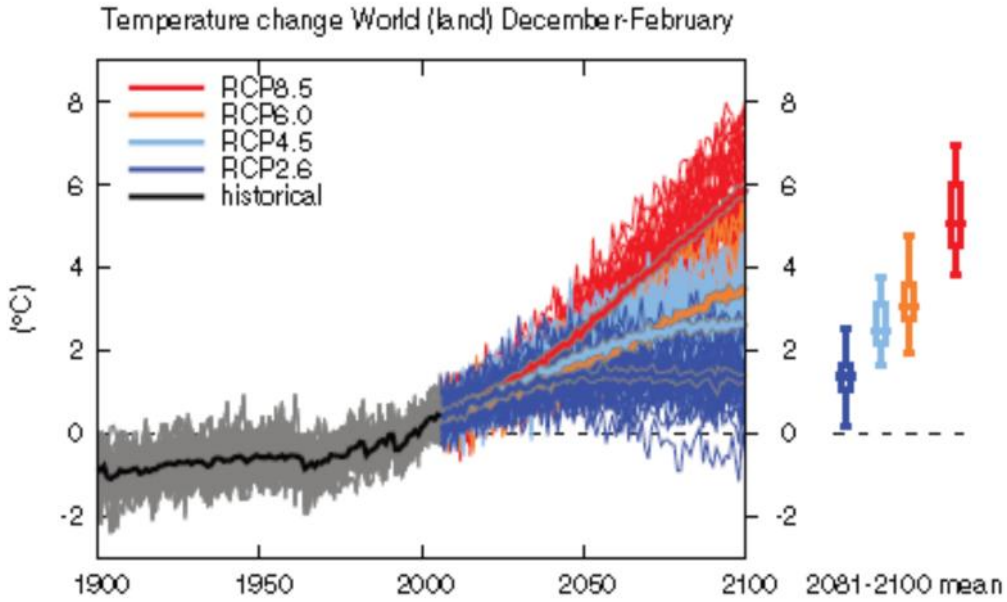


Figure 10: Temperature change World (land) December-February (Christensen et al, 2013)

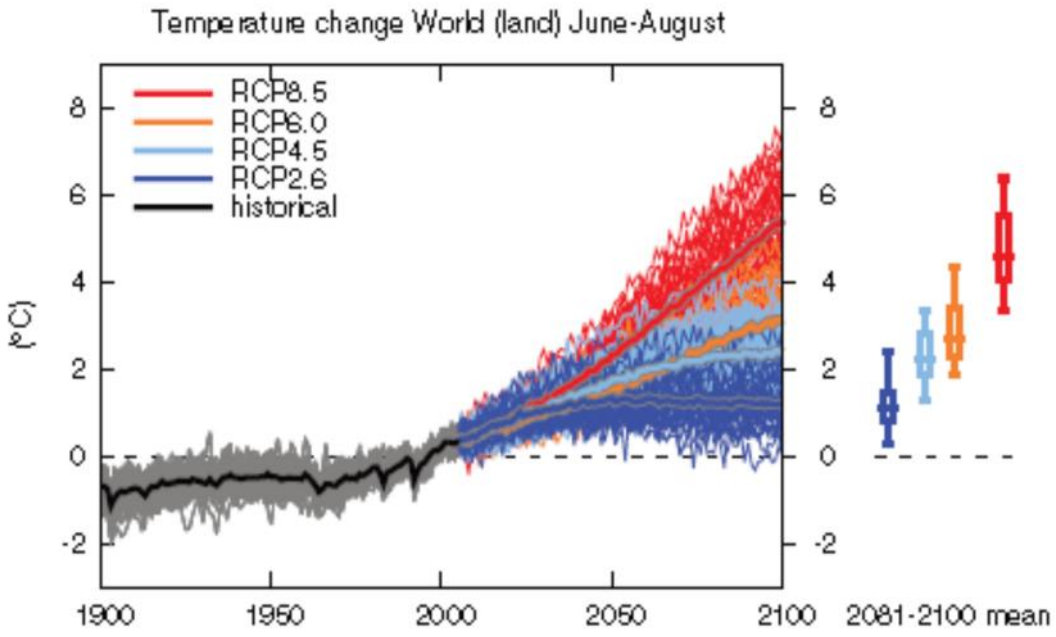


Figure 11: Temperature change World (land) June-August (Christensen et al, 2013)

Given that various models exist as well as the different scenarios, the most robust means of projecting the future is to use combinations of models, known as ensembles. Figure 12 shows the spatial extent of temperature change relative to the 1961-1990 average for the 2090s. This map has been generated using the average of 14 simulations under the A1F1 (business as usual)(AR4) scenario by different models. Mean global warming under this scenario is projected to be 5.4^{0}C.

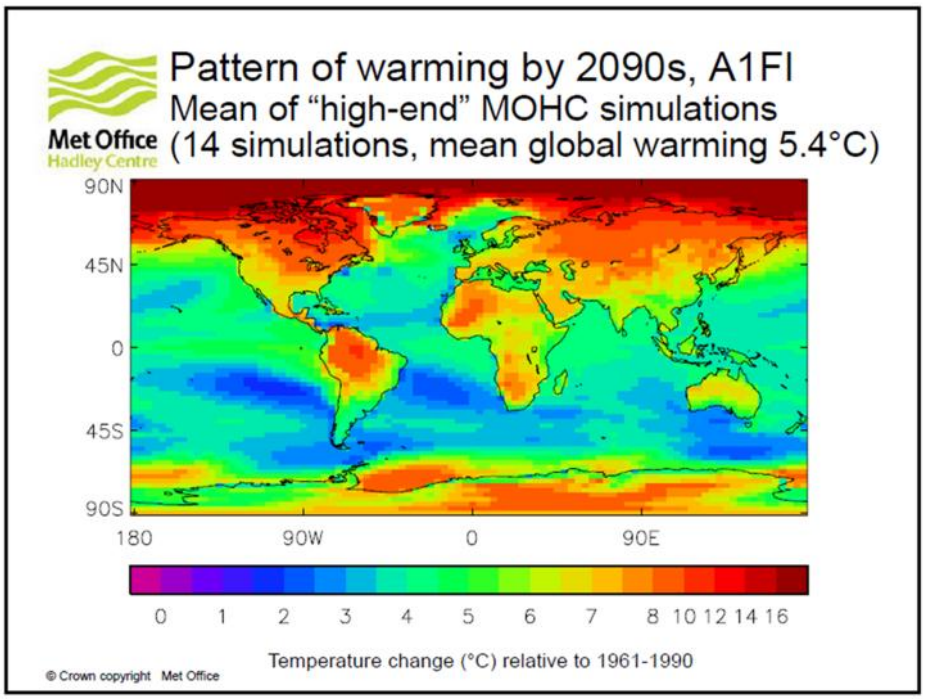


Figure 12: Updated scenarios of global temperature change (ensembles)

Whilst GCMs have greater utility at the global scale of resolution, than at the local, there is another important consideration which must be taken into account so that their projections are used within

context. As explained above, models work based on our existing understanding of climate processes. They are also "fed" with climate data from the observational records. As with the old adage "garbage in, garbage out", the accuracy of models is contingent on what data and parameterisations are inputted. Observational records for weather data are very patchy, and some parts of the world have greater coverage than others. Figure 13 shows the global distribution of weather stations. As a continent, Africa has a lower number of weather stations relative to others. This is for various reasons: under colonisation and the subsequent civil wars, maintaining these stations was not a priority. There are also limitations of resources and capacity. What it means, however, is that a lesser amount of data is available for inputting than would be ideal. In particular, it is a concern that the entire Congo basin has very few observational records – as this part of the world is known to play a key role in the global climate. This is a key limitation of models.

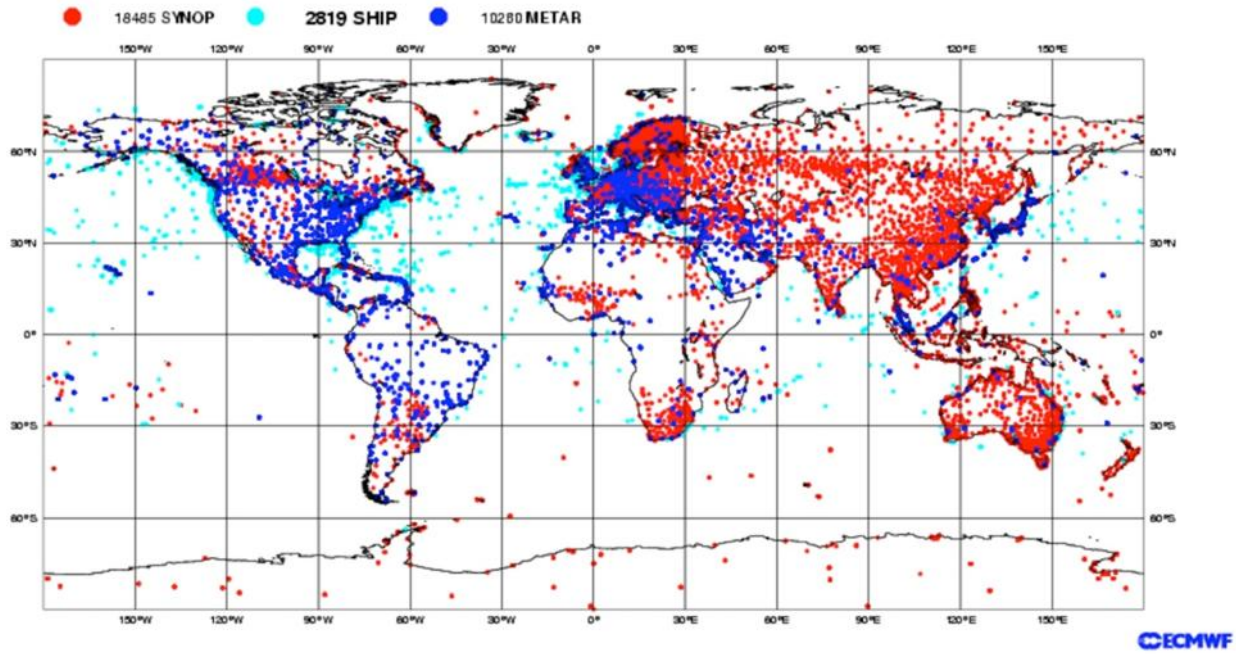


Figure 13: Global distribution of weather stations

Another key consideration with regards to GCMs is that temperature is easier to project than rainfall. There are various reasons for this: systems that affect rainfall are more localized than those which affect temperature (e.g. presence of mountains; major forest basins such as the Congo). Models are also unable to skillfully model the El Niño Southern Oscillation phenomenon, which is also a major driver of rainfall in southern Africa.

Regional projections for Africa

The IPCC AR5 provides regional climate projections using the RCPs and based on CMIP-5, the climate model intercomparison project (which means that these projections come from ensembles of different models).

Temperature

Figure 14 shows the regional temperature projections for southern Africa under the RCP4.5 for December-January-February (i.e. summer). The top row of the diagram shows the period 2016-35; the middle row shows 2046-65; and the bottom row shows 2081-2100. The percentage figures (25%, 50% and 75%) across each row are percentiles because these projections are combined from sets of models (ensembles), which all provide slightly different outputs when run under the same scenarios. Country level change is difficult to discern from the maps, but broadly speaking Zambia, like other southern African countries, will get warmer in the summer; and the extent of warming will increase as time goes on, such that summer temperatures are likely to be more than 2^0C warmer by the end of the century.

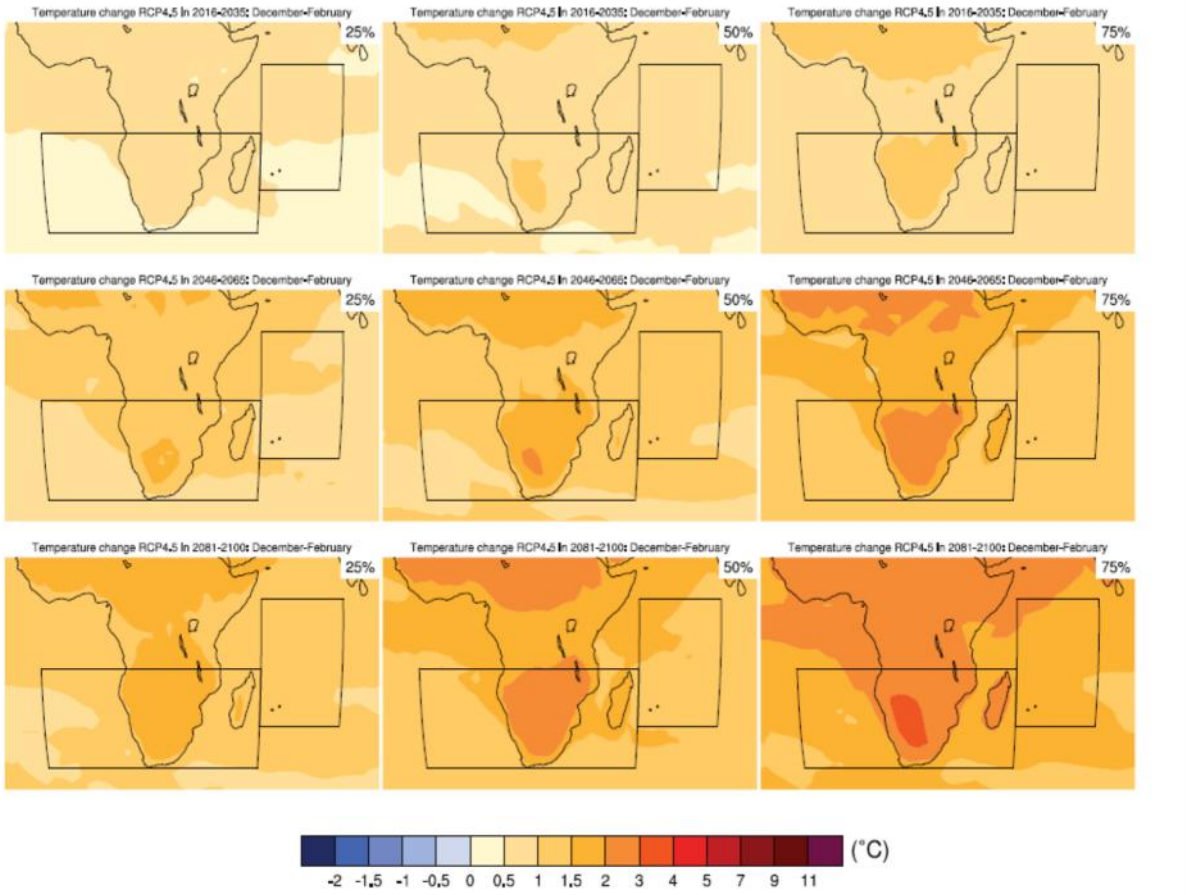


Figure 14: Regional temperature projections for December-January-February in southern Africa under RCP4.5

Figure 15 shows the projected temperature changes in winter. Again Zambia is difficult to distinguish from other countries but the key regional message is that winter temperatures will get warmer as time goes on, they will warm more in the interior of the sub-continent (including Zambia),

and by the end of the century we can expect over 2^{0}C increase compared to current winter temperatures.

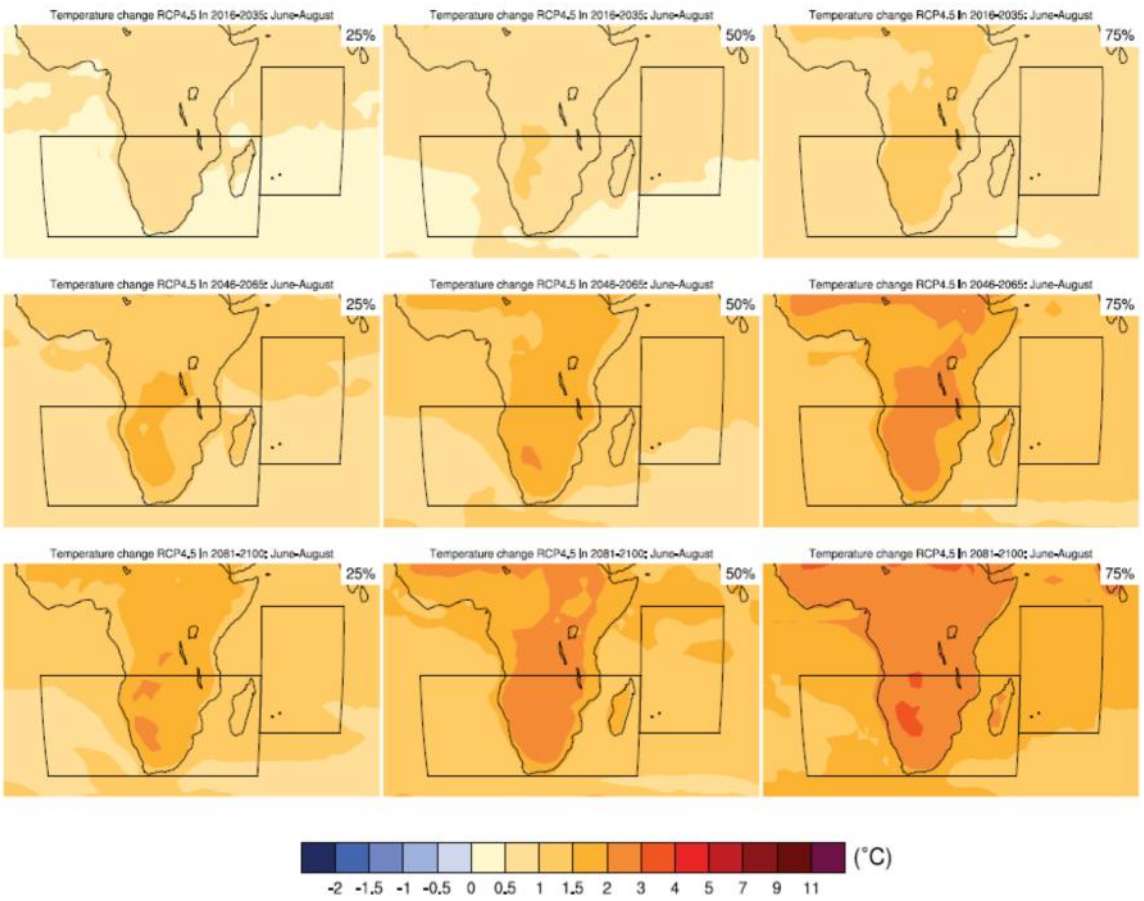


Figure 15: Regional temperature projections for June-July-August in southern Africa under RCP4

Rainfall

As with previous models, rainfall projections are subject to greater uncertainties than temperatures. Although it is difficult to determine country boundaries from the regional map, parts of western Zambia are projected to become drier in the summer months (figure 16), and other parts wetter – but the uncertainty is emphasised by the fact that the presence of lines over the colours (covering Zambia in all except the 25% percentile). These show that the differences are less than one standard deviation from the current situation of variability. In terms of winter rainfall (figure 17) there is a largely a drying trend in all but the 75% percentile but, again, the presence of lines over the colours shows that the degree of different is not more than one standard deviation from current variability.

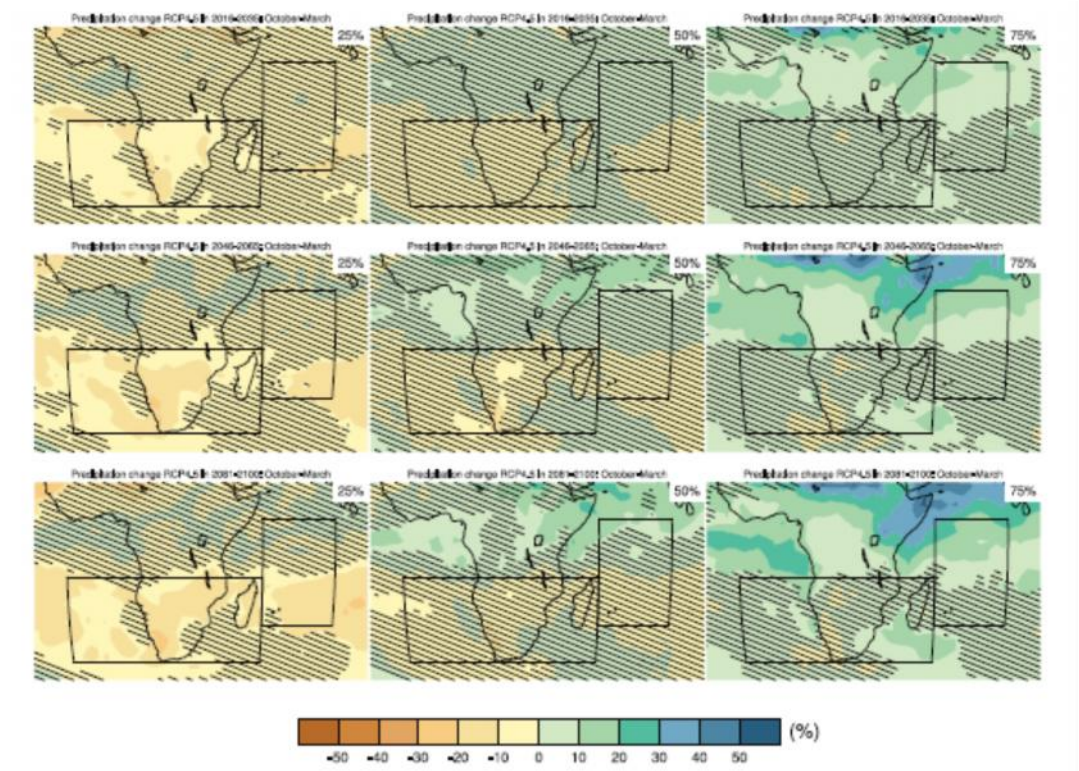


Figure 16: Regional rainfall projections for October-November-December-January-February-March under RCP4.5

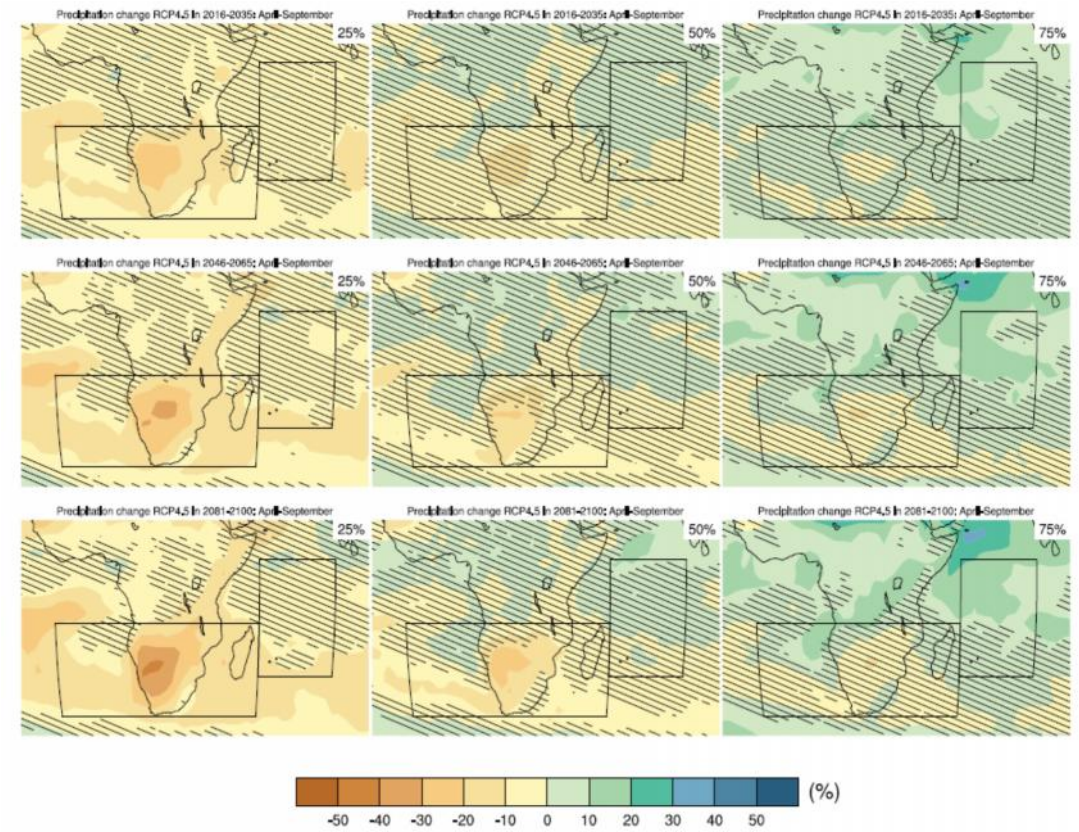


Figure 17: Regional rainfall projections for April-May-June-July-August-September under RCP4.5

Climate change in Zambia

Observed changes in weather and climate to date

Since many of the projections point to continuation (and exacerbation) of existing observed trends, it is worth highlighting what some of these changes have been in Zambia. Rainfall seasons in Zambia have generally become less predictable and shorter, especially in the southwest of the country, with rainfall falling in fewer, more intense, events. Annual average temperatures have increased. Extreme weather events and climate hazards have also become more marked. Between 2000 and 2007 the intensity and frequency of droughts and floods has changed, with a net trend towards more floods and, over a longer time-period, droughts. The area affected by floods and droughts also appears to have expanded. The 2005/06 drought left 1.2 million people (over 10% of the population) food insecure for up to 8 months. The 2007/08 flood displaced nearly half a million people (8% of the population), 61% of whom lived in the Western and Southern Provinces (mostly subsistence farmers). A total of 445,000 people in 21 districts required food assistance, and up to a third of the infrastructure in two districts was damaged.

Projected climate change

As with the global level, a number of different models under different scenarios have generated climate projections for Zambia. Since the resolution of GCMs is not very high, there are methods to downscale data to a higher resolution. Downscaling can be undertaken in two ways: statistically and dynamically. Statistical downscaling is based on statistical relationships between weather type and local weather variables, and dynamical downscaling is based on regional climate models, which work in a similar way to GCMs but at a different scale. This section presents projections generated by a recent International Finance Corporation (IFC) study (2011) using downscaled climate data from six GCMs and under two different SRES scenarios - A2 and B1. Those model runs generated 12 different projections of temperature and precipitation for the period up to 2100. In many cases they show continuation of observed trends.

Projected average annual temperature increase is 3 - 5^{o} for Zambia and 3 - 6^{o} for Kafue Basin by 2100. By 2100, maximum temperatures are projected to exceed historical ranges for 8 months of the year. As well as an increase in average temperature, by 2060 the number of hot days and nights is also projected to increase throughout the country, whilst cold days and nights are projected to decrease significantly, to the extent of becoming rare.

In terms of rainfall, overall annual precipitation change ranges from -3% to +3% by 2100 – but the annual changes will manifest in a different distribution throughout the year. Projected changes in rainfall patterns show decreases in the first part of the rainy season (September, October and November) and increases in the second part of the rainy season (December, January and February), especially in the northeast of the country. Heavy rainfall events will increase – maximum 1-day precipitation increases of over 275% under some scenarios. Simulated changes to the probability of exceeding flood thresholds (i.e. a 15% deviation from normal rainfall for the rainy season) indicates that floods are expected to occur more frequently in the future and, as a result of the increased intensity of rainfall, flood magnitude is also expected. At the same time, droughts are projected to become longer, more severe and occur more often.

In another case, the Climate Systems Analysis Group (CSAG) and the Council for Industrial Scientific Research (CSIR) each downscaled GCMs to provide projections to the middle of the 21st century (the

time period 2046-2065). CSAG statistically downscaled 10 GCMs using the A2 scenario (a fairly high emission scenario that reflects the current path of our emissions; whilst CSIR applied regional climate models to six of the 10 same GCMs. Detailed temperature and precipitation projections are illustrated in the Southern African Development Community (SADC) Climate Risk and Capacity Building Handbook (Davis, 2011). A summary of the regional findings, compared with the GCMs used, is provided in table 2.

Table 2: Comparison between GCMs and statistical and dynamical downscaling to highlight areas of agreement (Davis, 2011)

Summary and comparison of climate change projections from the GCMs and the two downscaling techniques			
	GCM	Statistical Downscalings	Dynamical Downscalings
Time-scale	1960-2000 2040-2060	1961-2000 2046-2065	1961-2000 2046-2065
Rainfall	*Decrease* in rainfall over central and western southern Africa	*Increase* in rainfall projected for the majority of the subcontinent *Decreases* are expected over Zimbabwe, Zambia, north-eastern Mozambique and parts of the south western coastline.	*Decrease* in rainfall projected for western southern Africa
Temperature	Increase in mean, minimum and maximum temperature		
Winds	1 - 3°C Increase in easterly winds during DJF Increase in southwest monsoon wind in MAM Increase in strength of Atlantic high pressure in JJA and SON	0.8 - 3.6°C	0.4 - 3.2 °C
Extreme weather events	-	-	More extreme rainfall events over Eastern southern Africa Increase in very hot days above 35°C

Box 4. Sources of further climate information

Davis, C.L., (ed) 2011, *Climate Risk and Vulnerability: A Handbook for Southern Africa*, Council for Scientific and Industrial Research, Pretoria, South Africa, pp 92.
Available online at www.rvatlas.org/sadc
(contains more detailed climate projections for Zambia and information on how they were generated)

CSAG at UCT http://cip.csag.uct.ac.za

IPCC, 2012: *Summary for Policymakers. In: Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation* [Field, C.B., V. Barros, T.F. Stocker, D. Qin, D.J. Dokken, K.L. Ebi, M.D. Mastrandrea, K.J. Mach, G.-K. Plattner, S.K. Allen, M. Tignor, and P.M. Midgley (eds.)]. A Special Report of Working Groups I and II of the Intergovernmental Panel on Climate Change. Cambridge University Press, Cambridge, UK, and New York, NY, USA, pp. 1-19.
Available online at www.ipcc.ch

Box 4: Sources of further climate information

Box 5. Online climate data and adaptation resources
Knowledge Navigator A meta-platform of over 100 climate change portals that enables users to match their particular interests with the most appropriate thematic/geographical portal.
WeADAPT Climate adaptation-focused portal with geographically-referenced case studies submitted by various users, as well as some climate projection information.
AfCLIX Climate science and adaptation knowledge transfer portal
AfricaAdapt Knowledge sharing network for academics, policy-makers and practitioners on adaptation
AfriCAN Climate Platform Portal to make climate information easily available to decision-makers
World Bank Climate Change Knowledge Portal Spatially-arranged hub of information, including a database to query, compare and map and key reports
Adaptation and Mitigation Knowledge Network Platform for sharing agricultural adaptation and mitigation information (biased towards east and west Africa and the Indo-Gangetic Plains)

Box 5: Online climate data and adaptation resources

Climate change impacts in Zambia

Remember, impact is not the same as vulnerability. A person or community can be exposed to different aspects of climate change but this does not necessarily mean that they are vulnerable to it. The risk of an adverse impact is also dependent on vulnerability. However, the potential impacts in different sectors are an important component for planning (see table 3).

Table 3: Summary of Sectoral Climate Change Impacts in Zambia (Government of the Republic of Zambia, 2014)

Sector	Impact of Climate Change
Agriculture	• decreasing crop yield due to change in rainfall and increasing temperatures (Zambia is divided into three agro-ecological zones - Region I is considered to be the most vulnerable region in Zambia and has consistently had the most droughts and water scarcity as well as regular floods; regions IIa, IIb and III are also exposed to floods, especially around floodplains • livestock population to increase in areas to experience increased rainfall • rangeland carrying capacity will be low owing to variation in rainfall, temperature and evaporation.
Water	• reduced run-off and hydro-power generation due to projected droughts • reduced stream flow and groundwater due to reduced rainfall affecting agriculture and other sectors
Health	Direct health impacts include • death and injury due to e.g. flooding, • infectious diseases, • malnutrition, and • a shift in malaria epidemic regions by changing breeding sites for mosquitoes Indirect health impacts include • stress, anxiety and mental illness, • increased susceptibility to infection, and • disruption of socio-economic structures and food production that may lead to malnutrition months after an event
Forests	• drought, high prolonged temperatures, shorter rainy seasons, floods and excessive rainfall are likely to affect vegetation type and the distribution of forest resources, as some vegetation shifts to higher elevations, some becomes extinct, new assemblages are established, and more invasive species emerge. • increased temperatures and dryness may increase the risk of forest fires • Changing temperatures and precipitation may extend the range of pests and pathogens which will affect tree-growth, survival, yield and quality of wood and non-wood products (e.g. honey)
Wildlife	• Biodiversity loss, e.g. Excessive rainfall would lead to inundation of swamps and other wetlands, thus affecting the habitat of important wetland species such as the waterbuck, puku and lechwe (although excessive rainfall could have a positive influence on other bush animals) • Habitat degradation due to projected high temperatures, droughts and floods • Increased migration of wildlife due to changing soil moisture content, potentially increasing the risk of human-wildlife conflict • Wildlife resources play a very important role in the national economy, with a potential secondary effect on tourism • Emergence or re-emergence of certain animal and wildlife diseases (e.g. (e.g. avian flu, Rift Valley Fever, tuberculosis, various parasites).
Fisheries	• Lower rainfall will reduce nutrient levels in rivers and lakes, affecting fish breeding. Commercial fish species (bream, sardines, catfish and labeo) in the drought prone zones are especially vulnerable • Drought would also reduce water levels in fish farms ponds and thus impact negatively on the breeding of fish

	• a rise in water levels in river channels → flood surrounding swamps and dambos which would turn them into ideal fish breeding grounds → increased fish population in the long term
Infrastructure	• damage to infrastructure such as bridges, railways and roads due to extreme events

Training tips: Using power point presentations

Power point slides are a useful and effective tool in training, if used correctly! Below are a few hints to using power point presentations in your training:

- Always rehearse with the power point slides before the actual presentation
- Make certain the power point slides are a help rather than a hindrance to communication
  - Design slides that are simple, clear and represent facts accurately
  - Put only 1 key concept on a slide at a time
  - Keep the text to a minimum and make sure that the font size that you use can be seen, even from the back of the room
- Don't waste the audience's time with getting your power point presentation to work
  - Be sure all necessary equipment is available and set up at the start of your presentation
  - Have a back-up plan in case of equipment (or electricity!) failure
- Speak louder than you usually would as the audience's attention is now divided between you and the slides. Also, if the room is darkened then more volume is needed to hold people's attention.
- Don't stand between your audience and the slides
- Don't let the power point presentation distract you
  - Face and talk to the audience, not to the slides
  - Try not to interrupt your talk when you change slides
  - Don't read the slides to your audience – they can read it themselves.
- Don't let the power point presentation distract your audience
  - Don't show a slide until you are ready to use it.
  - When you are finished, turn the projector off or return to the title or final slide

Training tips 3: Using power point presentations

Box 6. For more information on using power points, see

Harden, R.M., 2008, Death by Power-Point – the need for a 'fidget index', *Medical Teacher*, 30 (9), 833 - 835

Box 6: More information on using power points

4. Gender and Climate Change

Although we speak often about "communities", they are far from homogenous units. Some people exhibit more power than others, and power can be visible (for example the position of a chief relative to community members) or invisible (relations between men and women or other social groups). Whilst it is often wrongly conflated solely with women, gender is concerned with the multiple power relations and roles between women, men, girls and boys within communities. Gender roles and responsibilities can lead to situations of differential vulnerability, and these often relate to power relations. Understanding how power relations affect the social position (and vulnerability) of women, relative to men, is essential in designing interventions that reduce the vulnerability and disaster risk of both genders. The focus in this section is gender issues and power relations so that we can identify how they play a role in vulnerability and adaptive capacity in the face of climate change and disasters.

Box 7. Definitions in the field of gender

The following definitions are taken from CIGN, 2012.

Sex: Biological differences between men and women.

Gender: is a social construct that defines what it means to be a man or woman, boy or girl in a given society – it carries specific roles, status and expectations within households, communities and culture. Individuals may also self-identify as neither male or female, or both male and female.

Gender equity: the process of being fair to women and men. To ensure fairness, strategies and measures must often be available to compensate for women's historical and social disadvantages that prevent women and men from otherwise operating on a level playing field. Equity leads to equality.

Gender equality (or equality between women and men): refers to the equal enjoyment by women, girls, boys and men of rights, opportunities, resources and rewards. A critical aspect of promoting gender equality is the empowerment of women, with a focus on identifying and redressing power imbalances. Equality does not mean that women and men are the same but that their enjoyment of rights, opportunities and life changes are not governed or limited by whether they were born female or male.

Box 7: Definitions in the field of gender

Inequality between the sexes is not due to biological factors but is determined by the learnt, unequal and inequitable treatment socially accorded to women (CIGN, 2012; UNDP, 2010). Gender roles are linked to (but not caused by) biological differences. Although it does vary according to regions, cultures and religions, throughout the world there are gender-specific differences in what men and women are expected to do; what they consume; their lifestyles; their control of power and resources, their decision-making capacity and spheres of influence, and their vulnerability to climate change (ILO, 1998).

The sexual division of labour means that women are *generally* responsible for the reproductive sphere (childcare; domestic duties such as cooking and cleaning; health) – namely unpaid duties -

while men predominate in the productive sphere (the formal workplace; the cash-based economy) – namely paid activities. The important distinction here is between unpaid vs. paid work. In many countries women do predominate in the agricultural field but, generally, they do not get paid for the work they do in the fields. More often than not they do not own the land or the profits generated from any crops grown and sold. Subsistence farming (where most women farmers are found) is considered part of the reproductive sphere because it is unpaid work and is for the continuation of the family (i.e. for reproduction). The significance of the sexual division of labour is that, in many cases, because there is no monetary value attached to the work that women do, it (and therefore the status of women) is undervalued at all levels from household to national level. However, it is important, to bear in mind that these "norms" are not set in stone and can be changed.

Historically, gender differences have been overlooked and men have been privileged relative to women, deliberately or accidentally, by laws (often based on patriarchal systems), key socioeconomic sectors' policies and strategies and prevailing socio-cultural norms, and in their access to opportunities, resources, representational spaces and decision-making structures. An individual's decision-making is shaped by the information and knowledge they possess; their level of participation and influence; the options available to them and the urgency and risk they perceive is posed by the decisions. All of these aspects are different and unequal for men and women (ILO, 1998).

As mentioned above, gender roles also mean that men and women's access to resources is unequal. The term "resources" refers to the five types of inputs, or "capital assets," that a person or group possesses. These are:

- Physical assets: for example land, livestock, fertilizers, mechanical equipment
- Human assets: for example, farm labour
- Financial assets: including monetary income or savings
- Social assets: such as education, social network, associations and
- Institutional assets: for example, access to government social protection programmes, voting rights, family and inheritance rights, etc.

Women are typically dependent on natural resources (although – paradoxically – they often have insecure access to them, for example, through barriers to land ownership); have limited education levels and access to information; and limited mobility, all of which can make them particularly vulnerable to climate change relative to men.

The control and access to resources affects the way in which men and women earn a living. In many countries in southern Africa, women contribute to, but benefit little from, agricultural production. Women farm typically for subsistence, using low technology and labour-intensive techniques, and may contribute labour to the production of cash crops, but men are typically in charge of selling and thus retain the profit. When weather and climate contribute to lower levels of production, women respond by diversifying their livelihoods beyond dependence on agriculture. Coping strategies consist of food diversification and income generating activities but these are still mostly natural resource-based (e.g. consuming wild fruits, sale of casual labour, sales of traditional drinks, production and sale of charcoal, sale of wildlife and honey harvesting) and therefore also dependent on climate variability and change.

Men's and women's multiple roles

Part of being gender sensitive is to recognise that men and women have multiple roles which will influence all aspects of their lives (Moser in ILO, 1998):

> **Reproductive role**: Childbearing/rearing responsibilities, and domestic tasks done by women, required to guarantee the maintenance and reproduction of the labour force. It includes not only biological reproduction but also the care and maintenance of the work force (male partner and working children) and the future work force (infants and school-going children).
>
> **Productive role**: Work done by both men and women for pay in cash or kind. It includes both market production with an exchange-value, and subsistence/home production with actual use-value, and also potential exchange-value. For women in agricultural production, this includes work as independent farmers, peasant wives and wage workers.
>
> **Community managing role**: Activities undertaken primarily by women at the community level, as an extension of their reproductive role, to ensure the provision and maintenance of scarce resources of collective consumption, such as water, health care and education. This is voluntary unpaid work, undertaken in 'free' time.
>
> **Community politics role**: Activities undertaken primarily by men at the community level, organising at the formal political level, often within the framework of national politics. This is usually paid work, either directly or indirectly, through status or power. It is because men typically play a role in community politics that we need to actively discriminate in favour of women, and listening to their voices, in the GCRA.

Because the roles of men and women in society are different, they will also have different needs. With relation to promoting gender equality, women's needs can be distinguished as either practical gender needs or strategic gender needs (Moser in ILO, 1998).

Practical gender needs are what women identify as their needs, given accepted gender roles in society. Practical gender needs do not challenge, but rather arise from, gender divisions of labour and women's subordinate position in society. They are a response to immediate perceived necessity, identified within a specific context. They are practical in nature and often arise from inadequacies in living conditions such as water provision, health care and employment.

On the other hand, **strategic gender needs** are the needs women identify because of their subordinate position in society. Strategic gender needs do challenge existing roles, and meeting these needs would require changing these roles to help women achieve greater equality. They vary according to particular contexts, related to gender divisions of labour, power and control, and may include such issues as rights, domestic violence, equal wages, and women's control over their bodies.

Empowering women means meeting both their practical and strategic gender needs.

Why is it important to consider gender?

We have so far established that gender roles and relations are determined by society and result in inequality between men and women in all spheres (or domains) in life which, in turn, leads to an imbalance in power between the sexes. This imbalance in power is manifested in differential levels of poverty and vulnerability to climate change and disasters. Gender differences continue to exist, despite the growing commitment to addressing them through international conventions and national laws and policies. The crucial question, therefore, is what to do, and how to do it, in order to address gender differences in poverty and vulnerability in order to promote greater equality.

Gender equality vs. gender equity

To achieve a situation of **gender equality** ("the equal enjoyment by women, girls, boys and men of rights, opportunities, resources and rewards"), a critical strategy is the empowerment of women, with a focus on identifying and redressing power imbalances. Equality does not mean that women and men are the same but that their enjoyment of rights, opportunities and life changes are not governed or limited by whether they were born female or male. **Gender equity** (the process of being fair to women and men) may need to be followed to ensure fairness. Strategies and measures must often be available to compensate for women's historical and social disadvantages that prevent women and men from otherwise operating on a level playing field. Equity leads to equality. Gender equity in process means that men and women may achieve the outcome of gender equality in different ways.

There are some things in which gender equality is desirable – e.g. voting, inheritance and property rights, etc. (both men and women should have the right to vote, to own land, etc.) and access to education. Gender equality is typically useful for practical gender needs. Gender equity is particularly important to address strategic gender needs – those that women identify because of their subordinate position in society. They vary according to particular contexts, related to gender divisions of labour, power and control, and may include such issues as legal rights, absence of domestic violence, equal wages and women's control over their bodies. Meeting strategic gender needs assists women to achieve greater equality and change existing roles, thereby challenging women's subordinate position and aiming towards their own empowerment

So men go out to work – encouraging women to go out to work might create equality (as they both do the same) – but in reality it creates an additional burden for women as they still have responsibilities in the home. Gender equity would therefore be recognising the economic value and importance of the reproductive role.

Women's vulnerability to climate change and disasters

Having looked at gender differences, what does this mean for vulnerability to climate change and disasters?

Women are more vulnerable to climate change not because of natural weakness (in other words, because of their sex) but rather because of socially and culturally constructed roles ascribed to them as women (in other words, because of their gender).

Given the severity of gender inequality, especially in the developing world, climate change is likely to magnify the existing patterns of gender disadvantage. There are many reasons for this but the most important ones include, firstly, the fact that, in many communities, women have limited access to

important resources such as land, livestock, tools and credit. As we have already seen, even if they have access to resources, they are unlikely to have control over it, because they do not own it, and therefore will not be in a position to make decisions regarding its use.

Secondly, due to the sexual division of labour in many societies, women tend to be the main users and managers of natural resources (for example, fetching water and collecting firewood) and are thus dependent on natural resources which are most at risk from climate change. When natural resources become scarce, women often have to work harder, or walk farther, to obtain these resources for their families. Climate change will also affect the growth of staple crops which women are very often responsible for cultivating, ensuring household food and nutrition security.

Thirdly, the vulnerability of women is exacerbated by lack of education and access to information and knowledge (e.g. access to rural extension services), which restricts the opportunities open to women in seeking employment in other sectors (although parity is increasing, particularly at primary level, it will take some generations for women to be on a par with men in working age) or adapt (e.g. trying different ways of cultivating food). In the developing world especially, the education of boys is seen as more important than the education of girls. Without education, women are at a disadvantage in terms of their adaptation capacity, as they have less access to crucial information and fewer means to turn the information into usable knowledge about, for example, climate risks and adaptation. Limited education also means that women are less likely to be able to diversify their livelihoods and enter into formal, paid, employment which further reinforces their subordinate position relative to men.

Fourthly, migration is an increasingly important coping and adaptation mechanism in times of crisis. However, social and cultural norms, along with limited education, often stop women from leaving where climate change has hit hardest. When men migrate seasonally, women are often left to manage all the tasks that a two person household used to tend to, thereby increasing their workload substantially.

And lastly, women's opinions are often not accorded the same status in family and community decision-making processes. This is especially unfortunate given women's close relationship with natural resource management and awareness of conservation and possible adaptation measures. Table 4 outlines men's and women's roles and the relationship to climate vulnerability.

Table 4: Men's and women's roles and the relationship to climate variability

	Women	Men	Link to Climate Change Vulnerability
Roles	Stay home to care for children, as well as sick or elderly family members	Can migrate to access economic opportunities	Their ability to migrate in search of economic opportunities makes it easier for men to deal with crisis, and may result in benefits for the family as a whole. However, male migration often increases women's workload, as they are left behind to manage the household in addition to usual tasks. It can also increase women's exposure to other risks, such as gender-based violence and HIV infection.
	Produce household-oriented crops and livestock products	Produce market-oriented crops and livestock products	Both crops and livestock are affected by climate change, and this has profound consequences for household food security. Men often claim safer/more fertile land for growing market-oriented crops, leaving women to grow household-oriented crops on more vulnerable/less fertile land.
	Are responsible for food storage and preparation	Are responsible for selling valuable produce and livestock	In addition to the challenges described above, climate change has implications for food preparation and storage (in terms of water for food preparation and the vulnerability of food stores to extreme events, such as cyclones and floods). Harvests may be reduced or even wiped out by floods or droughts. This affects market prices and the availability of surplus to sell - placing pressure on both men and women to identify other sources of income and reduce major expenditures (e.g. school fees). In times of food shortage, women are often expected to feed other members of the family before attending to their own needs.
Resources	Have lower incomes and are more likely to be economically dependent	Have higher incomes and are more likely to own land and other assets	Men typically have more money and other assets than women. Men's savings provide a "buffer" during tough times and, along with other assets, make it easier for them to invest in alternative livelihoods.
	Have less access to education and information	Have more access to education and information	Managing climate-related risks to agricultural production requires new information, skills, and technologies, such as seasonal forecasts, risk analysis and water-saving agricultural practices. Men are more likely to have access to these resources and the power to use them and are therefore, better equipped to adapt. At the same time, women often have traditional knowledge that can inform adaptation efforts. Both new and old information is important in the context of adaptation.
Power	Have less power over family finances and other assets	Have more power over family finances and other assets	Without the power to decide on family resources and finances, women's ability to manage risks by, for example, diversifying crops, storing food or seeds, or putting money into savings, is limited.
	Have limited engagement in community politics	Have greater involvement/ decision-making power in community politics	Men are likely to have more influence over local governance-promoting policies and programmes that may not support women's rights and priorities.
	Face many cultural restrictions/prohibitions on mobility	Face few cultural restrictions/ prohibitions on mobility	Mobility is a key factor in accessing information and services. It is also critical for escaping the danger posed by extreme weather such as floods. Therefore, women are often at higher risk from these events.

We can therefore conclude that, for the many reasons outlined above, women are generally more vulnerable to climate change. And, given the status of gender equality, particularly in the developing world, climate change is likely to magnify existing patterns of gender disadvantage.

Box 8. Climate risks for women

DIRECT CLIMATE RISKS FOR WOMEN	
Potential risk	**Gendered impact**
Increased ocean temperature	The increase in ocean temperatures has led to rising incidences of coral bleaching due to thermal stress. The loss of coral reefs can damage the tourism industry, a sector in which women comprise 46% of the workforce.
Increased droughts and water shortages	Climate change is expected to increase the number and intensity of droughts and lead to water shortages in many parts of the world. As well as affecting agriculture, a sector in which women play a larger role relative to men, water shortages can increase women's workload by requiring them to walk further to obtain water.
Increase in the frequency and magnitude of extreme weather events	Another potential risk under climate change is the increase in the number, and intensity, of extreme weather events such as cyclones, floods and heat waves. In a sample of 141 countries over the period 1981 to 2002, it was found that natural disasters on average kill more women than men or kill women at an earlier age than men.
INDIRECT CLIMATE RISKS FOR WOMEN	
Potential risk	**Gendered impact**
Increased epidemics	Climate is highly influential in determining the number and extent of certain epidemics. The 2013 floods in Mozambique led to increased cholera occurrences, which will have gendered impacts, because they are expected to remain in the home which may be isolated, women often have less access to medical services than men. Also, their gendered role means that their workloads increase when they have to spend more time caring for the sick. Poorer households affected by, for example HIV/AIDS, will have fewer resources to adapt to climate change impacts. For example, adopting new strategies for crop production or mobilizing livestock is harder for female-headed and infected households.
Loss of species	By 2050 climate change could result in the extinction of between 8 to 35% of all species. This will have a particular impact on women as permanent temperature change will reduce the diversity of natural resources, wild food and traditional medicine options, upon which many women are dependent to provide food and healthcare for their families.
Decreased crop production	Decreased crop production is a significant expected outcome of climate change. For example, in Africa crop production is expected to decline from between 20 and 50% in response to extreme El Niño-like conditions; and in coastal areas crops are increasingly affected by diseases associated with climate change that destroy them: Cassava (brown streak); cashew (oidium); coconut (lethal yellow). Since women are so dependent on agriculture in many southern Africa countries, this will affect their food security.

(Source: modified from UNDP, 2010)

Box 8: Climate risks for women

As outlined in the earlier section on climate change, as well as bringing about incremental change in temperature and precipitation, climate change is also projected to change the frequency and

magnitude of extreme weather events, such as cyclones, floods and droughts – which can cause disasters. Women tend to be worse affected by hazards and disasters than men. The flip side of this is that, in more gender-equal societies, disasters have more gender-equal effects. At the time of a hazard occurring, deaths among women are typically greater, reflecting the conditions of social exclusion in which many women live: they have less capacity to run relative to men; have often not learned to swim, and have behavioural restrictions that limit their mobility in the face of risk, not least their impeded decision-making capacity relative to men in their households. That said, in some cases, some post-disaster analysis has shown that men experienced higher mortality rates due to the fact that they took more risks trying to save themselves and their families.

Women and girls are particularly vulnerable in post-disaster situations, because they lack land and other assets that could help them cope. Therefore, they are more likely to face food shortages, sexual harassment, unwanted pregnancies, trafficking and vulnerability to diseases and could be forced to drop out of school or marry earlier. If gender is not taken into account, there is also a danger that post-disaster recovery grants will favour men over women, thus reinforcing gender inequalities.

Box 9: Gender, vulnerability and disasters – examples from around the world

- Women are more vulnerable to hazards and disasters.
- During the 1991 cyclone disasters in Bangladesh, 90% of the 14,000 fatalities were women
- Women, boys and girls are more than 14 times more likely than men to die during a disaster
- The majority of victims in Hurricane Katrina were African-American women and their children, a group likely to be poor, lack health care and earn low wages
- In Hurricane Mitch, men experienced higher mortality rates due to the fact that they took more risks trying to save themselves and their families]
- There are also gender differences in post-disaster rehabilitation and recovery phases

Box 9: Gender, vulnerability and disasters – examples from around the world

Looking at gender differences is thus a key component of participatory methodologies within a community. If we do not do so, we run the risk of women's voices not being heard and the specific nature of their vulnerabilities not being identified in the risk assessment. As a result, adaptation options may be chosen that preferentially reduce the vulnerability of men, and thus further contribute to gender inequality. It is for this reason that GCRA explicitly includes gender considerations.

Box 10. Sources of further information on gender and climate change

Azarbaijani-Moghaddam, S., 2007, *Gender Awareness and Development Manual*, Ministry of Women's Affairs and UNDP Afghanistan

BRIDGE, 2008: *Gender and climate change: mapping the linkages. A scoping study on knowledge and gaps*, BRIDGE, IDS, Sussex.

CARE, *Gender Toolkit*. Available online at http://pqdl.care.org/gendertoolkit/default.aspx

UNDP guidebook on Gender, Climate Change and Community-Based Adaptation
http://www.beta.undp.org/undp/en/home/librarypage/environment-energy/climate_change/gender/gender-climate-change-and-community-based-adaptation-guidebook-.html

UNDP Resource Guide on Gender and Climate Change
http://content.undp.org/go/cms-service/download/publication/?version=live&id=2087989

Wach, H., and Reeves, H., 1999, '*Southern gender training materials: an overview and resource guide*', BRIDGE Report, Institute of Development Studies, Brighton

World Bank/FAO/IFAD Gender in Agriculture sourcebook
http://siteresources.worldbank.org/INTGENAGRLIVSOUBOOK/Resources/CompleteBook.pdf

Box 10: Sources of further information on gender and climate change

Training tips: Using games

Too much training can be boring, especially if it involves just listening to someone lecture to you. Even the most talented trainer is going to lose the attention of their audience if they don't vary the manner in which information and new knowledge is transmitted.

Mention the word, "game", and most think: *game = child's play = not serious = no learning* but the truth is the opposite. Research has shown that, just like children, adults learn better through experiential games than through a presentation.

Studies have shown that the use of games in training serves many purposes:
1. The resetting of participant concentration and energy levels. The human mind can only absorb so much information at one time. Successful training is commonly segmented into blocks of approximately 20 minutes followed by group problem solving, open discussion, and games. Using games in this way increases knowledge retention and keeps attention spans high. Games also address the different ways in which people learn: through movement, hearing, and seeing.

2. Reinforcing the practical application of new skills. The effectual execution of games plays a large role in knowledge retention. When used during training, games provide an enjoyable way of reinforcing knowledge and skill use. And when used after training, games provide a quick and fun refresher of what was learned during training.
3. Games allow participants to experience "reality" in a safe and accessible way. Games also create common experiences that can then form the basis of deeper discussions and participatory dialogue.

However, it is important to bear in mind that when games are used as an end in themselves and not a means towards an end, they waste time and can hamper learning and using too many games can destroy learning effectiveness. For games to be effective, they must be related to the content of the course by providing knowledge, reinforcing attitudes, and initiating action that is important. They must also teach people how to think, access information, react, understand, and create value for themselves and their organizations. They must be enjoyable and engaging without being overly simplistic or silly. Games must also allow for reflection. That is, they must be debriefed in order to be effective. Using games in a training situation requires the guiding hand of a strong facilitator to not only explain the game but to keep participants focused during the game and then to facilitate a thorough reflection at the end.

Games are best used in conjunction with other learning methodologies, such as presentations and discussions. Games used at the beginning of a program can measure existing knowledge providing a basis for future measurement and can build immediate interest in the training material. Games used during a training programme can help people discover the learning themselves, which strengthens recall and commitment, practice using new knowledge or skills, or reinforce initial learning. Games used near the end of a program can test knowledge gained and people's ability to apply it in their work environment.

Important considerations:

- Some serious games involve the active involvement of participants so safety issues must be taken into account
- Be sensitive to cultural norms (e.g. using food as a prop in a game may be culturally inappropriate in many cases)
- Good facilitation is crucial: playing the game is not enough → must include discussion and reflection → relate the outcomes of the game to real life circumstances

The Red Cross/Red Crescent Climate Centre has pioneered the use of serious games to communicate climate change information. A number of examples are available on their website at http://www.climatecentre.org/site/games

(Sources: ASTD, 2012; Dwyer, *no date*)

Training tips 4: Using games

Game: Choosing the sex of a baby

A couple are struggling to conceive a child. They go to a diviner who tells them they will have a child, but only after they have decided which sex they want it to be.

If you were in this situation:
What would you choose?
Why?

This exercise should take about 15-20 minutes. Give all the participants a piece of card to write on and then, after giving everyone time to think about and write down their answer, go around the room and ask people to read out their answers. The trainer or facilitator should write these answers on a flipchart. It is likely that more people will choose boys than girls. This shows how deep rooted gender assumptions are (and not just assumptions – but how gender roles determine the nature of society)

(Source: Williams et al, 2007)

Game 1: Choosing the sex of a baby

Game: The difference between sex and gender

This game should take 5-10 minutes.

Ask everyone to write numbers 1-10 in their notebooks. You will then read out the following statements and they have to write G next to the statement number if the statement corresponds to gender, and S if it corresponds to sex. (The answers are in () after the statements below)

1. Women give birth to babies, men don't. (S)
2. Little girls are gentle, boys are tough. (G)
3. In one case, when a child brought up as a girl learned that he was actually a boy, his school marks improved dramatically. (G)
4. Amongst Indian agricultural workers, women are paid 40-60 per cent of the male wage. (G)
5. Women can breastfeed babies, men can bottle feed babies. (S)
6. Most building-site workers in Britain are men. (G)
7. In Ancient Egypt men stayed at home and did weaving. Women handled family business. Women inherited property and men did not. (G)
8. Men's voices break at puberty, women's do not. (S)
9. In one study of 224 cultures, there were 5 in which men did all the cooking, and 36 in which women did all the housebuilding. (G)
10. According to UN statistics, women do 67 per cent of the world's work, yet their earnings for it amount to only 10 per cent of the world's income. (G)

You should then go through the answers – the purpose is just to make sure everyone has understood the difference between sex (biological differences) and gender (learned differences dictated by culture)

(Source: Williams et al, 2007)

Game 2: The difference between sex and gender

Game: Bowl of rice

This exercise should take about 30 minutes. The types of food given in this example are not important – you may want to change them to something more appropriate to the context you are training in.

Take two people in the room (a man and a woman, if possible – about equal distant from the front of the room) and ask them to stand up.

Explain the following example:
"This man works very, very, very hard. He has too much work. He has to get up early in the morning and go to work, trying to work as much as possible. Nobody can help him. He does not sleep enough, has no time to practise any sport and he does not eat very well. This morning, he was in such a hurry that he did not have time to eat breakfast. Anyway, only rice was available and he prefers noodles. In a word, this man is tired."

"This beautiful woman is fit! She is doing work-outs every morning, eats well, and sleeps well. She works, but not too much because other people help her. This morning she had a good breakfast: rice! Her favourite meal!"

Pretend you have a plate of rice at the front of the room with you – the same distance from the man and the woman. It is available to both of them – fastest first….
Ask the participants the following key question:

- "What do you think will happen?"

Possible answers:

- "The woman will arrive first: she can run fast whereas the man is tired and unfit."
- "The woman will arrive first and probably eat most, if not all the rice. The woman likes rice very much while the man prefers noodles. If she is not aware of his disadvantaged position, she may not leave anything for him."

Key questions:

- "Is the situation fair?"
- "Why is it not fair?"

(Remind the participants that there was no discrimination - the plate was equally accessible to both people).

- "So, what can be done to make the situation fairer?"

Possible answers:

- "Let the man reach the plate first or put the plate closer to the man."
- "Divide the contents of the plate into two equal parts; one for each them."
- "Make the woman aware that this man has not eaten breakfast this morning, so she must share and maybe leave more for him."
- "Try and find a way of alleviating this man's workload."
- "Give the man free time to take exercise so that he can become fitter and more able to compete."
- "Propose noodles and rice to address both their preferences. If that is not possible, maybe we should only propose noodles because the man seems to have a greater need of food than the woman."

Note: Underline that these possible solutions are what we call "positive actions;" they aim to make the situation fairer and more equitable. They take into account the fact that some people do not have the same opportunity to access resources. There can be no equality when people do not have the same opportunities.

(Remind participants that it is unusual to have a strong woman and a weaker man – the exercise is designed like this in order to encourage objectivity in assessing how gender roles are culturally constructed, and that there are ways of supporting gender equity).

(Source: Aguilar, 2008)

Game 3: Bowl of rice

Box 11. Other sources to check when looking for gender training ideas

Azarbaijani-Moghaddam, S., 2007, *Gender Awareness and Development Manual*, Ministry of Women's Affairs and UNDP Afghanistan

CARE, *Gender Toolkit.* Available online at http://pqdl.care.org/gendertoolkit/default.aspx

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UNDP Resource Guide on Gender and Climate Change http://content.undp.org/go/cms-service/download/publication/?version=live&id=2087989

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World Bank/FAO/IFAD Gender in Agriculture sourcebook
http://siteresources.worldbank.org/INTGENAGRLIVSOUBOOK/Resources/CompleteBook.pdf

Box 11: Other sources to check when looking for gender training ideas

Training tips: Time-keeping

It is difficult to over–emphasise the importance of good time-keeping to the success of a training course.

Sticking to the time you have allocated for particular sessions or exercises will allow you to cover all the points that you have decided are important. It will prevent you from having to rush through sections or miss out points completely. A trainer who sticks to the times shows that he or she is in control and is competent which will instil much more confidence in the audience than someone who appears to be rushed and flustered.

Good time-keeping also shows respect for your audience. They have taken time out of their busy schedules to attend the course and it is not unreasonable for them to expect a well-run course that delivers on everything that it sets out to.

So, a few tips on how to ensure good time-keeping:

- Rehearse your sessions and exercises to make sure that you have allocated enough time to cover them adequately.
- Try and divide your sessions into smaller "bits" and decide on how much time you can spend on each "bit" – if you stick to this it will prevent you getting towards the end of the time allocated for the session and only then realising that you are not going to have enough time to finish.
- Always add in more time than you think you need for questions and discussions. It is far better to have too much time (you can have a set of prompting questions on hand, or a short game, to fill the time, if necessary) than have to cut short a valuable and thought-provoking discussion.
- Be strict when facilitating discussions – make sure participants stick to the topic on hand and do not use the time to go on about their own "pet" subjects.
- Try and schedule an "extra" session at the end of the course. If you have run out of time and there are still points that you think should be discussed then "park them" (e.g. write them down on a flip chart) to come back to during this "extra" session. This will prevent you from running into the time allocated to the next session. And if there is not enough to fill the extra session then participants can go home early – they won't complain about that!
- Be generous with break sessions (tea times and lunches). Participants are likely to need to check in with the office, etc. – anticipate this by allocating long breaks in which they can do this rather than having them miss your sessions or come in late. Also, do not underestimate the amount of informal learning and valuable networking which takes place between participants during these breaks!

Training tips 5: Time-keeping

5. Climate Change Adaptation, Adaptive Capacity and Disaster Risk Reduction

This section looks at factors that affect vulnerability and adaptive capacity; identifying and enabling adaptation, the links between climate change adaptation and disaster risk reduction, and why a gendered perspective is important.

Factors that affect vulnerability and adaptive capacity

Access to resources affects vulnerability and adaptive capacity in the face of climate change. One way of categorising resources is to think in terms of 5 different resource "capitals". The range and amount of these held by each individual determines how vulnerable a person is, or how well they are likely to be able to adapt to climate change. So someone who is well educated, healthy, plugged into networks, living in a well-constructed house and with the implements required to gain a livelihood through a variety of means will likely be less vulnerable, or better able to adapt, than someone who is dependent on one source for their living (particularly if that source is natural, and thus affected by climate change), in poor health or elderly, and lacking knowledge and skills. Table 5 exemplifies some of the types of resources that affect vulnerability and adaptive capacity. Note that these are similar to the gender divisions in resource access outlined in section four – hence the need to take a gender-sensitive approach to their assessment.

Table 5: Resources affecting vulnerability and adaptive capacity

Resource	Example
Human	Knowledge of climate risks, conservation agriculture skills, good health to enable labour
Social	Women's savings and loans groups, farmer-based organisations
Physical	Irrigation infrastructure, seed and grain storage facilities
Natural	Reliable water source, productive land
Financial	Micro-insurance, diversified income sources

Identifying and enabling adaptation

According to the Participatory Adaptation Implementation Manual (PAIM), climate change adaptation is "the initiatives put in place that reduce the vulnerability of natural environment and people to actual and expected climate hazards" (Republic of Zambia, *no date*). Adaptation can be variously classified as autonomous or planned (typically local level vs. national level); anticipatory or reactive (most is usually reactive – although within Pilot Program for Climate Resilience (PPCR) the aim is to support anticipatory adaptation to reduce climate risk); and incremental or transformative (evolutionary vs. step-change). Other key distinctions are between community-based adaptation and ecosystem-based adaptation (see boxes 13 and 14 for sources of further information). One critical distinction to be made is between coping and adaptation. In assessing past responses to climate variability and change that may have been undertaken, some will be classified as coping, whilst others are classified as adaptation (see box 12 for more on the differences). Promoting coping strategies will not be sustainable in the face of climate change, and thus it is critical to identify adaptations to enable climate-resilient development.

Box 12. Definitions: Adaptation vs. Coping

Coping – short term mechanisms to ensure survival in face of a livelihood stress that DO NOT affect underlying vulnerability.

Adaptation – longer term shifts in behaviour and practices which reduce vulnerability in the face of the same livelihood stress in the future.

Coping includes the range of strategies and mechanisms that people use in the face of stresses to their livelihoods. Examples of climate stresses include exposure to "rapid onset" extreme events, such as tropical cyclones and floods; as well as "creeping hazards" such as drought. Coping strategies might include livelihood diversification (seeking a temporary new income source to maintain wellbeing if your main livelihood has been disrupted); asking for help from friends or family; distress sales of assets (for example livestock, agricultural tools, and household possessions); and sometimes even migration. Whilst coping strategies may enable survival in the short term, employing coping mechanisms does not reduce vulnerability should the person be exposed to the same hazard in the future. As well as being short-term, coping strategies are typically reactive. A typical coping mechanism that people employ after floods is rebuilding their house using the same materials as before. This means should there be a flood again the next year, they will likely be just as vulnerable. Given that climate change is likely to change what is considered normal (in terms of temperatures, rainfall and exposure to extremes), we should try to support adaptation instead. It is also important to note that coping strategies may be ultimately negative for livelihoods – as well as for adaptive capacity. Distress sale of assets, for example, may enable immediate survival but will affect longer term wellbeing of the household. Likewise gathering firewood for fuel may be essential for survival, but if it ultimately leads to deforestation and increased flood risk, it increases vulnerability to climate change.

Adaptation is defined as "an adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities". In the context of climate change, adaptation typically refers to longer-term changes in behaviour and practices that in turn are likely to reduce vulnerability to future exposure of the same circumstances. Whereas coping is typically reactive, adaptation can be both reactive or anticipatory (in other words, it is undertaken in anticipation of exposure to stresses). To take the above example, a household might decide to upgrade their house to make it resistant to flooding even if they have never experienced such flooding in the past. Examples of adaptation here might include using stronger materials (for example, bricks instead of mud), rebuilding on stilts, or even moving the location of the building to be further away from the water source. Agricultural adaptations can include diversifying crops, changing varieties and planting dates, using irrigation, planting trees and supplementing feed for livestock.

Box 12: Definitions: Adaptation vs Coping

For adaptations to be successful, particularly those that are anticipatory and/or planned, past experiences have highlighted a number of enabling factors that are important. These include identification through participatory and inclusive processes; the support of enabling institutions, the importance of awareness-raising and training, and the importance of an enabling policy framework (all of which contribute to sustainability); a supporting environment (including the provision of weather and climate information – so that people know what to expect and can prepare and plan accordingly); and the use of local knowledge and/or champions. It is also essential to monitor

initiatives and create evidence which can, in turn, be used for learning and supporting successful future adaptation.

Identifying the most appropriate adaptation actions is dependent on the results of a climate risk assessment and understanding the particular needs and vulnerabilities that arise in communities. However, too often we get caught up with remedying a "problem" or risk that would improve the wellbeing of people now. Of course that is important, but particularly in the context of climate change we need to ensure that we are addressing not only current vulnerability, but also future vulnerability. A key way to do this is through future visioning which identifies the outcomes that a particular unit of analysis (in this case a community, but it could also be appropriate for individuals, districts, provinces or countries) would like to achieve at set times within the future. When we know how people would like to see the future, then we can choose and prioritise appropriate adaptation options that will help achieve those outcomes, and ensure climate-resilient development.

The links between climate change adaptation and disaster risk reduction

Climate change adaptation and disaster risk reduction are very closely related; yet the two fields have arisen with a false degree of separation (which is perpetuated by them both being governed through different international instruments – the UNFCCC and the Hyogo Framework, respectively). Disasters have a long history and are not only related to climate events (such as droughts, floods and cyclones) – although in the context of a changing climate, these make up the majority of disasters which occur. Of course it is important to remember that an increasing incidence of extreme events or climate hazards will not necessarily lead to more disasters – it is the combination of exposure with a vulnerable population that leads to increased disaster risk. Climate change will contribute to exposure, and it will also contribute to vulnerability through the changes in water and food availability, and on livelihoods.

Climate change is thus changing the context of disasters – but will also manifest itself in incremental change in temperatures and rainfall, as well as through extreme events that may lead to disasters. Disaster risk reduction can be defined as "*action taken to reduce the risk of disasters and the adverse impacts of natural hazards, through systematic efforts to analyse and manage the causes of disasters, including through avoidance of hazards, reduced social and economic vulnerability to hazards, and improved preparedness for adverse events*". There are many overlaps between this and climate change adaptation, the aim of which is "*the adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities*". The only real difference is that climate change will also bring about incremental change in temperature and rainfall, as well as change in extreme events, and so climate change adaptation incorporates disaster risk reduction and adaptation to incremental change.

Taking a risk approach goes a long way to bridge the fields of climate change adaptation and disaster risk reduction. The IPCC AR5, in the Working Group on Vulnerability, Impacts and Adaptation, has taken this onboard, and is highly concerned with risk identification and management. The diagram below (figure 18) is a modification of the version first published in the 2012 IPCC Special Report "Managing the risk of extreme events and disasters to advance climate change adaptation" to represent how climate change, through weather and climate events, contributes to disaster risk. It shows that climate risk, or the probability of an impact, is a function of hazards, exposure and

vulnerability. This means that for climate risk to exist, there needs to be a combination of those three elements. This marks a slight variation in terminology, although the underlying concepts are the same (see figure 19). We work with a slightly more nuanced version, which recognises that the climate risk is a function of exposure to a hazard, the sensitivity (or biophysical vulnerability) of the natural environment which is exposed, as well as the social vulnerability of the people in that environment, divided by their adaptive capacity. This is represented as:

Risk = hazard + vulnerability (/adaptive capacity)

Where:
Hazard = exposure to climate hazard
Vulnerability = sensitivity/biophysical vulnerability of the natural environment and social vulnerability
Adaptive capacity = inverse of social vulnerability – what enables people to mediate the impacts of exposure

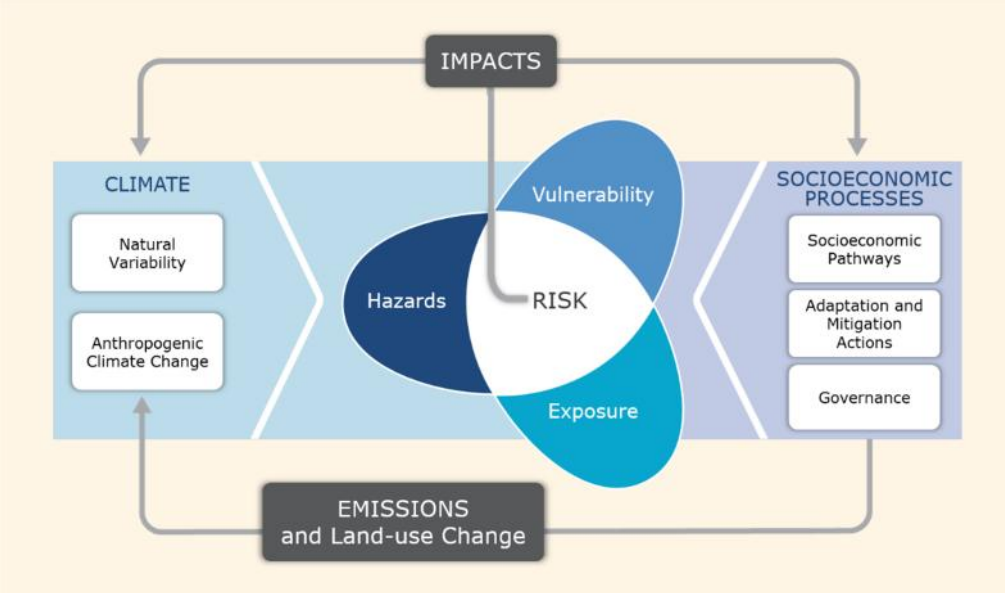


Figure 18: How climate change, through weather and climate events, contributes to disaster risk (IPCC, 2014)

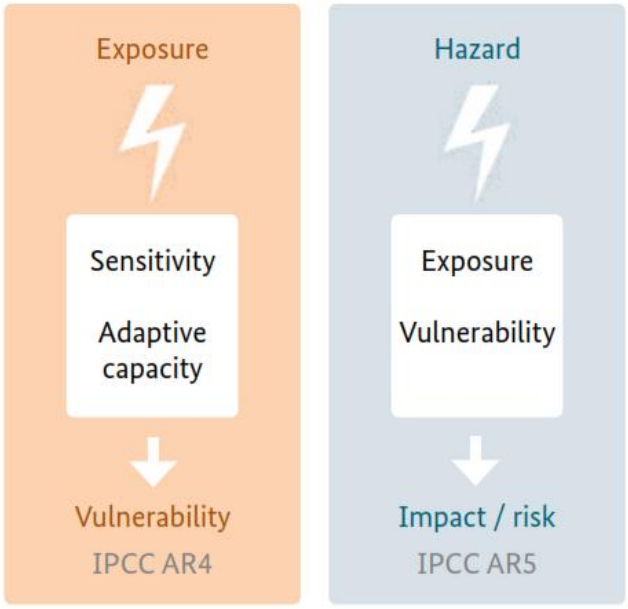


Figure 19: Changing terminology, similar concepts (from the IPCC Fourth Assessment Report, in orange, to the IPCC Fifth Assessment Report, in blue) (GIZ, 2014).

Examples of activities that are considered both climate change adaptation and disaster risk reduction include:

- preparing risk assessments,
- protecting ecosystems,
- improving agricultural methods,
- managing water resources,
- building settlements in safe zones,
- developing early warning systems,
- improving insurance coverage
- developing social safety nets and.
- Integrating adaptation and disaster risk reduction into development planning is also key (UNISDR, 2008; *no date*)

Box 13. Sources of further information on community-based adaptation

CARE International, 2014, Community-Based Adaptation in Practice: A global overview of CARE International's practice of Community-Based Adaptation (CBA) to climate change.
Available online at http://www.careclimatechange.org/files/cba_in_practice_lr.pdf

CARE International, *no date,* Community Based Adaptation: An empowering approach for climate resilient development and risk reduction, Adaptation Learning Programme (ALP)
Available online at http://www.careclimatechange.org/files/CBA_Brief_nov_13.pdf

CARE International, 2014, Participatory Monitoring, Evaluation, Reflection and Learning for Community-based Adaptation (PMERL). A revised manual for local practitioners.
The original, full version of the PMERL manual is available at
http://www.careclimatechange.org/tools

Gogoi, E., Dupar, M., Jones, L., Martinez, C. and McNamara, L., 2014, How to scale out community-based adaptation to climate change, CDKN Working Paper.
Available online at http://cdkn.org/wp-content/uploads/2014/03/CDKN_Working_Paper_community_adaption_Final_web-res.pdf

Joto Afrika, 2014, Integrating Community Based Adaptation into local government planning, Special Issue, 13 May
Available online at http://www.careclimatechange.org/files/JotoAfrika13_Final.pdf

UNDP, 2010, Gender, Climate Change and Community-Based Adaptation: A guidebook for designing and implementing gender-sensitive community-based adaptation programmes and projects, UNDP.
Available online at http://www.undp.org/content/undp/en/home/librarypage/environment-energy/climate_change/gender/gender-climate-change-and-community-based-adaptation-guidebook-.html

Box 13: Sources of further information on community-based adaptation

Box 14. Sources of further information on ecosystem-based adaptation

Colls, A., Ash, N. and Ikkala, N., 2009, Ecosystem-based Adaptation: a natural response to climate change, Gland, Switzerland: IUCN. 16pp.
Available online at http://cmsdata.iucn.org/downloads/iucn_eba_brochure.pdf

Reid, H., 2014, Ecosystem- and community based adaptation: learning from natural resource management, IIED Briefing
Available online at http://pubs.iied.org/17243IIED

UNEP/UNDP/IUCN, 2014, Making the case for ecosystem-based adaptation: Building resilience to climate change, UNEP/UNDP/IUCN Partnership Policy Brief
Available online at http://ebaflagship.org/resources/publications/reports/335-eba-policy-brief

UNEP, 2012, Ecosystem-based adaptation guidance: Moving from principles to practice. Working document, UNEP.
Available online at http://www.unep.org/climatechange/adaptation/Portals/133/documents/Ecosystem-Based%20Adaptation/Decision%20Support%20Framework/EBA%20Guidance_WORKING%20DOCUMENT%2030032012.pdf

Box 14: Sources of further information on ecosystem-based adaptation

Why gender matters in climate change adaptation and disaster risk reduction

In the same way that the gendered differences in access to resources and assets affect vulnerability, it also means that men and women are not able to adapt to climate change and reduce disaster risk to the same degree. These resources and assets include land and natural resources, but also health, governance and political rights, social capital and networking, and financial and physical resources. This limited ability to adapt is exacerbated because women are usually excluded from decision-making processes and thus prevented from contributing their unique knowledge and experience to the struggle to adapt to a changing climate. True collective action is also curtailed because of women not having equivalent voices and decision-making rights, both within the family and within the community, relative to men.

However, sensitivity to gender would show that women are not just victims of adverse climate effects due to their vulnerability but that they can also be key active agents of adaptation. This is due to their often deep understanding of their immediate environment, their experience in managing natural resources (water, forests, biodiversity and soil) and their involvement in climate-sensitive work such as farming, forestry and fisheries. Furthermore, women typically form strong social networks within their communities which places them in the ideal position to organise collectively around the risks posed by climate change.

Box 15: Case study: Including women in adaptation processes in a gender-sensitive manner

Since 2004, Indigo Development & Change, a South African nongovernmental organisation, has facilitated climate change preparedness workshops every three months in the Suid Bokkeveld, a remote, semi-arid area in South Africa. Recognising that women are often disproportionately affected by climate change, the facilitators planned carefully to ensure spaces to allow both women and men full participation in the workshops. However, including women in a meaningful way was not easy. Women tend to provide the continuity in society; they stay at home to attend to children, and elderly and ill relatives. There may be livestock to attend to and food to prepare. For these reasons, only a few women attended the first workshop and several brought their children with them. The children's needs took the women's focus off the workshop content, as did their attention to catering. At the women's suggestion, the children were invited to engage in their own activities, run by two facilitators. The children enjoyed this and it has become a regular feature. Catering is now provided by community members not engaged in farming. Furthermore, because women tend to have limited access to their own transport, a bus collects all participants at convenient pick-up points, so everyone is equally mobile.

The workshops provide an invaluable opportunity to understand the perspectives of women farmers in the area. They create a space for joint learning and reflection in the community, where men and women can share their experiences, collect information from small-scale experiments and climate monitoring, and plan strategies in anticipation of climate variability. Men and women propose small adaptation projects on their farms at workshops as well. This is a great confidence booster for some women, who report back on successes and challenges encountered. The equal access of men and women to funding for adaptation projects is important and supports an approach that includes the entire community and draws on the strengths of its members.

These changes to the workshops have had several positive impacts:

- The children's workshops and catering provided allow both female and male farmers to focus on the workshop content while having their needs, such as food and child care, attended to.
- The workshops perform an important social function and provide a safe space for interaction and sharing among women, who are often isolated on their farms.

- Women who want to play a larger role and be involved in the farmers' co-operative have been able to establish themselves as voices of authority.
- Women can enjoy the process of building self-confidence and having their contributions taken seriously in an engaging and enthusiastic environment.

(source: Annecke and Koelle, 2011)

Box 15: Case study: Including women in adaptation processes in a gender-sensitive manner

Policy support on gender, climate change adaptation, and disaster risk reduction in Zambia

This section outlines the status of policies in Zambia relating to gender, climate change adaptation and disaster risk reduction. However, please bear in mind that the policy environment is constantly changing and thus information in this section may rapidly become dated.

Gender

Relatively speaking, Zambia appears to be lagging behind other southern Africa countries in the way it addresses gender issues (table 6). It is a signatory to the major international conventions, such as the Convention on the Elimination of Discrimination Against Women (CEDAW) and the Beijing Declaration (resulting from the Fourth World Conference on Women). Gender traditionally has not featured strongly in government planning documents (e.g. Poverty Reduction Strategy Papers), but it is included a cross-cutting issue in the revised ("people-centred development") Sixth National Development Plan (2013-16), which also discusses the need for mainstreaming gender in line with CEDAW commitments. Zambia's gender-related policies and laws are informed by the SADC Protocol on Gender and Development. According to the Gender Inequality Index of the UN Human Development Report 2013, in Zambia 11.5% of parliamentary seats are held by women, and 25.7% of adult women have reached a secondary or higher level of education compared to 44.2% of their male counterparts. For every 100,000 live births, 440 women die from pregnancy related causes; and the adolescent fertility rate is 138.5 births per 1000 live births. Female participation in the labour market is 73.2 percent compared to 85.6 for men.

Table 6: Zambia's position in a number of gender-related global indices

Year	*Index*	*Position*
2013	Gender Inequality Index in the HDR (UNDP)	136 out of 148
2012	Social Institutions and Gender Index (OECD)	58 out of 86
2011	Gender Inequality Index in the HDR (UNDP)	131 out of 146
2011	Global Gender Gap Report (OECD)	106 out of 135
2009	Social Institutions and Gender Index	85 out of 102

Gender parity has been achieved in primary education, but improvements are still lagging at the secondary level (with more boys completing than girls); and the revised Sixth National Development Plan (NDP) highlights the importance of gender-responsive primary health care. Some of the more straightforward examples of progress, such as increasing the representation of women in politics, for example, have not yet taken place in Zambia (where, for example, women only comprise 26% of people in politics, below the target suggested by the international conventions which Zambia has ratified).

Within the broader development vision and plan for Zambia, the policy context does exist to support gender-sensitivity. The National Gender Policy (2000) and Strategic Plan of Action (2004) are now housed in the Gender in Development Division (GIDD) in the Cabinet Office. Ministries have Gender Focal Persons to support gender mainstreaming in line policies, and a Gender Consultative Forum; provinces have a gender coordinating point, and districts have gender focal points (as mandated by the National Gender Policy).

An audit took place in 2012 to monitor progress from 2004-09 in achieving the policy aims, and is fairly critical of achievements to date (Government of the Republic of Zambia, 2012). In assessing the extent to which the government development goal of attaining gender equity and equality between males and females was being achieved, the report found that progress has been made with regard to securing women's access to resources (e.g. land) and capital, albeit from a low base. One particularly telling criterion concerns Gender-Based Violence (GBV). Whilst laws exist to prohibit this in Zambia[1], the existence of GBV is a sensitive indicator of the relative positions of men and women in society. Although the report mentions a decrease, the vast majority of gender organisations cite advocating against GBV as one of their main activities, and significant press coverage during the time of the field mission to Zambia (which, coincidentally, was during the global 16 days of activism against gender violence) showed that it is not uncommon for girls to grow up believing they deserve to be beaten. Macroeconomic and sectoral policies and programmes fared better, with many having been engendered (on paper, if not in implementation), although the institutional framework was deemed ineffective, impeded by poor capacity of staff in gender issues which, in turn, leads to inadequate monitoring of gender-disaggregated data.

Climate Change Adaptation

Zambia is a Party to the UNFCCC and, as such is mandated to produce regular National Communications. The latest one is the Second National Communication, released in 2014 (Government of the Republic of Zambia, 2014). These documents report on the inventory of greenhouse gas emissions and mitigation options (even though, as a non-Annex 1 country, Zambia currently has no emission reduction commitments under the Kyoto Protocol to the UNFCCC), as well as a vulnerability and adaptation assessments. As a Least Developed Country (LDC), Zambia has also produced a National Adaptation Programme of Action (NAPA) which highlights key climate risks and then identifies and prioritises adaptation actions (Republic of Zambia, 2007). These were as follows:

- Strengthening of early warning systems to improve services to preparedness and adaptation to climate change in all the sectors (agriculture, health, natural resource, and energy)
- Promotion of alternatives sources of livelihoods

[1] For example the Anti-Gender-Based Violence Act no 1 of 2011

- Adaptation of the Effects of Drought in the context of Climate Change in Agro-Ecological Region I of Zambia
- Management of critical habitats
- Promote natural regeneration of indigenous forests
- Adaptation of land use practices (crops, fish, and livestock) in light of climate change
- Maintenance and provision of water infrastructure to communities to reduce Human-Wildlife Conflict
- Eradication of Invasive Alien Species
- Capacity building for improved environmental health in rural areas
- Climate-proofing sanitation in urban areas

Recent decisions under the UNFCCC framework also require countries to produce Nationally Appropriate Mitigation Actions (NAMA) and National Adaptation Plans (NAP).

Climate change adaptation is addressed within the broad framework of climate change. The National Climate Change Policy and the National Climate Change Response Strategy have both been prepared for Zambia, but are waiting to pass through Cabinet before being official adopted. A National Climate Change Communication and Advocacy Strategy is already in existence (Government of the Republic of Zambia, 2011). Climate change is referred to as an important component in the agriculture, energy, water and training and education sectors within Zambia's revised Sixth National Development Plan 2013-16.

The Ministry of Finance and the Ministry of Lands, Natural Resources and Environmental Protection are both key ministries with regards to climate change. The Interim National Climate Change Secretariat (Zambia National Climate Change Secretariat) sits within the Ministry of Finance and has the role of coordination. It is also managing the second phase of the PPCR, which is taking place both in the Barotse sub-basin (funded by the World Bank) and the Kafue sub-basin (funded by the African Development Bank). It will also guide the evolution of the proposed National Climate Change Development Council, which will coordinate climate change activities in Zambia.

Zambia also has an active network of NGOs concerned with climate change issues – the Zambia Climate Change Network (ZCCN). There has also been a British Council-funded initiative to encourage climate change reporting in the Zambian media (www.climatechangezambia.org)

Disaster Risk Reduction

Disaster Risk Reduction has a long history in Zambia[2]. The Disaster Management and Mitigation Unit (DMMU) was established in 1994 to provide coordination on disaster relief, which had previously been spearheaded by the key sector ministries (Health, Agriculture, Energy and Water Development, and Community Development). The DMMU sits within the Office of the Vice-President, and is responsible for implementation. The National Disaster Management Committee (NDMC) – an inter-ministerial committee chaired by the Vice-President - is responsible for policy formulation, endorsement of national plans and regulations, recommending declarations of disasters and facilitating mobilisation of resources for disaster management activities. The NDMC is informed by

[2] This section is based upon Zambia's contribution to the United Nations Institute for Disaster Risk Reduction's inventory of disaster coordination mechanisms, legal frameworks and plans (UNISDR, 2011).

the National Disaster Management Technical Committee (NDMTC), which comprises Permanent Secretaries from relevant ministries as well as a number of non-state actors. As well as recommending national disaster policy to the NDMC, the NDMTC also coordinates and oversees the implementation of policies and national and sector disaster management plans by the DMMU.

National level structures are mirrored and complemented at provincial and district level. The Provincial Disaster Management Committee (PDMC) is a sub-committee of the Provincial Development Coordinating Committee, and includes all relevant stakeholders. The PDMC prepares the provincial disaster management plans, participates in risk and vulnerability assessments, mobilises resources for implementation of mitigation, prevention, preparedness and response activities, and acts as a communication channel between national and district government (including dissemination of early warning and promoting public awareness). At district level, the District Disaster Management Committee (DDMC) is a sub-committee of the District Development Coordinating Committee (DDCC), undertaking similar roles to the PDMC, but at district level.

The Disaster Management Act no 13 of 2010 is the key legislation relating to disaster risk reduction in Zambia. Despite the name, the Disaster Management Act is strongly risk reduction-focused, as opposed to emergency response. This Act performs six key functions:

(i) establish and provide for the maintenance and operation of a system for the anticipation, preparedness, prevention, coordination, mitigation and management of disaster situations and the organisation of relief and recovery from disasters
(ii) establish the National Disaster Management and Mitigation Unit and provide for its powers and functions;
(iii) provide for the declaration of disasters;
(iv) establish the National Disaster Relief Trust Fund;
(v) provide for the responsibilities and involvement of the members of the public in disaster management;
(vi) provide for matters connected with, or incidental to, the foregoing.
Of importance to local level, the Act also creates a legal basis for functions and powers of the disaster management structure at different levels of government, which was formerly absent. The Act is based on the new Disaster Management and Mitigation Policy.

The governance structures for disaster risk reduction are informed by information from various sources. The Zambia Vulnerability Assessment Committee is a multi-stakeholder body that produces annual forecasts of food security and acts as an input to the preparation of contingency plans. DMMU also cooperates closely with the Zambia Meteorological Department, and prepares contingency plans in the case of projected risks such as floods. A geo-server to manage and share spatial data has been setup and integrated within the Information Management platform.

Training tips: Planning the practical side of training courses

No matter how good the content of the training course is, badly thought-out practical aspects can completely sabotage it. On the other hand, if the practical arrangements have been well planned – the food is good, the accommodation pleasant, the travel arrangements smooth and the equipment works – participants and trainers will be in a good frame of mind to participate actively.

Think about your own good and bad experiences of practical aspects of training. Questions that may need to be resolved are timing, costs, administration and per diems for participants. Participants need to be informed about practical arrangements as soon as possible, in pre-course information or at the very beginning of the course.

As trainer, you may also be involved in the practical aspects of running a course. Things to think about include:

- accommodation: rooms, furniture, sleeping arrangements, child-minding
- administrative support before the course: booking venue, inviting participants, making travel arrangements, sending out information
- administrative support during the course: accounts, photocopying, stationery
- administrative support after the course: for example producing a course report, analysing the evaluation
- entertainment and recreation
- first aid (especially if there is a fieldwork component of your training)
- food and drink
- official recognition: officials to speak, certificates
- per diems for participants
- telecommunications
- transport

Training tips 6: Planning the practical side of training courses

6. Using Participatory Approaches for Conducting Gender-Sensitive Climate Risk Assessment (and other similar assessments)

This section outlines principles of participatory approaches, and then takes a step-by-step approach of guidance for preparation for using participatory approaches within communities. There are three main stages to the process. First is the need for preparation - of your objectives and the plan for fieldwork, as well as obtaining necessary permissions. Second is what to do in the field to manage your exercises and use of participatory tools. Third is how to manage data that you obtain in order to analyse and ensure it is effectively documented and disseminated in the hopes that it will bring about change.

Principles of participatory approaches

Participatory approaches have become very popular in development practice. However, there are different types or "grades" of participation which can be observed (or, in other words, when people talk about a "participatory approach" they may mean any of the following!) In *passive participation* people get told what is going to happen. *Participation for information-giving* is very common in research. Researchers involve people in order to get their opinion but often it is just to add weight to research findings (e.g. from models, etc.) – so it is more of a verification exercise. There is a book called "Participation-the new tyranny" which speaks about this. *Participation by consultation* is the same thing but less from a research perspective, and more from a project development perspective. Often a project has been 90% designed and then "consultation" occurs to endorse the approach – but the project itself might not be what would be prioritised if participation had been more active.

In GCRA we aim for *interactive participation* where men and women in the community participate in joint analysis, which leads to action plans and the formation of new local institutions or the

strengthening of existing ones. It tends to use interdisciplinary methodologies that seek multiple perspectives and make use of systematic and structured learning processes. They should be involved in problem diagnosis (i.e. the climate risk assessment), as well as the design, implementation and monitoring of any adaptation options. These groups take control over local decisions so people have a stake in maintaining structures or practices. Ultimately participation is intended to be an empowering exercise for the participants. The highest "grade" of participation is *self-mobilisation*, where people participate by taking initiatives independently of external institutions (although they may partner with them). If interactive participation is effective and empowering, it is hoped that communities will be able to self-mobilise in the future and not rely on facilitation by outsiders.

Participatory approaches require sound qualitative research skills, as outlined in section two. As well as being curious, good participatory facilitation requires the facilitator to have empathy for community members and their different viewpoints. These will reflect their backgrounds and the individual composition of their social identifiers, including age, gender, ethnic background, and religion. Ensuring active participation by all members of a community requires creativity and flexibility on the part of the facilitator. Tips on principles for participatory facilitation and good facilitation techniques are provided in a boxes 2, 16 and 19.

Box 16. Research Skills: Principles for participatory facilitation

(Jost *et al.*, 2014)

Behaviour and attitude

- Listen, learn and respect
- Be culturally and socially sensitive
- Be prepared to unlearn negative attitudes and stereotypes, personal cultural or gender bias
- Act as facilitator, not an expert

People are knowledgeable

- On subjects important to their livelihoods
- Certain individuals have unique and valuable perspectives, recognize specific knowledge possessed by men, women, youth

Co-learning

- Share knowledge, experience and analysis
- Combine local and professional knowledge for effective acceptable action

People are rational

- There is an insider's and an outsider's perception of behaviour
- Based on the information available, most people make rational decisions
- The appearance of irrational behaviour means that a misunderstanding may have occurred

Optimal knowledge/optimal ignorance

- There is a balance between the need for information and the need for timely decision-making

Action-orientated

- Be prepared to take action rather than just collect data

Box 16: Research Skills: Principles for participatory facilitation

Figure 20 outlines the recommended process for the GCRA. The following sections situate the GCRA within a more generic explanation of the process of conducting participatory approaches to risk assessment and community development, with the intention that this will also be transferable to other contexts.

Although the substantive part of a GCRA involves primary research using participatory tools in the community, there are other sources of information that can inform the process of risk assessment. Box 17 outlines selected sources of background information that may be useful.

Box 17. Selected sources of background information to use in your GCRA

This list is non-exhaustive, but ideas include:

National:

- Central Statistical Office of Zambia (including gender indicators, and demographic and health survey)
- Gender strategies from relevant line ministries (e.g. Ministry of Agriculture and Livestock, Ministry of Environment, Natural Resources and Tourism)
- Latest Zambia Vulnerability Assessment Committee report
- Weather forecasts (seasonal) and climate projections from the Zambia Meteorological Department
- National policy documents and implementation plans, particularly as relevant to your area of interest (e.g. Climate Change Policy)

Local government:

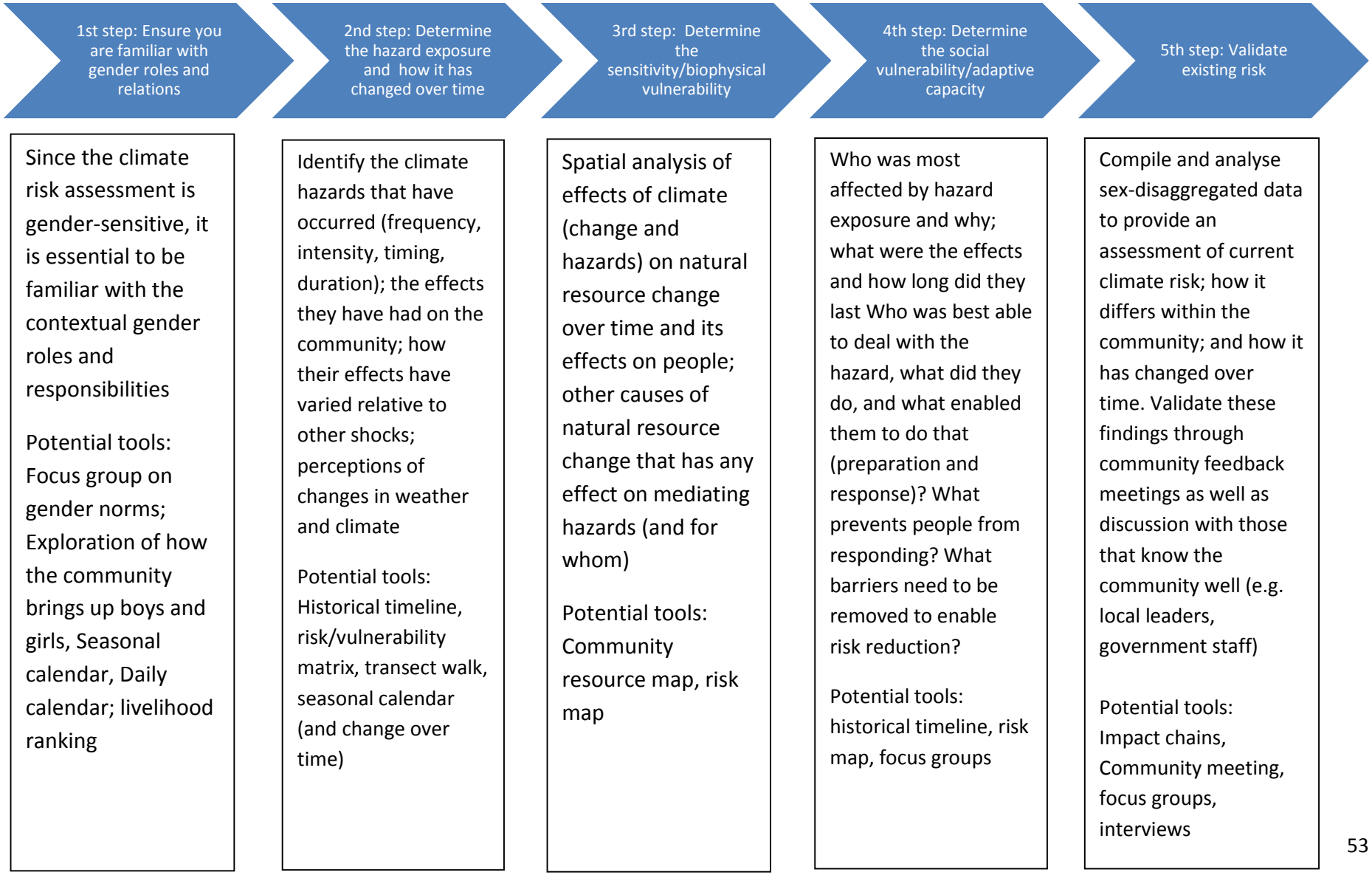
- District Development Plans (to see priority activities and whether they are gender-sensitive/if there are opportunities for gender transformation)

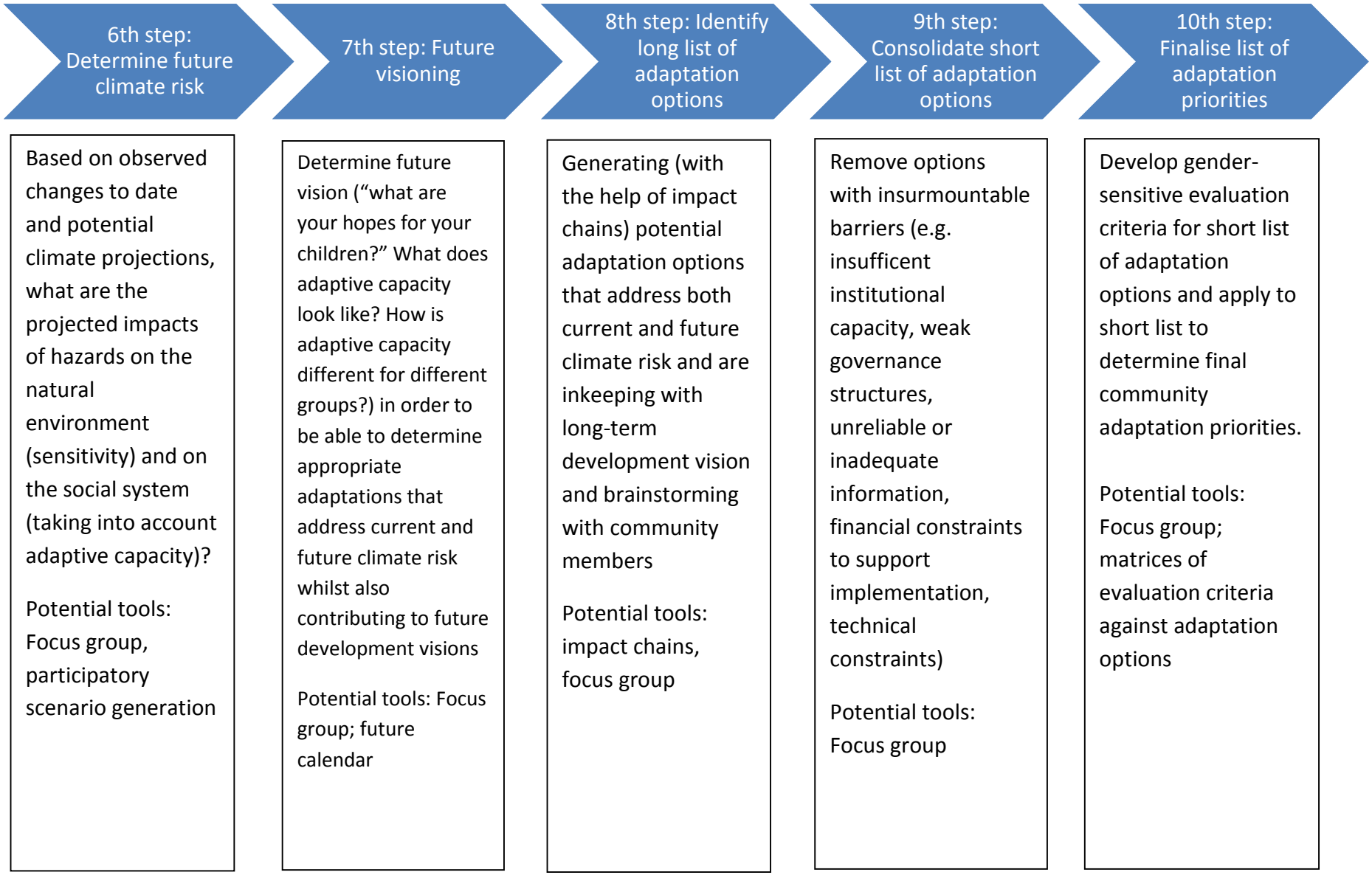
Community/individual:

- Reports from other NGOs/CBOs that work in the area – particularly if they have undertaken vulnerability assessments in order to target their interventions

Box 17: Selected sources of background information to use in your GCRA

Figure 20: Steps in Gender-sensitive Climate Risk Assessment (GCRA)




6th step: Determine future climate risk
Based on observed changes to date and potential climate projections, what are the projected impacts of hazards on the natural environment (sensitivity) and on the social system (taking into account adaptive capacity)?
Potential tools: Focus group, participatory scenario generation
7th step: Future visioning
Determine future vision ("what are your hopes for your children?" What does adaptive capacity look like? How is adaptive capacity different for different groups?) in order to be able to determine appropriate adaptations that address current and future climate risk whilst also contributing to future development visions
Potential tools: Focus group; future calendar
8th step: Identify long list of adaptation options
Generating (with the help of impact chains) potential adaptation options that address both current and future climate risk and are inkeeping with long-term development vision and brainstorming with community members
Potential tools: impact chains, focus group
9th step: Consolidate short list of adaptation options
Remove options with insurmountable barriers (e.g. insufficent institutional capacity, weak governance structures, unreliable or inadequate information, financial constraints to support implementation, technical constraints)
Potential tools: Focus group
10th step: Finalise list of adaptation priorities
Develop gender-sensitive evaluation criteria for short list of adaptation options and apply to short list to determine final community adaptation priorities.
Potential tools: Focus group; matrices of evaluation criteria against adaptation options

Before going into the community – plan and prepare

Determine and agree your objectives

The purpose of participatory methods with communities can vary. Our priority is a Gender-sensitive climate risk assessment that incorporates both current and projected levels of risk. Other related activities might involve a vulnerability assessment, or identification of community-based adaptation options. It is important that everyone is clear on the objectives (likely to be between two and four "overarching issues" that the team will investigate), as well as any research questions that fall under those objectives.

As an example, one of your objective might be "To understand how men and women use resources and how this has been affected by climate". Potential research questions that would enable you to meet this objective include:

- What is the level of dependence (both direct and indirect) on different resources and the importance of these resources for livelihoods? How does this differ between men and women?
- Are there other significant interactions with the different natural resources? How has this changed over time?
- What weather and climate hazards has the community experienced?
- How have men and women responded to weather events and what has affected their response?
- How has the natural environment changed over time? What is the relative effect of climate variables compared to other drivers of change? What effect has this had on the nature of livelihood activities of men and women?

Once the objectives and research questions are clear, you should identify what data you need to answer those questions. Only at that point should you consider what methods and tools you might want to use to gather that data. It is important to remember that participatory tools are just that – they are available to be used if they are useful to you, or ignored if they are not. **Your participatory approach should NOT be tool-driven.**

Assemble the team

Having determined the questions, data needs, and appropriate tools and data collection methods, it is important to assemble the team who will be involved in the assessment. The range of skills and expertise required is broad and, of course, it is not necessary that all the people on the team need to have all of these skills. Furthermore, if it is not possible to source all the skills from within your organisation, it is possible to supplement the team with external consultants. The range of skills that are useful for qualitative research includes:

- Research skills – for background research (e.g. literature review, key informants interviews at national level, etc.)
- Knowledge of climate change – to analyse and summarize available climate information
- Policy and institutional analysis – to analyse the enabling environment
- Sector specific expertise – in agriculture, water, food and nutrition security, and other relevant sectors

- Gender and diversity – to ensure gender and diversity-sensitive facilitation and to analyse differential vulnerability and conduct gender analysis
- Facilitation of participatory processes – to animate and balance the participation of everyone in the group, keep the group on track and to construct an environment of trust and openness
- Conflict management – to help the group understand diverse perspectives and opinions, and to come to conclusions and/or consensus
- Qualitative interviewing –to listen actively and probe to push for deeper reflection/additional information
- Analytical skills – to ensure that information collected is effectively analysed and thus of optimal use
- Appropriate language skills as communities may not speak the language of the staff
- Writing skills – to present a convincing, clear and robust argument to various audiences for incorporating adaptation strategies within projects or as new activities

The above are the skills needed by the team of facilitators. Other key team members include other local stakeholders (e.g. community leaders, CSOs, etc.) to allow easier access to the community.

Ensure the team is fully briefed and trained

Ensure that ALL members of the facilitation team are fully briefed on the purpose of the research i.e. they understand the questions, data requirements, and intended tools that will be used. The size of the facilitation team may vary: ensure that everyone is assigned a particular role (e.g. facilitator, co-facilitator, public note-taker, discreet note-taker recording behavioural observations, etc.). Wherever possible, having women facilitators working with women's groups is highly preferable. Practising the application of the qualitative research tools and field testing in advance is necessary to ensure questions are well understood, the tool is not too long, etc.

Gather background information before going to the field. Be aware of community or group history, past or present conflicts and power dynamics which may be important in selecting groups or in facilitating dialogue. Find out about literacy levels in advance so as to plan exercises (and the materials required) accordingly. Find out about community "traditions"/ ways of doing things and try and fit into these as much as possible (e.g. closing with a local chant/song). Consider the agricultural calendar and the daily activity schedules of the men and women with whom you will be working. Team members should also establish a "communication plan" – for example if a note-taker observes that additional probing is required on a particular topic, (s)he could discreetly pass a note to the facilitator (Awuor, *no date*).

Training tips: Monitoring and evaluating a training course

Monitoring is what you do as the course as it goes along, while evaluating takes place it at the end and sometime later, and shows whether the course has achieved its overall aim and provides information for future developments and improvements.

What can be evaluated?
The training plan - questions about

- Learners: were they appropriate? Did they have the right qualifications? Were there the right numbers?
- Objectives: were they appropriate? Did they specify knowledge, attitudes and skills in enough detail? Were they appropriate to the time available?
- Timetable: did it give a framework in which the learning objectives could be achieved? Was the balance of time between different topics suitable?
- Methods: were they appropriate for the learning objectives? Was there enough variety? Were the trainers capable of using the methods specified?
- Were there enough resources to make the methods possible?

The training process

- Effectiveness: Did the teaching achieve the objectives? Did the content actually provide the knowledge and skills to lead to the objectives?
- Efficiency: Did the course achieve the objectives in the best manner? Was the time allowed for each part sufficient? Were the teaching methods appropriate? Was the level of detail appropriate?
- Acceptability: were there any attitudinal aspects in trainers or learners that impeded or helped the achievement of the objectives?

The product

- How has the training influenced the professional practice of the participants?
- Have Action Plans been implemented?
- What additional training/support do participants need?
-

Data can be collected from the trainers themselves, participants and outsiders and can be collected at different stages in the training - mid-training, at the end of the training, continuously and/ or after the training

There are many different ways in which data can be collected:

- observation by the trainer
- observation by another trainer
- questionnaire for participants to complete
- participant discussions independent from the trainer with feedback
- participant discussion with trainer
- individual discussion participant-trainer
- staff meetings
- follow-up workshops/meetings/visits

Training tips 7: Monitoring and evaluating a training course

Get the support of community leaders

It is essential to gain the permission of appropriate leaders to work in the community. Introductions may be made by local government officials, or NGO or CSO representatives. It is also useful to hold a community meeting which brings together all stakeholders to allow the facilitators to explain the purpose of the research and to allow community leaders to express their endorsement for

participation by the community members (this may not be necessary if you/your organisation is already well established within the community). Community leaders can designate locations for the exercises to take place – but consult more widely to ensure that they are appropriate for all (male leaders, for example, may not be sensitive to women's priorities) (Awuor, *no date*).

Visit the community beforehand to lay the groundwork

Even if you have the necessary permission from the appropriate leaders in the community it is also important to get the buy-in of the whole community. Before starting the qualitative research it would be advantageous to facilitate an introductory session (where a trusted community member or local representative introduces the team, and facilitates community members /or key representatives to introduce themselves). Take the community through the purpose of the exercises, objectives, tools and methods to be used, duration, expected outcomes, benefits to the communities, how (if at all) the research and its outcomes links with previous ones and contributes to the big picture, etc.

Be aware of, and manage, participants' expectations. Many communities are beginning to suffer from "research fatigue". Be prepared for questions about payment for taking part in the research and what is going to be done with the research/ commitments to the community, and the way forward.

Consult community members and, where possible, facilitate them to develop ground rules, decide on types of focus groups, venues for discussions and select members to participate (members should be sufficiently representative of the different livelihood, gender, wealth, etc. groups). If enough facilitators are available, it is critical to have concurrent sessions in the same community to allow participants in different groups (e.g. separated by sex) to speak freely without being concerned about being heard by other groups. Facilitate agreement on how results of the focus group discussions will be communicated to other groups and to the wider community and who will take the lead on this (Awuor, *no date*).

Selecting individuals for participation

In your steps of planning the qualitative research you will have identified the people from whom you want to collect data (e.g. men and women). In reality, however, it is often key decision-makers within a community who will designate which people within those categories will participate. This can be problematic as the poorest and most vulnerable members of the community are typically disenfranchised from local governance (including village chiefs), and thus if left to the key decision-makers, their voices may not be heard. This serves to reinforce existing power relations – whereby the most powerful retain the power, and the powerless are excluded.

In order to rectify this situation, it is useful to conduct a preliminary exercise within the community to identify participants that are truly representative of all levels of power. This exercise can take place at the same time as getting support from community leaders and laying the groundwork with the community meeting.

Ensuring rigour in qualitative research

Following on from the introduction to qualitative research in section two, it is worth noting that some steps should be followed to ensure that the research process is rigorous. In particular, since

we are looking often at the unusual and relying on people's voices, it is worth employing a process of triangulation. As the name suggests, triangulation involves looking at the same question from more than one viewpoint. To ensure that the data we are obtaining from qualitative research is robust, we can triangulate in many ways: between researchers, methods, and times (day, week and season). Triangulating between researchers involves getting more than one researcher to conduct the same research /ask the same questions. Both researchers can therefore compare their responses, and assess their own subjectivity and bias, in order to cross-check whether their findings are similar. Triangulating times is also an opportunity within the qualitative research process, which should take place over several weeks to months. Due to various commitments (for example the seasonal agriculture calendar), there are times of the year when certain sub-sections of the population may be too busy to participate in the process. This even exists on a daily scale: it is important to schedule exercises at various times of the day, reflecting the intended participants, in order to accommodate their availability.

Plan the agenda and calendar

Based on the incorporation of triangulation into your implementation plan, you will be ready to prepare the agenda for the community visits – which will also need to be shared with the decision-makers who are arranging for the participants to come together at the right times for each research exercise. The agenda should ensure that participants are able to move at their own pace, but that the required ground will be covered in the available time. Facilitators should be briefed on the need to be flexible with timing: on the one hand, keep in mind that community members are very busy and thus do not draw research exercises out unnecessarily but, on the other hand, do allow time for clarification, questions and answers, discussion and "learning moments". Also plan time for any issues of protocol, for example a formal welcome by a community leader, is a prayer before the proceedings start appropriate, etc. In-keeping with the need for flexibility, bear in mind there is the opportunity to add additional exercises and/or key informant interviews (at community/local government or even national level) to corroborate findings, if required (Awuor, *no date*).

Plan the exercises

Wherever possible, and if relevant, divide men and women into separate groups – women are much more likely to contribute when there are no men around (just one man, even if he is required to stay quiet, will influence the dynamics of a women's group). This will also make the job of the facilitator much easier. Being gender-sensitive may also mean choosing a location for the exercise that suits the participants: for example, women may prefer to be near their homes if they are looking after children; or in their fields if they are tending crops. Ideally, when working with a women's group, all the researchers should also be women. It is much better to do this division between the sexes before the start of the exercise i.e. the two groups go to different venues and listen to different introductions. If you have divided the group into sub-groups then make sure that the groups are far enough away from each other so as to not distract each other. Note that dividing men and women into different groups is not sufficient to truly probe gender differences – you should ask both groups about what men do and what women do (depending on the question), as cross-referencing at the end will further illuminate power dimensions and the way in which they play out in perceptions of the different sexes.

Ensure that the team is well prepared BEFORE community participants arrive at the chosen venue. This includes setting the venue up to be conducive to dialogue (ideally have participants sitting in a semi-circle so that everyone can see each other). Be aware of the significance of particular colours/logos on clothing (e.g. if you wear a particular colour might you be seen to be associated with a particular political party?) and jewellery. Also consider the appropriateness of using different technologies – equipment such as iPads or sophisticated mobile phones not only reinforce the difference between the facilitators and the community, but can also be very distracting. Consider language issues and the possible need for translation of the questions and to have researchers who speak the local language/ dialect.

Agree with co-facilitators on how concepts such as hazards, livelihood resources, etc. will be described in local languages. Note that the concept of climate change may be difficult to explain. Community members may be more comfortable talking about seasons, weather, the environment, etc. Also, jointly develop guiding questions that will be used in facilitating the different participatory exercises (Awuor, *no date*).

It is vital that, before starting on any of the tools detailed in the next section, that **you gain the consent of the participants**. It is not enough that the community leader granted permission or that the community as a whole agreed to the research taking place in their village. It needs to be clearly explained to all the participants that, despite the above, they have the right (at any time) to withdraw from research. The anonymity of their inputs must also be stressed (i.e. no one will ever be mentioned by name).

If it is appropriate, make sure you have refreshments available for your participants.

Ensure you have the materials you need

These may include:

- Flipchart paper
- Thick-tipped markers in a variety of colours
- Coloured paper
- Masking tape
- Local materials such as stones, sticks, seeds, etc.
- Recording device (permission should be obtained to use this)
- Camera to document the process (ensure that this is culturally appropriate and that permission should be obtained to photograph people and their property)
- Notebook and clipboard
- Snacks/lunch/water (depending on how much time the meeting will take, and where it will take place)

BOX 18. Summary: Plan carefully before going into the field

- Assign roles and responsibilities in advance (e.g. facilitator; "public" note-taker; time-keeper; "private" observation note-taker. A "public" note-taker is one that the community sees taking notes while the "private" note-taker should be more circumspect). Some roles can be combined.
- Request relevant permissions
- If possible, spend some time in the community beforehand to introduce yourself and your project. Take time to gain the community's trust.
- Get as much background information on the community you are visiting as possible.
- Be aware of, and prepared for, any conflict in the community, and be sure to enable participation of disempowered members. No community is homogeneous!
- Decide on group participants and the exercises in advance (but be prepared to be flexible!)

(Source: CARE, 2009)

Box 18: Summary: Plan carefully before going into the field

How you ask the questions is important. Remember what we have already covered about the subjectivity of research. No research is neutral or unbiased – be aware of your role and how your presence and your facilitation of the research process will influence the results. Acknowledge your own bias**.** Also be prepared to think about several different ways you can ask the same question.

Using participatory tools in communities

"How to" guidance on the use of key participatory tools is provided in Appendix A.

Introductions

Although all members of the research team should have been introduced at the community meeting, it is critical to take the time to do proper introductions at the beginning of each research exercise, particularly at the start of the process, or if some time has elapsed since the last exercise. If participants are sitting on the floor it is likely better for facilitators to remain seated too, to avoid the impression of "us" and "them" – although if you are in a classroom setting it may be important to stand at the front of the classroom to be heard.

Facilitation manner

It is essential to be polite and respectful but, at the same time, you need to show the community that you know what you are doing and are confident in running the exercise – take charge (but in a polite and respectful way!) If you think it is necessary, facilitate a discussion with the community group members to decide on "group rules" e.g. no cell phones, only one person at a time is allowed to talk. Spend some time putting community members at ease – ask conversational questions. Be prepared to use personal details of your own life (where are you from/ are you married/ how many children do you have? etc.) If your team is quite large, get the note-takers, etc. to integrate themselves into the audience/ community when undertaking the exercise – do not all sit together in front of the community as this can be very intimidating. Having team members integrated can also be useful as they can observe/hear any disagreement or conflicts arising between participants.

Presenting the tool that you will be using

Whilst an overview of the research exercise or tool (and time needed) is important, keep this overview simple. Do not try and explain in detail too many steps at one time.

During the exercise

Facilitation requires a balance between letting the participants direct the discussion whilst keeping to the objectives. In particular, participants should be encouraged to actively participate.

Do not use leading questions e.g. if your research question is to find out how important natural resources are, then do not ask "How important is firewood/ fish/ mangroves to you?" That immediately assumes those resources are important and people may tell you what they think you want to hear. Rather phrase your question "What do you use to cook/ eat/ build your home"?, etc. But it is possible to direct answers – use probing questions. Avoid jargon words e.g. "natural resources", "sustainability", "infrastructure", "institution", "Venn diagram". Remember that the research question is for YOUR use. Consider the data you need in order to answer this question and then use more understandable questions with the community. Turn the questioning into a conversation. Be flexible! It is important to have a plan but it is equally important to be flexible enough to "think on your feet" and change your plan/ way of doing things during the exercise if what you had planned is not working. Possibly plan two facilitators right from the start – one who facilitates and the other who is ready to take over with a new plan (which has been devised while the other facilitator is involved with the group) if necessary with minimum disruption.

It is also important to prevent some individuals from dominating the group/ intimidating the others into silence. You could use the technique of only the person holding a particular object (e.g. a stick) is allowed to talk. Consider giving members of the group who are not happy with the process the opportunity to leave. Research at community is concerned with finding a consensus for the answers to your questions – e.g. rather than asking individuals what they do, find out what the majority of people do (and remember to distinguish between men and women). Remember you are GATHERING information during this stage of the research process – this is not the time to start categorising (beyond the simple priority listing, etc.) e.g. when identifying institutions, it is not necessary to ask the community to categorise into "formal" or "informal". All members of the research team must be engaged/ look interested in the exercise at all times – you can't expect community members to be interested if you are not.

Make sure you leave enough time at the end of each research session to allow for feedback and questions from the community members. Even "informal" conversation at the end of the session can lead to the gathering of important information.

Box 19. Research Skills: Facilitation skills for participatory processes

(Awuor, *no date*; Jost, *et al.*, 2014)

Get consent

Ethically and practically, it is essential to get consent from your focus group participants as well as the community leaders or "gatekeepers". This may mean writing a letter, sending invitations, calling or having a meeting with the village heads and community members. In some cases, women may need permission from others before participating in research activities, making consent an essential part of ensuring their participation. In this case, communities know they are participating and have agreed to do so, so although it will be necessary to get permission for the exercises (as a matter of manners), the process should not be as long as it might be when you work in new communities.

During the participatory process, ask permission to take photographs or video, and refrain if participants are uncomfortable with it.

Clarify objectives and manage expectations

Always communicate the session's goals or purposes. This helps participants focus their ideas and encourages everyone to work towards accomplishing the same goal and goes some way to managing participants expectations.

Be mindful of time, space and season

When working with women or social groups who already juggle multiple responsibilities at home, on the farm and in the community, the facilitators should take care to respect time. Choose a time and meeting space that is accessible to your group. Sometimes this means choosing public spaces so as not to raise suspicion. Sometimes this means picking a time when participants are least busy. Be aware of seasonal time constraints too! Farmers are likely to be busiest at the beginning and end of the growing season(s), compared to after a harvest. Similarly daily work patterns may mean they work early in the morning and late afternoon, so planning activities then may not be appropriate.

Address power

When arranging a focus group, be aware of the power dynamics you communicate. Are the facilitators at the head of the room like in a classroom? Are the facilitators standing above the participants? In most cases, it is best to arrange seats in a circle so that conversation can flow in multiple directions and lecturing is avoided. According to certain cultural norms, village outsiders may be given a special seat or designation. Try to avoid this and always sit at the level of your participants, without letting technology or other objects indicating a higher status distract or intimidate people. This may also extend to dressing in socially appropriate clothes.

Have open verbal and body language

Research teams should be aware of their own verbal and body language during sessions. The facilitators should prioritize eye-contact and engaging with participants. Designate multiple note takers to coordinate notes if possible to avoid interrupting the flow of conversation. Make sure to speak in non-scientific terms or jargon. If working with a co-facilitator, you may choose to remind one another of these tips throughout the session.

Enjoy silence

For many researchers, silence during sessions can seem terrifying. Being silent in most cases can give participants the time and space to process and formulate ideas. Overcompensating for silence by speaking a lot may also have the opposite effect on your participants-discouraging

them from speaking up and relying on you for direction. It also means they do not have time to think about the questions, and thus may not give you considered responses.

Manage conflict creatively
There are many ways to manage conflict within focus groups without escalating tension. For example, if there is a very active or despondent community member, rather than stop a session to address their disruptive behaviour, a co-facilitator can pull them aside while the main session continues.

Encourage participation of marginalised voices
Facilitators must be able to step back and allow participants to drive discussion. This may mean supporting participants who are timid (particularly marginalized members of a community) and asking those who are more vocal to step back. If engaging in a participatory activity, allow the participants to work out details on their own. Facilitators must also learn how to keep discussions on track, while encouraging reflection and space for unintended information.

Be creative when using methods. Find ways to allow community members to drive the process e.g. through drawings rather than words as much as possible. Facilitate them using pictures, drawings, a flannel board, puppets and so on. Facilitate writing and/or drawing on poster-size sheets of paper. Special attention should to be paid to women's as well as men's roles and work.

Finish gracefully
It is important to finish focus groups logically and smoothly. Make sure to explain your next steps, schedule return visits, and thank the group for their participation. Always allow for more questions after the end of the session. Consider leaving copies or originals of the products of your focus group (maps, charts, pictures) as an appropriate way of wrapping up.

Box 19: Research Skills: Facilitation skills for participatory processes

Wrapping up

Make sure you have left enough time at the end of the research session to allow people to discuss what you have done/ ask questions/ make comments/ etc. Inform community members of the next steps BUT… be careful about speculating what the government/ donor/CSOs or your own organisation may or may not do with your research findings – community members may see this as a promise.

Box 20. Research Skill: Taking notes

When undertaking research amongst vulnerable people it is sometimes not possible, or recommended, to record people's responses electronically (audio or video). Being able to take good notes is therefore a vital research skill – the usefulness and completeness of the final research report will be directly related to the quality of the notes taken.

When undertaking qualitative research, there are many sources of information - people talking (and more than one person at time will often be talking); drawn information (e.g. hazard maps) and people's body language. It is therefore advisable, wherever possible, to **have more than one note-taker** in a group.

Tips on taking good notes:

- **prepare your page for writing notes on beforehand**. Leave a blank column on the one side of the page. This will provide space for notes, probing questions to ask and for further information to be added to the notes at a later date
- make sure **you have all you need for taking notes** - have lots of spare pens easily available and remember that a hard writing surface such as a clipboard is much easier to write on than your lap!
- you **cannot afford to be distracted** while taking notes so make sure your mobile phone is switched completely off
- remember that as the note taker, you may not be the person who also writes up the final report. That person may have piles of fieldwork notes to go through. Therefore, always put your **name** of the top of your notes so that others using your notes know who they should consult in case of queries. Also include **details of the fieldwork** (Date? What? Who? Where? Etc.). Even better would be to put all of this information (at least in abbreviated form) on the top of each page, in case your pages become separated. **Numbering your pages** is useful for the same reason.
- make **consistent use of abbreviations**. And include a "key" of what your abbreviations mean.
- **review** the notes immediately after the interview or discussion so you can complement them while the discussion is still fresh in your mind. Don't wait to do that after having conducting more fieldwork. This needs to be considered when planning the time for the field work. If you are working in a team, you should debrief with other team members because – since everyone sees things in different ways – they may be able to raise additional questions which can be covered in subsequent exercises.
- NEVER discard any notes you have taken. Even rough notes which have been transcribed should be kept as you may need to refer back to them at a later date.

Box 20: Research Skills: Taking Notes

There are two major, related, methods of qualitative data collection – interviews and focus group discussions.

Key Informant Interviews - Individual

Interviews can take place with individuals or with groups (typically known as focus groups – see below). They can also be structured, using pre-defined questions (also known as an oral survey); semi-structured, where the interviewer has pre-determined themes to explore, but the order and way in which they are explored is flexible and can respond to what arises; and also open-ended, where the interviewer has very few pre-defined goals for the interview.

As alluded to above, interviewing is hard work for the interviewer. This is particularly the case for semi-structured and open-ended interviews, where the interviewer must listen to every response and be ready to change tack and explore any new issues arising. It is also necessary to be aware of your own bias – the way you see and frame the questions reflects your own worldview; and it is important to be open to the fact that your interviewee may not see things the same way.

Interviews – Group (also known as Focus Group Discussions (FGD)

Focus groups usually involve 5 – 12 people selected to be representative of different livelihood systems and/or vulnerable groups in the community. A single focus group can include people selected by age and gender (e.g. teenage girls, or elderly women, or young married men), or by some other common characteristic (e.g. people with chronic illnesses, or members of farmer associations). They are used to explore various themes on which data is required to answer the objectives of the research.

Focus group in Limpopo Province, South Africa (K. Vincent, 2004)

Box 21. Research Skill: Active Listening

Interviewing is an essential qualitative research skill but it is not just a matter of asking people a list of pre-determined questions which implies that we (the researchers) have already decided what is important. We do qualitative research to give people themselves a voice and empower them. So, in order to do this we need to give people the opportunity to come up with questions themselves/ identify their own issues/ set their own agenda - and we do this by listening.

Active Listening Techniques

1. **Pay attention**
   Give the person you are interviewing your undivided attention - look at them directly and put aside distracting thoughts. Do not be constantly trying to think of what your next question will be. Avoid being distracted by things such as side conversations happening around you.

2. **Minimal encouragements**
   These are sounds made to let someone know you are really listening to them. Examples of these sounds include "Oh?", "Uh-huh", "When?" and "Really?" They are questions, comments or sounds that do not interfere with the flow of the conversation but they do let the person being interviewed know that you are listening and are interested. They help build a relationship and encourage the person being interviewed to keep talking.

3. **Use body language**
   Encouraging actions may include nodding, raising your eyebrows to express surprise, smiling, frowning to express concern, etc. Also be aware of your posture and the way you are standing – make sure you look open and inviting (for example, do not fold your arms or slouch). You should also take note of the interviewees body language – if they appear to be uncomfortable with a line of questioning then consider moving on to something else or finding another way of getting the same information.

4. **Paraphrasing**
   A summary in your own words of what you have been told shows that you have been listening, creates empathy and builds a relationship because it proves to the person being interviewed that they have been heard and understood. Usually, paraphrasing begins with the words, "Are you telling me…", "What I am hearing is…" or "Are you saying…" Paraphrasing also clarifies content ("What do you mean

when you say…?"), highlights issues ("Is this what you mean?") and promotes "give and take" between you and the person being interviewed. [And, as an added bonus, it also helps the person taking notes!]

5. **Mirroring (or Reflecting)**
   This is the technique of repeating the last word or phrase and putting a question mark after it. This provides very exact responses because you are using the interviewee's exact words. Reflecting or mirroring asks for more input without guiding the direction of the interviewee's thoughts and produces information when you may not have enough details to ask a valid or relevant question. It is useful when you are at a loss for words and it provides a change for the interviewee to think about what you have said.

6. **Open-Ended Questions**
   The main use of open-ended questions is to help a person being interviewed start talking. Asking open-ended questions encourages the person to say more without actually directing the conversation. They are questions which cannot be answered with a single word such as "yes" or "no". Open-ended questions get information for you with fewer questions and are those that usually begin with "how", "what", "when" and "where". Note that you should limit the number of "why" questions you ask/ do not ask them directly as they tend to pass judgement and steer the conversation towards blame.

   Close-ended questions give a feeling of interrogation that makes relationship building difficult. They will also mean you have to work even harder to try and think of new questions and if you are constantly having to think of new questions then you cannot listen properly

7. **Effective Pauses**
   Silences can be very effective on a number of levels. Most people are not comfortable with silence and will fill it with talk. It is to your advantage to keep the person you are interviewing talking. Silences can also be used to emphasis a point. You can use silence just before or just after saying something important.

8. **Do not interrupt**
   Interrupting frustrates the speaker and limits full understanding of what they are saying. Allow the person being interviewed to finish each point before asking further questions.

Box 21: Research skill: Active listening

What to do with data collected from participatory methods

Recording findings

As outlined in section two above, qualitative data generates lots of data (normally in the form of words and images). Considering how to record this data from the exercises is therefore important at the preparation phase. There are several options, each with their own pros and cons (and different material requirements):

- Tape recording (must get permission) and later transcribing
  - Advantage: allows you to concentrate on what's being said
  - Disadvantage: may be intimidating to interviewee(s)
- Notes (difficult to do at the same time as formulating questions)
  - Advantage: less intrusive
  - Disadvantage: hard to be comprehensive

A combination of the two approaches is also possible.

It is also important to remember that you should not only record what you are told: observations are just as important. If you have designated observer note-takers in your team, it will be their responsibility to record behaviour. Take, for example, the case of a group of men and women that is asked whether there are gender differences in their community. What they say (or what the most vocal members of the group might say) may be no – but if there is pausing and awkwardness before the answer, that needs to be recorded as it provides a valuable context in which the words may be evaluated.

Since on-going analysis is essential in qualitative research, it is also recommended to keep a fieldwork notebook. This can be used to record non-verbal communication, such as the example listed above, but also to chart examples of reflexivity – where an issue arises and an adaptation is made to the methodology. It can also be used to jot down thoughts which occur to you during the process, or to make a note of things to follow up on at a later date (see box 22). A suggested format for data management is provided in Appendix B.

Box 22. Excerpts of a fieldwork diary

On interview with HHH 43
"the girl from the neighbouring household did a lot of filling in with dates when they were asked for"

An issue came up with whether or not you count chickens if someone else tends them and they are not at the property – I decided yes because they are still assets owned by the household and they could sell them if they got the chance.

Box 22: Excerpts of a fieldwork diary

Transcribing your data

A critical component of the qualitative research process is to transcribe your data, ideally to type up the notes recorded in the fieldwork. This should be done as soon as possible after the fieldwork, whilst the experience is still fresh in your mind, and you can elaborate on your notes and add in any observations you might have made (reluctance to discuss certain issues, points where certain members of the group tried to dominate, etc.). Each research session will generate a lot of data, so another reason for transcribing as you go along is to make the task more manageable! 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)
Date and time: (e.g. Monday 8th July, morning)
Research exercise: (e.g. seasonal calendar, focus group probing change in livelihoods over time)
Participants: (e.g. 8 women of mixed ages; 8 older men)
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)

When you write up your notes, they need to become a clear and self-explanatory record of the research. 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….", because the purpose of group discussions (as is the case with most qualitative research tools, except individual interviews) is to look at collective thoughts and understandings. That said – you should record how each point was arrived at (e.g. "everyone immediately agreed that the flood had been the most critical weather event in the village" or "some participants mentioned the locust invasion, but the majority said the flood, and after discussion about the relative impacts the group seemed to agree that the flood had been the most important").

Bear in mind that not all data from qualitative research can be easily transferred to word format. A Venn Diagram of social institutions, for example, loses all the essential information (regarding the size and relative importance of each institution, and the relationship between different institutions, as well as whether they are based inside or outside the village) if it is reduced to a list of institutions. Photographs of the products of any qualitative research (e.g. flipcharts or the low-technology alternative, using local materials) can be used to supplement your write up. But it is possible to also summarise these findings in words, e.g. "major institutions within the village include the chief, local office of the Red Cross, and the police (which is linked with the chief). Less important are the women's credit society and the men's club, neither of which are linked to other institutions. Outside the village, the extension officer and district health worker play small roles".

Box 23 shows two examples of notes from previous use of a participatory methodology – CARE's Climate Vulnerability and Capacity Analysis in Lamu, Kenya - and their strengths and weaknesses.

Box 23. Example of qualitative research notes – strengths and weaknesses

Focus groups were used to probe how livelihoods have been affected by both climate-related and non-climate-related events over time

Example 1:
WEATHER EVENTS

- Planting of maize starts with the onset of long rains in the month of May with harvesting in the month of August through September. Some years back onset of rains was April.
- Planting of Sim Sim starts with the onset of short rains in the month of September with harvesting through the month of December.
- Rainfall distribution and intensity in the last two years has been quite erratic resulting in poor crop performance and famine.
- Water shortage for this village that wholly depends on rain water harvesting has lasted for as long as rainfall intensities have decreased. The community traced the event to have started occurring after any El-Nino rains. They gave the example of the 1963 rains and 97/98 rains.
- Flooding is associated with El Nino rains in this part of Lamu. High siltation as a result of run offs into the sea affected ecosystems such as mangroves, sea grass and corals. Farms however, were not affected by flooding as the soils could allow faster seepage of surface water. The rains impacted positively on the uptake and faster growth with minimum attention from the farmer.

- Rising sea temperatures impacting on ecosystem services

NON WEATHER EVENTS

- Shifta war caused the great immigration of people from northern Lamu – Ishakani, Kiunnga , Rubu and Mwambore to Pate island
- Al-shabab (since the government closed the border and minimized the interaction at sea with Somalia no fish is imported into Lamu as has been the case. Some members of the group likened the Alshabab continued conflict with Kenya Defense forces with good tidings on their lives as it resulted in better fish prices from their catches.

Critique of Example 1.

Example 1 is a reasonable summary of notes from the discussion – it is clear to see which weather events have affected livelihoods, and which non-weather events have affected livelihoods. The transcriber has made an effort to explain the notes (s)he took so that they are clear to others reading them. What is not clear is WHO in the community has been affected by all these changes – as they will not have all been affected in the same way. None of the basic information is given regarding participants in this exercise, date etc.

EXAMPLE 2:

- Seasonality - Kusi and Kaskazi - business, fishing
- Rainfall changes - sporadic and low
- Cutting of trees - today many trees and cut - increased in charcoal burning, (in the past - things were better - it's more cold now, Kusi has passed and there was no rain - times have really changed)
- Fish catch - decline, no adoption of fishing by the younger generation, restriction of fishing areas, no help for fisherfolk - little assistance, even in the sea there has been decline),
- destructive or unsustainable fishing
- Middle men make more profit from fishing
- Waste disposal - a problem in lamu
- Al Shabab and uncertainty - lack of peace – terrorism
- Politics & election
- Diseases outbreak - cholera,
- Insecurity
- Lamu harbour - employment, fishing and mangroves, infrastructure development
- Oil exploration - employment, social ills or erosion of the social fabric

Critique of example2:

This person has also captured what was obviously a wide-ranging discussion on both climate and non-climate-related hazards affecting livelihoods, but their transcription is poor – it looks as though they have literally just typed up their handwritten notes. To those of us who weren't there, this is too superficial and does not adequately capture the discussion. For example "politics and election" and "insecurity" are not even described in terms of the effects they had on livelihoods. As with example 1, there is also no information on WHO was affected by these various hazards. None of the basic information is given regarding participants in this exercise, date etc.

*Box 23: Example of qualitative research n*otes – strengths and weaknesses

Analysing the data

Analysing the data from qualitative research is an ongoing process that needs to take place throughout the duration of the research, as opposed to only at the end. Analysis is the process of assessing data and seeking patterns and findings. Oftentimes it involves breaking down a complex topic (for example the gendered nature of vulnerability and adaptive capacity in the face of climate change!) in order to gain a better understanding of it. Having collected and transcribed fieldwork data, analysis involves linking the findings back to the original questions. Since the data you have will be qualitative – and largely in the form of words and images – it will be necessary to systematically go through all the data and look for emerging themes, language, issues, interpretations, etc. It is also possible to then synthesise the data (build it back up again), reflecting core lines of enquiry.

The first stage in data analysis will be to compare multiple sets of notes from the same fieldwork session (if they exist), and merge them so that you have one comprehensive set of notes per exercise.

The second stage in data analysis is to go through all of your transcribed notes and look for key themes that are emerging. Do this first with an overall "global" approach. From that, you will likely identify some key themes. You can then go through the data again, highlighting each key theme (either using pens or the highlight function in word) when it arises – and use a different colour for every theme. For example, in the examples in box 23 changing rainfall patterns were noted in both groups. You could ascribe this one colour, for example red, and mark it every time it appears in your notes.

The third stage in data analysis is to link the data, and emerging themes, back to your research questions. One way of doing this is cut-and-paste (literally, or using a computer) the findings that relate to each of your research questions. Using a computer is preferable because since there will likely be findings from particular fieldwork sessions which are relevant to different research questions. For the GCRA we have proposed the use of impact chains, as they allow you to make sense of data relating to both current and projected climate risk, and how (and where) adaptation is required to reduce that risk and link with the future visions from the community to ensure climate-resilient development. For other assessments, different modes of analysis may be required, depending on the objectives.

Validating the data

Since qualitative data is analysed through the above described inductive process of looking for themes, it is important to validate your data with the community themselves, to ensure that you are accurately representing their reality. Validation also enables you to fill any gaps that may have emerged in the process of data analysis. In keeping with the spirit of participatory processes that also aim to empower the participants, validation also further encourages local ownership over the research process and the findings. Communities themselves should always be offered copies of the report in local language, so that they have a record of the process and findings.

Documenting and disseminating

Whilst the process of participating in qualitative research is empowering for the communities, it is the resulting report that will likely be critical in advocating for specific changes or strategies. It is therefore essential that the entire qualitative research process, and the findings, is accurately and comprehensively captured. Table 7 outlines a suggested structure for a report documenting findings from participatory approaches to investigate climate risk.

Table 7: Suggested structure for report documenting findings from participatory approaches

Executive Summary	A concise summary of the whole report, useful for advocacy
Introduction	Brief overview of the report and the structure and, perhaps, how the reason for the study fits in with other plans
Background	Including information on the research objective (e.g. designing a new intervention, better understanding climate change vulnerability and capacity within an existing initiative, etc.), the community itself and the perceived climate risk (you may wish to include past temperature and rainfall data, if it is available)
Methodology	Include the objectives, research questions and data requirements, as well as the exercises designed to elicit that data, and a fieldwork timetable. You may also wish to include information on the training process of the team. Discuss study limitations, if any.
Results	Structure your results by your research questions, or by major emerging themes relating to climate risk, vulnerability and adaptive capacity, bearing in mind the need to interrogate the gender implications of each.
Conclusion and recommendations/next steps	Put the implications of the findings in the wider context, and explain any plans to use the information going forwards, potential recommendations for different stakeholders (community itself, government at various levels, CSOs at various levels, private sector, etc.).

Once you have produced your report, it is essential that you disseminate it to relevant stakeholders. In addition to the community themselves, this may include others who contributed to the research process, for example through the provision of secondary data in the early stages. You may also want to ensure that local decision-makers receive a copy, such as village leaders and district development staff. If possible, you might be able to support the community itself to present the findings, particularly women, in the spirit of participation and empowerment.

7. References and Bibliography

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Annotated bibliography of additional useful resources

COMMUNITY-BASED ADAPTATION

CARE International, 2014, Community-Based Adaptation in Practice: A global overview of CARE International's practice of Community-Based Adaptation (CBA) to climate change.
Available online at http://www.careclimatechange.org/files/cba_in_practice_lr.pdf
The purpose of this paper is to document CARE's current practice of Community-Based Adaptation (CBA) to climate change and how, increasingly, elements of the approach are evolving and being integrated into other development sectors. This synthesis of CBA project examples informs an ongoing process to update our various tools and approaches to CBA for practitioner use in the near future.

The main body of this paper highlights some of CARE's CBA projects and programmes currently being implemented through and with CARE's partners, globally, and across Africa, Asia and the Pacific, and in Latin America and the Caribbean. Regional case studies reflecting the four main strategies of CARE's CBA framework are presented as well as the processes through which practitioners and communities make decisions about how to build their adaptive capacity through project activities, as informed by climate information, risk and vulnerability analysis.

CARE International, *no date,* Community Based Adaptation: An empowering approach for climate resilient development and risk reduction, Adaptation Learning Programme (ALP)
Available online at http://www.careclimatechange.org/files/CBA_Brief_nov_13.pdf
This document shows how Community Based Adaptation (CBA) is an invaluable and essential component of the vision for resilient development across Africa. It aims to provide greater clarity on what CBA looks like and how it can add value to disaster risk reduction (DRR) and sustainable development approaches by building the adaptive capacity and resilience of vulnerable communities. It is intended to assist concerned policy makers and practitioners by demonstrating some successful practical approaches to CBA which can be adopted and scaled up. The document draws from CBA lessons learnt by the Adaptation Learning Programme for Africa (ALP), implemented by CARE International over four years of practical experience across four countries in Africa; Ghana, Kenya, Mozambique and Niger.

Joto Afrika, 2014, Integrating Community Based Adaptation into local government planning, Special Issue, 13 May
Available online at http://www.careclimatechange.org/files/JotoAfrika13_Final.pdf
Presents some initial successes in Ghana, Niger and Kenya with regards to integrating adaptation into mainstream planning processes and development implementation. They stress the importance of accessing, understanding and responding flexibly to two key areas of information in order to succeed in achieving climate resilient development and resultant benefits on a continuous basis over the long

term. Firstly, understanding the vulnerabilities, capacities and development priorities and aspirations of people and secondly, accessing and interpreting climate information from past trends and future forecasts into accessible and usable messages relevant to the local conditions.

CARE International, 2014, Participatory Monitoring, Evaluation, Reflection and Learning for Community-based Adaptation (PMERL). A revised manual for local practitioners.
The original, full version of the PMERL manual is available at
http://www.careclimatechange.org/tools
This revised manual provides guidance on conducting Participatory Monitoring, Evaluation, Reflection and Learning in community-based adaptation initiatives (PMERL for short). It is based on the PMERL manual which CARE developed in 2012 in association with the International Institute for Environment and Development (among other organisations). CARE published the PMERL manual to help practitioners focus on community perspectives, needs and priorities when defining and tracking community-based adaptation goals. Since then, learning and feedback from across CARE has indicated that a shorter, simplified guide would be a helpful step forward to make the integration of participatory M&E, reflection and learning processes more feasible, in particular for shorter-term projects and other initiatives aimed at or seeking to incorporate community-based adaptation.
This revised PMERL manual is aimed at project managers and field staff, communities and local partners engaged in designing and implementing community-based adaptation projects. It aims to:
• Develop participatory strategies to help different groups and organisations affected by, or involved in, a CBA project, community action plan or similar to assess their effectiveness in achieving their objectives
• Develop locally specific, community-based indicators to measure success in community-based adaptation (CBA)
• Monitor changes in the local situation to inform community-based adaptation planning
• Show how the findings from the PMERL process can be used to improve a CBA project plan, or a wider community adaptation plan.

Gogoi, E., Dupar, M., Jones, L., Martinez, C. and McNamara, L., 2014, How to scale out community-based adaptation to climate change, CDKN Working Paper.
Available online at http://cdkn.org/wp-content/uploads/2014/03/CDKN_Working_Paper_community_adaption_Final_web-res.pdf
Development decision-makers increasingly recognise community-based adaptation (CBA) as a viable way to build communities' resilience to climate change, particularly those most vulnerable to its impacts. CBA puts them in the driving seat when it comes to designing and delivering adaptation options. However, until recently, analysis of the impacts beyond the immediate beneficiaries was not possible because not enough CBA projects had been implemented. As a result, most of the lessons about best practice have yet to be scaled out or included in wider development policies.
This Working Paper explains the initial thinking from the Climate and Development Knowledge Network (CDKN) on how to increase the scale and impact of CBA. It draws upon CDKN's experience and learning, and that of our partners, from a diverse range of contexts and projects. It is not comprehensive, but contributes some initial reflections on where and how opportunities exist for scaling out CBA pilot projects.

ADAPTATION AND DEVELOPMENT

McGray, Heather; Hammill, Anne; Bradley, Rob with Schipper, E. Lisa and Parry, J-E, 2007: Weathering the Storm. Options for framing adaptation and development. Washington DC, World Resources Institute.
Available online at http://pdf.wri.org/weathering_the_storm.pdf
This publication clarifies the relationship between adaptation and development through the analysis of 135 projects, policies and initiatives from the developing world that have been categorised as

adaptation. The report analyzes the objectives of initiatives and the strategies utilized in implementation to characterize some of the ways that adaptation and development overlap. A continuum of activities from "pure" development to "pure" climate change is proposed as a conceptual framework to understand when different "development" activities may play an "adaptation" function. Recommendations address governance challenges, funding implications, and next steps in analysis and policy development.

PARTICIPATORY ACTION RESEARCH

German, L.A., Tiani, A., Daoudi, A., Maravanyika, T.M., Chuma, E., Jum, C., Nemarundwe, C.N., Ontita, E. and Yitamben, G., 2012, The Application of Participatory Action Research to Climate Change Adaptation in Africa, International Development Research Centre (IDRC) and Center for International Forestry Research

Available online at http://www.cifor.org/library/4036/the-application-of-participatory-action-research-to-climate-change-adaptation-in-africa-a-reference-guide/

Following a description of the purpose of this guide and the targeted end users, and an introduction to the theory underpinning the application of PAR to climate change adaptation, we present a detailed description of the PAR methodology. Diverse PAR tools and stages in the PAR process are portrayed in detail, including basic tools that are used throughout the PAR process (facilitation, process documentation), preparatory steps in building teams and engaging stakeholders, ways of understanding the problem or opportunity and conceptualizing change, planning, managing of change, and the role of empirical research as inputs to decision making. The guide finishes with a description of common challenges faced in the implementation of PAR and how these can be effectively addressed.

ECOSYSTEM-BASED ADAPTATION

Colls, A., Ash, N. and Ikkala, N., 2009, Ecosystem-based Adaptation: a natural response to climate change, Gland, Switzerland: IUCN. 16pp.

Available online at http://cmsdata.iucn.org/downloads/iucn_eba_brochure.pdf

Ecosystem-based Adaptation (EbA) integrates the use of biodiversity and ecosystem services into an overall strategy to help people adapt to the adverse impacts of climate change. It includes the sustainable management, conservation and restoration of ecosystems to provide services that help people adapt to both current climate variability, and climate change. Ecosystem-based Adaptation contributes to reducing vulnerability and increasing resilience to both climate and non-climate risks and provides multiple benefits to society and the environment.

This report presents 10 examples of Ecosystem-based Adaptation taking place in both developing and developed countries, at national, regional, and local scales, and in marine, terrestrial, and freshwater environments. The case studies demonstrate how Ecosystem-based Adaptation is being implemented at project and programmatic levels.

Reid, H., 2014, Ecosystem- and community based adaptation: learning from natural resource management, IIED Briefing

Available online at http://pubs.iied.org/17243IIED

Ecosystem-based adaptation (EBA) and its sister community-based adaptation (CBA) have gained traction over recent years, and policymakers and planners are increasingly promoting an integrated approach to EBA and CBA. These integrated approaches have the potential to benefit the world's poorest people who are worst hit by climate change and also disproportionately reliant on ecosystems and their services. Improved learning from older natural resource management disciplines such as community-based natural resource management could help inform EBA and CBA

practice and policymaking to achieve this aim. This briefing paper describes key lessons from community-based natural resource management that EBA and CBA should address as they mature.

UNEP/UNDP/IUCN, 2014, Making the case for ecosystem-based adaptation: Building resilience to climate change, UNEP/UNDP/IUCN Partnership Policy Brief
Available online at http://ebaflagship.org/resources/publications/reports/335-eba-policy-brief
The policy brief highlights the uses of EBA and it makes the case both scientifically as economically. The brief also illustrates six policy options for national policy makers to consider in order to address the main challenges faced by EBA and to further encourage its implementation. These six options are:
1. Strengthening the collaboration between sectors involved in managing ecosystems and benefiting from ecosystem services;
2. Involving local institutions and stakeholders as key actors in adaptation planning so as to enhance participation and compliance;
3. Incorporating traditional knowledge and practices and gender-sensitive tools and approaches in adaptation planning and activities
4. Reducing the risk of maladaptation by harnessing ecosystem resilience as part of a broader range of adaptation actions;
5. Facilitating collaboration and financial transfers between developed and developing economies;
6. Providing intensified research and development, technology transfer and infrastructure development.

UNEP, 2012, Ecosystem-based adaptation guidance: Moving from principles to practice. Working document, UNEP.
Available online at
http://www.unep.org/climatechange/adaptation/Portals/133/documents/Ecosystem-Based%20Adaptation/Decision%20Support%20Framework/EBA%20Guidance_WORKING%20DOCUMENT%2030032012.pdf
The document aims to fill a gap in information on ecosystem-based adaptation technologies, as ecosystem-based adaptation becomes more accepted as part of the adaptation "toolbox". The guidance 'profiles' EBA measures providing a description of opportunities, limitations, and contexts for use and supports selection of the most appropriate adaptation options in a given context. In order to address the problem of limited on-ground data to show evidence of effectiveness of EBA, the guidance also suggests how to monitor and evaluate using EBA indicators.

CLIMATE CHANGE ADAPTATION/ DRR PROJECTS

UNEP, 2014, Keeping Track of Adaptation Actions in Africa. Targeted Fiscal Stimulus Actions Making a Difference, UNEP
Available online at http://apps.unep.org/publications/pmtdocuments/-Keeping%20track%20of%20adaptation%20actions%20in%20africa:%20Targeted%20Fiscal%20Stimulus%20Actions%20Making%20a%20Difference-2014Keeping_Track_of_Adaptation_Actions_in_Africa.pdf
This manual provides a good overview of the state of climate change in Africa and its potential impacts across different sectors, illustrated with many nice maps and figures. It also provides case studies of ecosystem-based adaptation in aquatic, forest and agricultural systems, including sustainable organic agriculture in Zambia.

Mumba, M. and Harding, B. (eds), 2009, A Preliminary Stocktaking: Organisations and Projects focused on Climate Change Adaptation in Africa, Climate Change Adaptation Unit within the Division of Environmental Policy Implementation (DEPI), UNEP

Available online at http://www.unep.org/roa/amcen/docs/AMCEN_Events/climate-change/UNEPAfricaStocktaking.pdf
A mapping of the institutions that have strong technical capacity and climate change related networks. An assessment of their willingness to be involved in climate change work, and the Global Climate Change Adaptation Network in particular. This report aims to bring as many of their names and strengths into one document for the continent of Africa.

International Federation of Red Cross and Red Crescent Societies, Southern Africa, *no date,* Zambezi River Basin Initiative
Available online at http://www.ifrc.org/PageFiles/113731/Zambezi_River_Project_LR3_0.pdf
The ZRBI is an integrated and comprehensive long-term mitigation intervention, one that linked the often disparate concepts of relief and development, in order to reduce vulnerability to floods and other threats in the river basin environment.

The project involves detailed baseline surveys and the carrying out of Vulnerability and Capacity Assessments (VCA) in order to map the fundamental vulnerabilities of communities in the ZRBI catchment area, with this analysis to be supplemented with information from the United Nations (UN), the Southern Africa Development Community (SADC) and from governments. In addition, a series of Branch Capacity Assessments (BCAs) to establish and prioritize technical support needs for the development of Red Cross Branches located in the basin were undertaken. The proposal was developed in line with the IFRC's Framework for Community Safety and Resilience, which provides a foundation upon which Red Cross Red Crescent integrated community-level risk reduction can be planned and implemented.

GENDER AND CLIMATE CHANGE ADAPTATION

Jost, C., Ferdous, N. and Spicer, T.D., 2014, Gender and Inclusion Toolbox: Participatory Research in Climate Change and Agriculture, CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS), CARE International and the World Agroforestry Centre (ICRAF), Copenhagen, Denmark.
Available online at: http://ccafs.cgiar.org/publications/gender-and-inclusion-toolbox-participatory-research-climate-change-and-agriculture#.VKKneF4AKA
This manual is a resource and toolbox for NGO practitioners and programme designers interested in diagnostic and action research for gender sensitive and socially inclusive climate change programmes in the rural development context. It is meant to be an easy to use manual, increasing the research capacity, skills and knowledge of its users. Integrating gender and social differentiation frameworks should ideally begin from the start of the programme cycle and be coordinated throughout research, design, implementation, and monitoring and evaluation phases. The data gathered using this toolbox supports this programme work.

While the manual emphasizes participatory and qualitative approaches, many of the activities and tools can produce quantitative data. Each chapter features a bundle of research tools intended to be used sequentially. However, we know that each organization has its diverse needs. The chapters are in modular format so that teams can assemble their own research toolbox specific to their needs.

Bäthge, S., 2010, Climate change and gender: economic empowerment of women through climate mitigation and adaptation? Working Paper, GTZ.
Available online at http://www.oecd.org/social/gender-development/46975138.pdf
The discourse on climate change does not pay adequate attention to women, either at the local project level or in international negotiations. Women are unable to voice their specific requirements even though the impact of climate change affects women and men differently. Second, the potential of women as agents of change for climate mitigation and adaptation remains untapped: Their

extensive theoretical and practical knowledge of the environment and resource conservation is not given due consideration. In terms of economic participation, they are not paid for the environmental services that they already provide (e.g., reforestation). Their potential contribution to climate mitigation by being part of the economic cycle is not sufficiently exploited.
There are, however, several ways of promoting women's economic participation while also counteracting climate change. One approach in the field of climate mitigation is the promotion of renewable energies that help avoid greenhouse gas emissions. Additionally, pilot experiences in climate adaptation have shown that women, given their vast knowledge, are able to develop and disseminate innovative cultivation methods that are adapted to climate change.

The main focus of this discussion paper is on the advancement of women's economic empowerment because of its relevance as described above. The economic empowerment of women through climate mitigation and adaptation fosters economic growth and socioeconomic development, reduces poverty, keeps environmental problems in check, and increases the potential for adaptation, which is to the benefit of both women and men.

Joto Afrika, 2011, Gender and community based adaptation, Issue 9, November
Available online at http://www.alin.or.ke/i/Special%20issue%20009-%20Why%20mainstreaming%20gender%20into%20community-based%20climate%20change%20adaptation%20is%20a%20priority
This special edition provides insights and learning from the 'Gender and Community-based Adaptation Learning Workshop', held in Ghana in August 2011, which brought together 42 gender and community-based adaptation practitioners from 12 government, UN and civil society organisations in Ghana, Niger, Morocco, Kenya and Mozambique, as well as resource people from CARE International and IIED (International Institute for Environment and Development). Participants shared and discussed their knowledge and experience in gender and adaptation to climate change around two themes:
1. Recognizing and promoting the existing capacities and power of women and men in adapting to climate change and reducing vulnerability
2. Generating good practice principles and methods for integrating gender equality into CBA processes in Africa

Habtezion, S., 2011, Gender and Climate Change Capacity Development Series – Africa. Module 2 – Adaptation, Global Gender and Climate Alliance (GGCA), UNDP.
Available online at
http://www.undp.org/content/dam/undp/library/gender/Gender%20and%20Environment/TM2_Africa_Gender-and-Adaptation.pdf
This module provides basic information and learning tools needed to understand, advocate and influence climate change polices at the regional, national, and community levels so that they integrate gender perspectives. It focuses on climate change adaptation, both planning and financing, and covers the following themes:

- *Gender-differentiated impact of climate change in Africa*
- *Gender-differentiated impact of adaptation planning and financing*
- *Need and options for the integration of gender perspectives in adaptation responses*

Otzelberger, A. and Marshall, M., 2014, Tackling the Double Injustice of Climate Change and Gender Inequality, CARE International.
Available online at http://insights.careinternational.org.uk/publications/tackling-the-double-injustice-of-climate-change-and-gender-inequality
This paper provides an overview of the links between climate change, gender inequality and four key impact areas of CARE's work – food and nutrition security, women's sexual and reproductive rights, women's economic empowerment, and humanitarian action. It is not intended as an exhaustive

description of CARE's work on climate climate change and gender. Instead the intention is to inspire action, reflection and conversation about how to move development forward in light of these issues, to ensure CARE and development practitioners are better equipped to achieve sustainable poverty reduction and social justice.

UNDP, 2010, Gender, Climate Change and Community-Based Adaptation: A guidebook for designing and implementing gender-sensitive community-based adaptation programmes and projects, UNDP.
Available online at http://www.undp.org/content/undp/en/home/librarypage/environment-energy/climate_change/gender/gender-climate-change-and-community-based-adaptation-guidebook-.html
The Gender, Climate Change and Community Based Adaptation Guidebook presents a wealth of experiences and examples taken from the UNDP-GEF Community-Based Adaptation Programme that are being piloted throughout the world. The Guidebook will be useful for any community-based practitioners who wish to review successful cases of gender mainstreaming in community-based adaptation projects.

MAINSTREAMING CLIMATE CHANGE ADAPTATION INTO DEVELOPMENT

UNDP-UNEP Poverty Environment Facility, 2011, Mainstreaming Climate Change Adaptation into Development Planning: A Guide for Practitioners.
Available online at www.unpei.org.
Efforts to mainstream climate change adaptation into national development planning are still at a relatively early stage in many countries. Countries are increasingly requesting the United Nations Development Programme–United Nations Environment Programme Poverty-Environment Initiative (PEI) to tackle the mainstreaming of climate change adaptation into their national development planning, as part of broader poverty-environment mainstreaming efforts. The present guide addresses this need for integrating climate change adaptation considerations into the work of PEI. In addition, by building on PEI lessons in the field of poverty-environment mainstreaming in general, the guide can provide useful insights to adaptation specialists interested in mainstreaming their efforts. The approach recommended in this guide builds on the overall poverty-environment mainstreaming framework presented in the publication Mainstreaming Poverty-Environment Linkages into Development Planning: A Handbook for Practitioners (UNPEI 2009a). The present guide follows the same structure as the handbook. It is designed to assist champions and practitioners engaged in mainstreaming climate change adaptation. It should be seen as an invitation for mainstreaming specialists and adaptation experts to partner, each bringing their added value to the overall endeavour.

Pervin, M., Sultana, S., Phirum, A., Camara, I.F., Nzau, V.M., Phonnasane, V., Khounsy, P., Kaur, N. and Anderson, S., 2013, A framework for mainstreaming climate resilience into development planning, IIED Working Paper, Climate Change.
Available online at http://pubs.iied.org/10050IIED
This paper is the result of collaboration and shared learning by government development planners from countries across Africa and Asia. It presents the concepts of climate resilience mainstreaming and provides a practical instrument for government planners to think through the integration of climate resilient responses into policy.

PAIM

Republic of Zambia, *No date,* Participatory Adaptation Implementation Manual (PAIM), Economic Management Department, Ministry of Finance

Volume one: Participatory adaptation planning

Volume two: Implementation of Participatory Adaptation Sub Grants

Volume three: Procedures for Participatory Adaptation

Participatory Adaptation aims to strengthen the adaptive capacity of vulnerable rural communities to climate change and variability and to increase population's resilience to climate change. Participatory Adaptation supports local government and community groups to incorporate climate risk information and management principles into local development planning thereby helping them to prioritize the strategic adaptation sub-projects. Support is provided to mobilize and train skilled and experienced facilitators who facilitate climate risk and vulnerability assessment and assist beneficiary groups to integrate climate risk management principles in local area planning and investments. It also funds priority adaptation sub-projects identified through the planning process. The communities themselves implement, manage and maintain the sub-projects. Trained facilitators and district administration assists communities in the planning processes using participatory tools and facilitates the implementation processes.

There are two key activities:
a. Participatory Adaptation Planning
b. Implementation of Participatory Adaptation Activities

TOOLS FOR MAINSTREAMING AND ADAPTATION DECISIONS

Olhoff, A. and Schaer, C., 2010, Screening Tools and Guidelines to Support the Mainstreaming of Climate Change Adaptation into Development Assistance – A Stocktaking Report, UNDP, New York.
Available online at
http://www.preventionweb.net/files/13122_UNDPStocktakingReportCCmainstreamin.pdf
The donor community has elaborated myriad climate risk screening tools and mainstreaming guidelines in the past decade to meet this goal. The result of this effort is a wide array of methodologies with different approaches, geared to audiences covering different levels of activity and showcasing a variety of practical applications. This proliferation of available tools and guidelines calls for an assessment of their respective strengths and identification of any overarching gaps.

AMCEN, 2011: Addressing Climate Change Challenges in Africa; A Practical Guide Towards Sustainable Development, UNEP.
Available online at
http://www.unep.org/roa/amcen/docs/publications/guidebook_CLimateChange.pdf
The primary audiences for the Guidebook are policymakers, decision makers, practitioners from public and private sector, Civil Society Organizations, environment and climate change negotiators and experts. The contents of the Guidebook include:
• Climate and climate change science from an African perspective.
• Impacts of climate change on systems and key sectors and their implication on sustainable development in Africa, elaborating on the links between climate change and sustainable development. Discussions will include case-studies. Impacts of different climate scenarios are discussed and presented under each sector.
• Suggested actions to mitigate and adapt to climate change; highlighting existing tools, methodologies and literature available to both assess the African and national situations in relation to adaptation and mitigation and furthermore to assist practitioners identify appropriate actions in relation to adapting to climate change and mitigating further contributions, where feasible, in the context of low carbon growth.

• Capacity building, technological and financial requirements to undertake the suggested mitigation and adaptation actions.
• Guidelines on the sources of financing particularly under the UNFCCC process
• Case studies on climate change mitigation and adaptation, on the green economy studies.

Berger, R. and Chambwera, M., 2010, Beyond cost-benefit; developing a complete toolkit for adaptation decisions, IIED Briefing.
Available online at www.iied.org/pubs/display.php?o=17081IIED
Cost-benefit analysis has important uses – and crucial blind spots. It represents only one of several economic tools that can be used to assess options for adapting to climate change in developing countries. The Nairobi Work Programme would best serve governments by considering not just cost-benefit approaches, but the entire range of tools. By developing a 'toolkit' that helps users choose from a variety of evaluation methods, we can support adaptation decisions that promote equity, put local people in control and allow for dynamic responses to climate change as it unfolds.

Red Cross Red Crescent Climate Centre, 2014, Working with complexity and uncertainty: Exploring the climate science-decision making interface in Zambia, Future Climate For Africa: Zambia Pilot Blog.
Will be available on the Climate and Development Knowledge Network website, www.cdkn.org
Case study of climate science decision-making in Zambia

African and Latin American Resilience to Climate Change (ARCC), 2013, From Assessment to Implementation: approaches for adaptation options analysis, USAID.
Available online at
http://community.eldis.org/.5b9bfce3/Approaches%20for%20OA%20Analysis_CLEARED.pdf
As adaptation to climate change takes a central role in development policy and practice, a great deal of attention has been placed on documenting vulnerability and risk of impacts. However, there is limited experience in linking these vulnerability assessments to the identification and selection of options for climate change adaptation activities. This paper presents principles that should be at the center of adaptation options analysis, along with tools that will introduce rigor into the selection process.

African and Latin American Resilience to Climate Change (ARCC), 2013, Methods for Economic Analysis of Climate Change Adaptation Interventions, USAID
Available online at
http://community.eldis.org/.5b9bfce3/Methods%20of%20Economic%20Analysis_CLEARED.pdf
This paper describes best practices for how and when to carry out economic evaluations of proposed climate change adaptation activities, which focus primarily on cost-benefit analysis (CBA). It is organized around the steps in estimating first the benefits of adaptation and then the costs involved. Because the benefits of adaptation are generally expressed in terms of prevented harm, we begin with the complex steps involved in estimating the harm caused by climate change, and then discuss how these estimates are integrated into a CBA and compared with costs.

African and Latin American Resilience to Climate Change (ARCC), 2013, Analyzing Climate Change Adaptation Options Using Multi-Criteria Analysis, USAID.
Available online at http://community.eldis.org/.5b9bfce3/Multi-Criteria%20Analysis_CLEARED.pdf
Adaptation to climate change requires decisions and action by a wide spectrum of society, including individuals, communities, the private sector, and governments. The formal decision-making processes involving governments are critical for responding to the long-term challenges of climate change. Such formal adaptation decisions are often complex, involving decision makers from multiple sectors and experts from diverse fields who need to contend with high levels of uncertainty. Moreover,

adaptation options may be drawn from a broad spectrum of technological, policy, and institutional responses to climate change. It can be challenging for decision makers to integrate input from across this spectrum, given the diverse array of potential information sources, the uncertainty inherent in this information, and the many stakeholders with different perspectives and priorities. Yet it is critical for them to choose adaptation options that are both effective at increasing resilience as well as socially and politically viable.

Multi-criteria analysis (MCA) provides one systematic way for decision makers to make sense of the wide range of information that may be relevant to making adaptation choices. MCA enables decision makers to create a structured framework for comparing a set of defined options across a number of diverse criteria so that they may evaluate adaptation options across a range of priorities or values.

Adaptation Learning Programme (ALP) for Africa, *no date,* Decision-making for climate resilient livelihoods and risk reduction: A Participatory Scenario Planning approach, CARE International.
Available online http://www.care.org/sites/default/files/documents/CC-2011-ALP_PSP_Brief.pdf
Effective adaptation to climate variability and climate change is dependent on access to climate information for the coming seasons and years, to enable communities make decisions for now and the future. Flexible planning in the face of a continuously changing climate – a key element of adaptive capacity – needs to be informed by climate forecasts and the effects of uncertainties and risks on different vulnerable groups and socio-economic sectors, so as to identify a range of response options. Scenario development of how livelihoods and sectors would be affected by probable climate futures contributes to making livelihoods more climate resilient, and can be a first step towards mitigating the effects of climate related disasters on communities.

Cundill, G., Shackleton, S., Sisitka, L., Ntshudu, M., Lotz-Sisitka, H., Kulundu, I. and Hamer, N., 2014, Social learning for adaptation: a descriptive handbook for practitioners and action researchers, IDRC/Rhodes University/Ruliv
Available online at https://static.weadapt.org/knowledge-base/files/1347/52e626a294068handbook-final-23-jan-2014.pdf
This handbook presents the experience of a participatory social learning process that evolved to support individual and community level adaptation to the myriad of stressors affecting rural people. While the social learning process is presented as a 'package,' this is more out of convenience than attempting to represent a perfect model. In other words, genuinely responsive social learning processes may well vary in content, but possibly not in core features from what is presented here. This handbook should therefore be considered as a framework to guide thinking and reflection around how such processes might unfold, and further provide guidance towards possible approaches and activities that may be appropriate in some circumstances.

Danish Climate Change Task Force, 2011, Linking Climate Change Adaptation Policies and Practice, Policy Brief.
Available online at http://www.ddrn.dk/filer/forum/File/CCTF_policy_brief_022011.pdf
The Climate Change Task Force gathered international and national experts on climate change adaptation in a workshop on 'Climate Change Adaptation – linking policies and practice' in Copenhagen on 22-23 November 2010 to identify key climate change adaptation issues and challenges for developing countries, and share tangible experiences from policies, approaches, and tools that have proven to work at the national and local levels.

PROVIA, 2013: PROVIA Guidance on Assessing Vulnerability, Impacts and Adaptation to Climate Change. Consultation document, United Nations Environment Programme, Nairobi, Kenya.
Available at http://www.unep.org/provia
The past decade has seen a shift from centralized guidance for climate vulnerability, impact and adaptation assessment to the development of specific, often sectoral or place-based approaches.

There has been a proliferation of assessment methods and tools, and it has become increasingly difficult for potential users to understand the utility, benefits, requirements and tradeoffs of those methods and tools. Stakeholders' demand for knowledge on vulnerability, impacts and adaptation needs to be matched with the supply from the research community of clear technical guidance that takes into account both the academic developments of the past 20 years as well as user needs at local, national and international levels.

The Global Programme of Research on Climate Change Vulnerability, Impacts and Adaptation (PROVIA) has responded to this challenge by revising and improving existing guidance for assessing climate change vulnerability, impacts and adaptation, covering the range of available approaches, methods and tools. This document is the result of this effort, which has been a pleasure for me to coordinate. The PROVIA Guidance is meant to be informative rather than prescriptive; its intended users are researchers, adaptation practitioners, decision-makers and those involved in project, programme and policy formulation. The Guidance is conceived as a "living document": the current version is a consultation document that will benefit from feedback from users.

UNDP, 2010, A Toolkit for Designing Climate Change Adaptation Initiatives
Available online at https://www.undp-aap.org/sites/undp-aap.org/files/A%20Toolkit%20for%20Designing%20Adaptation%20Initiatives%20(Mar%202010).pdf
With the emerging necessity to adapt to climate change, countries and communities are starting to design and implement adaptation initiatives of various types, scales, and coverage. These initiatives seek to manage anticipated climate change risks at the national, sub-national, local/community levels. Some focus on developing system-wide local capacities aimed at analyzing, planning, and implementing a range of priority actions that strengthen the resilience of key stakeholders and institutions against anticipated climate change risks. Very often, this entails:
» Conducting analysis of the likelihood of associated biophysical and socio-economic implications of long-term climate change risks
» Preparing development strategies and plans to include consideration of climate change risks and opportunities
» Reviewing/revising/designing national and sub-national policies (including accompanying legislative adjustments) to take into account climate change risks and opportunities
» Developing partnerships, tools, and practices to incorporate climate resilience into investment decision-making processes
» Testing and demonstrating discrete interventions to manage climate risks

In this context, an emerging challenge is to design initiatives that explicitly address a climate change-driven problem. Questions arise on how to differentiate between a climate change "adaptation" initiative and a traditional development initiative. What are key elements that must be considered when developing and designing an adaptation initiative? Operational guidance on these questions is still very nascent.

This Toolkit aspires to support all those involved in the design of measurable, verifiable, and reportable adaptation initiatives. It provides step-by-step guidance. As such, it seeks to answer the following question: What are the basic steps in planning and designing an adaptation initiative?

IPCC FIFTH ASSESSMENT REPORT

IPCC, 2014, Climate Change 2014, Synthesis Report, Approved Summary for Policymakers.
Available online at https://www.ipcc.ch/pdf/assessment-report/ar5/syr/SYR_AR5_SPM.pdf
This Synthesis Report is based on the reports of the three Working Groups of the Intergovernmental Panel on Climate Change (IPCC), including relevant Special Reports. It provides an integrated view of climate change as the final part of the IPCC's Fifth Assessment Report (AR5).

This summary follows the structure of the longer report, which addresses the following topics: Observed changes and their causes; Future climate change, risks and impacts; Future pathways for adaptation, mitigation and sustainable development; Adaptation and mitigation.

Climate and Development Knowledge Network (CDKN), 2014, The IPCC's Fifth Assessment Report - What's in it for Africa?
Available online at http://cdkn.org/wp-content/uploads/2014/04/AR5_IPCC_Whats_in_it_for_Africa.pdf
The impacts of climate change will affect food security, water availability and human health in Africa significantly. This paper explore these impacts in more depth. Given the interdependence between countries in today's world, the impacts of climate change on resources or commodities in one place will have far-reaching effects on prices, supply chains, trade, investment and political relations in other places. Thus, climate change will progressively threaten economic growth and human security.

Climate and Development Knowledge Network (CDKN), 2012, Managing climate extremes and disasters in Africa: Lessons from the SREX report.
Available online at www.cdkn.org/srex
This summary highlights the key findings of the SREX report from an African perspective, including an assessment of the science and the implications of this for society and sustainable development. The SREX report considers the effects of climate change on extreme events, disasters, and disaster risk management (DRM). It examines how climate extremes, human factors and the environment interact to influence disaster impacts and risk management and adaptation options. The SREX report considers the role of development in exposure and vulnerability, the implications for disaster risk, and the interactions between disasters and development. It examines how human responses to extreme events and disasters could contribute to adaptation objectives, and how adaptation to climate change could become better integrated with DRM practice.

IPCC, 2014, Climate Change 2014: Impacts, Adaptation, and Vulnerability, WGII AR5 Summary for Policymakers
Available online at http://ipcc-wg2.gov/AR5/images/uploads/WGIIAR5-SPM_FINAL.pdf
Section A of this summary characterizes observed impacts, vulnerability and exposure, and adaptive responses to date. Section B examines future risks and potential benefits. Section C considers principles for effective adaptation and the broader interactions among adaptation, mitigation, and sustainable development.

IPCC, 2014, Chapter 22: Africa, WGII AR5
Available online at http://ipcc-wg2.gov/AR5/images/uploads/WGIIAR5-Chap22_FGDall.pdf
Africa as a whole is one of the most vulnerable continents due to its high exposure and low adaptive capacity. Climate, ecology and political boundaries in Africa vary across the continent. Since the African Union, together with its Regional Economic Communities (RECs), are encharged of the adaptation policies we have used these divisions for regional assessment within the chapter.

CLIMATE CHANGE SCIENCE

Deeb, A., French, A., Heiss, J., Jabbour, J., LaRochelle, D., Levintanus, A., Kontorov, A., Markku, R., Martinez, G.S., McKeown, R., Paus, N., Pecoud, A., Pénisson, G., Puig, D., Retana, V., Scrieciu, S., Strecker, M., Vachatimanont, V., Witte, B. and Yamada, N., 2011, Climate Change. Starters Guidebook, UNESCO/UNEP.
Available online at http://unesdoc.unesco.org/images/0021/002111/211136E.pdf
The aim of this guide is to serve as a starting point for mainstreaming climate change education into school curricula. It has been created to enable education planners and practitioners to understand

the issues at hand, to review and analyse their relevance to particular national and local contexts, and to facilitate the development of education policies, curricula, programmes and lesson plans. The guide covers four major thematic areas:
1. the science of climate change, which explains the causes and observed changes;
2. the social and human aspects of climate change including gender, health, migration, poverty and ethics;
3. policy responses to climate change including measures for mitigation and adaptation; and
4. education approaches including education for sustainable development, disaster reduction and sustainable lifestyles.

COMMUNICATION OF WEATHER AND CLIMATE INFORMATION

Red Cross/ Red Crescent Climate Centre, 2014, Future Climate for Africa: Policy Brief, FCFA Pilot – Zambia
Will be available on the Climate and Development Knowledge Network website, www.cdkn.org
This policy brief highlights key findings from the FCFA Zambia pilot case study regarding how current and future climate science can enable development and humanitarian policy, planning, and implementation that is climate smart and robust to projected changes in the medium to long-term. Specifically, the findings derive from a series of activities the Red Cross Red Crescent Climate Centre conducted between February and October 2014, in close collaboration with the UK Hadley Office and the Zambia Red Cross Society. These activities included a literature review, scientific research, two multi-sector, multi-stakeholder workshops, and a high-level breakfast with key representatives from Government, civil society, the Met office and the private sector.

Koelle, B., Bachofen, C., Suarez, P., Jones, R., Coughlan, E. and Mudenda, W., 2014, Future Climate For Africa Pilot Phase: Zambia, Technical Report, Red Cross Red Crescent Climate Centre
Will be available on the Climate and Development Knowledge Network website, www.cdkn.org
Future Climate for Africa (FCFA) is a new five-year international research programme jointly funded by the UK's Department for International Development (DFID) and the Natural Environment Research Council (NERC). The aim of the FCFA programme is to support research to better understand and improve confidence in predictions of climate variability and change across sub-Saharan Africa on timescales to inform adaptation. The programme will have a major focus on climate science and modelling, underpinned by the principles of informing real decisions, with emphasis on enhancing the usefulness of climate science and projections, and on adoption of a multidisciplinary approach.
The FCFA Zambia pilot study comprised multi-sector, multi-stakeholder workshops, as well as primary and secondary research of climate science and its applications. This endeavor, led by the Red Cross Red Crescent Climate Centre in collaboration with the Met Office Hadley Centre (MOHC) and the Zambia Red Cross Society (ZRCS), yielded the following recommendations for the consideration of policymakers and for DFID in particular:

1. *Invest in climate science that directly enables decisions that are robust to a changing climate.*
2. *Integrate climate information into incentives for long-term engagement.*
3. *Promote interactive approaches to learning and dialogue for climate-smart decisions.*
4. *Link climate information thresholds to decisions for climate-smart resource allocation.*
5. *Foster open data and hybrid systems to accelerate adaptation under uncertainty.*
6. *Create information pathways between vulnerable communities, decision-makers and researchers.*

Gannon, C., Kandy, D., Turner, J., Kumar, I., Pilli-Sihvola, K. and Chanda, F.S., 2014, Near-term climate change in Zambia. What the research tells us, Project Report: Future Climate for Africa, Red Cross Red Crescent Climate Centre

Available online at http://cdkn.org/wp-content/uploads/2014/05/Near-term-climate-change-zambia.pdf
This Climate Centre project report synthesizes current published information regarding climatology, climate variability, and near-term climate change in Zambia. Country, regional, and climate studies have been integrated into a comprehensive picture of Zambia's current and near-future climate. Additionally, the paper outlines the impact of climate on human health, agriculture, energy, and infrastructure. While climate change has consequences everywhere, the discussion here will focus on the sectors most impacted by the projected changes in precipitation and temperature.

Joto Afrika, 2013, Climate communication for adaptation, Issue 12, June
Available online at http://www.careclimatechange.org/files/JotoAfrika12_FINAL.pdf
The articles in this issue reflect the experiences from a range of programmes implemented by: CARE International through the Adaptation Learning Programme in Kenya, Ghana and Niger; Christian Aid; the Kenya Meteorological Department (KMD) and IGAD's Climate Predictions and Applications Center (ICPAC) all in Kenya. Learning in relation to climate science and how to use it practically has been enhanced by support from the Humanitarian Futures Programme, the UK Met Office, World Meteorological Organisation and associated research.

These experiences clearly demonstrate how access and use of weather and climate forecasts, together with increased understanding of uncertainties as expressed in probabilities, can be transformed into useful and usable information. Such information empowers vulnerable communities to make their own calculated and climate informed decisions on livelihood and risk management choices, innovation and use of services and resources. Climate communication and information services are clearly an essential component for enabling adaptive capacity and effective adaptation.

VULNERABILITY ASSESSMENTS

GIZ, 2014, The Vulnerability Sourcebook. Concept and guidelines for standardised assessment.
Available online
https://gc21.giz.de/ibt/var/app/wp342deP/1443/index.php/knowledge/vulnerability-assessment/vulnerability-sourcebook/
The Vulnerability Sourcebook offers step-by-step guidance for designing and implementing a vulnerability assessment which covers the entire life cycle of adaptation interventions, using consistent methods proven on the ground. This holistic focus on the full spectrum of adaptation measures, plans and strategies constitutes a new approach to vulnerability assessments. It provides a standardised approach to vulnerability assessments covering a broad range of sectors and topics (e.g. water sector, agriculture, fisheries, different ecosystems) as well as different spatial levels (community, subnational, national) and time horizons (e.g. current vulnerability or vulnerability in The medium to long term). It also highlights how vulnerability assessments can be used in the M&E of adaptation interventions designed to reduce vulnerability.

GIZ, 2013, Vulnerability Assessments. Experiences of GIZ with Vulnerability.
Available online https://gc21.giz.de/ibt/var/app/wp342deP/1443/wp-content/uploads/filebase/va/vulnerability-guides-manuals-reports/giz-2013-en-vulnerability-assessment.pdf
Vulnerability Assessments (VAs) play an important role in adaptation to climate change – likewise there is a growing number of GIZ adaptation projects. Many of these projects implement adaptation activities on the local level. Due to the increasing amount of these projects, there is a need to increase awareness about the existing knowledge of methods and experiences with Vulnerability Assessments, especially with a focus at the local level. This notion is also supported by the results of a survey conducted in autumn 2012 regarding the needs of GIZ adaptation projects.

Therefore, the goal of this factsheet with additional descriptions of VA applications is to provide an overview of experiences with VAs gained in GIZ projects and make these experiences available to others. It has three sections. In the first section, the general concept of vulnerability assessments and different methodological approaches are explained. The second section provides an overview of examples of different VAs conducted within GIZ. The third section illustrates these examples in detail, including their context, steps and results.

International Federation of Red Cross and Red Crescent Societies (IFRC), 2006, Vulnerability and capacity assessment. Lessons learned and recommendations
Available online at http://www.ifrc.org/Global/Publications/disasters/vca/llearned-recommendations-en.pdf
Vulnerability and capacity assessment (VCA) has become widely used by many National Societies over the past ten years. Between 2003 and 2005, the VCA process was evaluated and revised by the International Federation's secretariat. In 2005, National Society staff and International Federation regional delegates who had been directly involved in conducting VCAs attended "practitioners' forums" in order to review and collect good practice and lessons learned.

DISASTER RISK REDUCTION

UNISDR, 2011, Inventory of National Coordination Mechanisms, Legal Frameworks and National Plans for Disaster Risk Reduction in Africa
Available online at http://www.unisdr.org/files/18926_africadrrinventoryfinal.pdf
This inventory is a hesitant attempt to pull together the threads and to identify what does and what does not work in relation to legal, institutional and planning frameworks for DRR in Africa. Hesitant because, according to one research institute's Disaster Risk Reduction Initiative, "Little is known in terms of best practices and what works in relation to disaster risk reduction, mitigation, reducing vulnerability and effective risk management8". The inventory's Terms of Reference require an "inventory of existing national coordinating mechanisms, legal frameworks and national plans for disaster risk reduction in African countries", with the intention "to further support the strengthening or establishment of national platforms, definition of DRR policies and national action plans by identifying challenges, gaps and needs in existing mechanisms and frameworks". This is a demanding task, and the conclusions should be considered tentative ones.

UNISDR, 2008, Climate Change and Disaster Risk Reduction, Briefing note 01
Available online at http://www.unisdr.org/files/4146_ClimateChangeDRR.pdf
Climate change and disaster risk reduction are closely linked. More extreme weather events in future are likely to increase the number and scale of disasters, while at the same time, the existing methods and tools of disaster risk reduction provide powerful capacities for adaptation to climate change. This Briefing Note outlines the nature and significance of climate change for disaster risk, as well as the main perspectives and approaches of disaster risk reduction and how they can support adaptation strategies.

UNISDR, 2009, Adaptation to climate change by reducing disaster risks; Country practices and lessons, Briefing note 02
Available online at http://www.unisdr.org/files/11775_UNISDRBriefingAdaptationtoClimateCh.pdf
With the threat of increased disasters from climate change, many countries are already taking steps to reduce their vulnerability to weather and climatic hazards, such as floods, cyclones, heatwaves and droughts. Adaptation to climate change is a relatively new concern, but it can call on a rich tradition spanning many decades of practices to reduce disaster risks. The present note reports on examples of recent experience in eight countries where national and local governments and civil

society participants have worked to strengthen their disaster risk reduction and adaptation actions. These cases, along with similar experience in other countries, provide a number of useful insights and lessons for climate change negotiators and policymakers, development planners, and managers and practitioners at national and local levels.

UNISDR, *no date*, Strengthening climate change adaptation through effective disaster risk reduction, Briefing note 03

Available online at http://www.unisdr.org/files/16861_ccbriefingnote3.pdf

The purpose of this Briefing Note is to show that climate change adaptation relies on the reduction and management of climate-related disaster risks and why both need to become central to development planning and investment.

The Briefing Note builds on empirical evidence that illustrates how climate risks are constructed and which risks can be reduced cost effectively. It also builds upon ISDR's two previous Briefing Notes on Climate Change and Disaster Risk Reduction and the large volume of literature published prior to and following the Fifteenth Conference of the Parties to the UNFCCC in Copenhagen and the second session of the Global Platform for Disaster Risk Reduction, both in 2009.1 It is informed by the initial findings of the 2011 Global Assessment Report on Disaster Risk Reduction, the outcome of an online discussion of the Hyogo Framework for Action Mid-Term Review,2 and the large body of research being assessed in the forthcoming IPCC Special Report "Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation" (SREX).

UNISDR, UNDP and IUCN, 2009, *Making Disaster Risk Reduction Gender-Sensitive. Policy and Practical Guidelines*, Geneva, Switzerland.

Available online at http://www.unisdr.org/files/9922_MakingDisasterRiskReductionGenderSe.pdf

This publication is the result of extensive consultations and a response to the call for clear policy and practical guidance for mainstreaming gender perspectives into disaster risk reduction. It offers much-needed policy and practical guidelines for national and local governments to further implement the Hyogo Framework for Action.

Included in this publication is a policy guideline on gender mainstreaming, and practical guidelines on how to institutionalize gender-sensitive risk assessments, implement gender-sensitive early warning systems, and use gender-sensitive indicators to monitor gender mainstreaming progress. Also included is a summary of the limited global progress in this task so far, and a list of further readings.

This joint publication is a result of a UNISDR-led process supporting implementation of the Hyogo Framework for Action 2005-2015: Building Resilience of Nations and Communities to Disasters.

International Federation of Red Cross and Red Crescent Societies, 2009, *Community-based Disaster Risk Reduction for Field Practitioners, Geneva*.

Available online at http://www.preventionweb.net/english/professional/trainings-events/edu-materials/v.php?id=25922

This training material is significant in providing the first comprehensive attempt in South Asia to provide a standardized disaster risk reduction (DRR) training curriculum targeting field practitioners and community in order to improve the overall quality and impact of DRR training programmes in South Asia undertaken by Red Cross and Red Crescent Society staff and volunteers. The community based approaches to DRR recognises the fact that in the immediate aftermath of a disaster, the first response always comes from the community itself. It also recognises that in many cases, top down approaches may fail to address the specific local needs of vulnerable communities, ignore the potential of local resources and capacities and may, in some cases, even increase people's vulnerability.

LINKS

Adaptation case studies

http://kn.ids.ac.uk/ (Knowledge Navigator – meta-portal of data portals)
http://www.iied.org/community-based-adaptation-cba-conference-archive (archive of the annual Community-Based Adaptation conferences)
http://www.adaptationlearning.net/ (Adaptation Learning Mechanism hosted by UN agencies and the GEF)
www.weadapt.org (spatially linked information on adaptation tools and case studies)
http://www.eldis.org/go/topics/resource-guides/climate-change (resource guide that includes adaptation, mitigation and development)
http://www.saccnet.org/ (regional knowledge sharing platform for the southern Africa region)
www.africa-adapt.net (knowledge sharing for adaptation – case studies, resources, news items)
http://ganadapt.org/regional-networks/aaknet-africa (Africa hub of the Global Adaptation Network)
http://www.climateprep.org/ (WWF-hosted site with invited blogs on climate-related issues)
http://community.eldis.org/accra/ (website of the Africa Climate Change Resilience Alliance that works in Ethiopia, Mozambique and Uganda)
http://www.cakex.org/ (Climate Adaptation Knowledge Exchange)
http://www.afclix.org/elgg/ (climate science and adaptation exchange, primarily between Sudan, Senegal and the UK)
http://www.africanclimate.net/ (case studies, events and resources)
http://amkn.org/ (Adaptation and Mitigation Knowledge Network hosted by the Climate Change, Agriculture and Food Security programme – focuses on west and east Africa and south Asia)

DRR projects

www.preventionweb.net (Provention Consortium)
https://www.gfdrr.org/ (Global Facility for Disaster Reduction and Recovery)

Training resources

www.uncclearn.org (UN's climate change learning platform)
http://www.gsdrc.org/go/topic-guides/climate-change-adaptation (series of short guides)
http://climateeducation.net/ (introductory course)
http://www.climatecentre.org/site/climate-training-kit (Red Cross/Red Crescent Climate Centre's participatory training kit for climate-smart development)

Video sources for interesting clips

http://vimeo.com/iri/
http://www.thewaterchannel.tv/
http://zunia.org/
http://climatechange-tv.rtcc.org/

Climate data sources

http://sdwebx.worldbank.org/climateportal/ (World Bank's climate portal)
http://cip.csag.uct.ac.za/webclient2/app/ (University of Cape Town's climate portal)
http://www.ccafs-climate.org/ (Climate Change, Agriculture and Food Security programme's climate portal)
http://iridl.ldeo.columbia.edu/ (International Research Institute for Climate and Society's climate portal)
http://www.awhere.com/en-us/weather-details (weather data)
http://climsystems.com/ (lots of GIS sets)

http://www.magicc.org/ ("Model for the Assessment of Greenhouse Gas Induced Climate Change" often used in integrated assessment models)
http://webnet.oecd.org/climatechange/# (OECD spatial portal for mapping climate variables and drivers)

Miscellaneous

http://www.iisd.org/cristaltool/ (Online tool for vulnerability assessment and identification of adaptation options)

Appendix A: GCRA Tools

A cautionary note on all GCRA tools, as well as individual interviews and focus groups!

Good qualitative researchers are always asking the question "why"? In the guides to tools which follow, we have outlined a number of "first lines of enquiry" that you may wish to use. Since we do not know how communities will respond to these, we cannot tell you what to ask next. But it is critical that you do not merely use the suggestions here and end up with a very superficial question-and-answer type discussion. Remember to probe any issues arising, in particular the gender and climate dimensions.

Transect Walk

A transect walk is an ideal early exercise, as it allows you to obtain an overview of the community's space, and can identify other issues to probe later on. It is particularly useful if you are in a community for the first time.

Objectives

- ✓ To understand the physical geography of the community's space as perceived by men and women
- ✓ To understand the infrastructure of the community's space as perceived by men and women

How to facilitate

This activity should take approximately 1 hour and 30 minutes to two hours, depending on the number of participants and size of the village.

1. Arrangement with the participants must be done in advance (mixed sexes and ages) – including an agreed-upon meeting point.

2. The group leads a walk along an imaginary transect (imaginary line) through their community, showing the facilitator(s) what exists (noting what they do and do not remark upon can also be interesting and give an idea of what is important to them and what is not).

3. Note down what the community have shown you, and note if there are any gender differences in what is deemed important. One way of doing this is to draw your own map of the community, and mark the transect line that you have followed with the group. You can then highlight what they emphasised.

Discussion Questions

Key observations (and/or themes to raise with participants) include:

- Quality and state of housing
    - Do particular members of the community seem to have particular types of housing?
    - Is the housing for the poorest members of the community (e.g. female-headed households and the elderly) of lower quality than others?

- Quality and state of other infrastructure (water pumps, roads, schools, clinics, other public facilities)
    - Who uses this infrastructure? You can make observations (e.g. "6 women were pumping water from the borehole", "there was a long queue of elderly men and women at the clinic") and ask questions around this
    - What factors have affected the quality and state of infrastructure (e.g. flood damage, neglect)
- Quality and state of natural resources (fields, plots, wild areas, forests, rivers)
    - What crops are cultivated?
    - What farming system?
    - What fishing resources are used?
    - Rainfed or irrigated?
    - Inputs and outputs
    - Land tenure system
        - Are there differences between how men and women use natural resources? In what way?
- Observation of any problems (e.g. erosion, landslides, collapse houses, industrial farming, industrial fishing, land grabbing, etc.)
- Social systems
    - Are there many female-headed households? Why?
    - Are there many child-headed Households? Why?
    - Are there other vulnerable groups? Who are they? Why?
    - Access to markets

This is the first "line of enquiry" that you may wish to use. Since we do not know how communities will respond to these, we cannot tell you what to ask next! But it is critical that you do not merely use the suggestions here and end up with a very superficial question-and-answer type discussion. Remember to probe any issues arising, in particular the gender and climate dimensions.

Resource Map

A resource map builds on a transect walk by getting participants to produce a map of key resources in the village. Resources and assets be defined in their broadest terms (anything that is of use to people) – hints could include the five capitals (physical, natural, financial, human and social).

As the participants compile the map, probing questions can be asked about what has changed over time (population increase, farming land abandoned, change in infrastructure etc.) and why. Particular focus needs to be placed on differential access to resources by men and women, and reasons for this.

Men's group drawing a resource map, Mkokoni Village, Kenya (K. Vincent, 2012)

Objectives

- ✓ To identify important livelihoods resources in the community, and which men and women have access and control over them
- ✓ To identify areas and resources at risk from climate hazards, and who is most at risk of them
- ✓ To analyse changes in hazards and planning for risk reduction by men and women

How to Facilitate

This activity should take approximately 1 hour and 30 minutes including discussion: 45 minutes for the map, and 45 for discussion. In order to draw out the different perceptions of men and women with regard to resources and hazards it is important to divide men and women into different groups to work on the activity separately.

1. Explain to the participants that you would like to build a map of their community.

2. Choose a suitable place (ground, floor, paper) and medium (sticks, stones, seeds, pencils, chalk) for the map. If the map is made on the ground or floor, the note taker will then have to copy the map on a flipchart or in his/her notebook. A photo can also be helpful.

3. First, build the community map. Ask the community members to identify a landmark in the community.

4. Put a mark or a stone to stand for the landmark. NOTE: The facilitator should help the participants get started but let them draw the map by themselves.

5. Ask the community members to draw the boundaries of the community.

6. Ask community members to draw the location of settled areas, critical facilities and resources in the community. This should include houses (the map doesn't need to show every house, but the general area where houses are located), facilities such as churches/mosques, health clinics, schools, and resources such as forested areas and water bodies.

7. When the community members have agreed that the map is representative of their community, begin the second step: identifying the resources.

8. Ask the community members to identify the resources within the community. Note that resources are anything that is useful to people. A hint might be to probe the existence of the five capitals in the sustainable livelihoods framework (human, social, physical, natural and financial).

Learning and Discussion

When the map is complete, ask the group members the following questions:

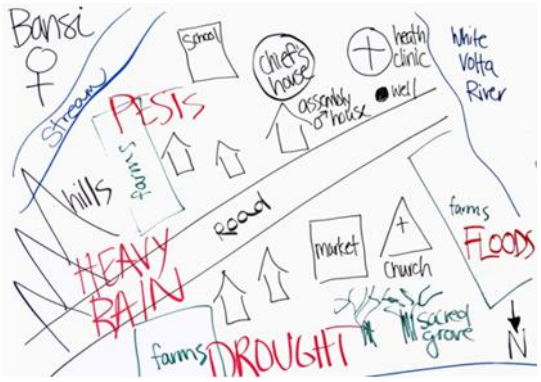
- What are the productive assets used for? e.g. subsistence or to earn cash
    - Who uses them for what benefit?
- Who has access to the resources / productive assets shown on the map? Who controls this access? Has this access changed over time? (e.g. the designation of a protected area may restrict access to a forest; or new land ownership rules may have reduced/increased access)
    - How do men and women access different resources, and for what purposes? Has this changed over time?
- Are the resources different now than they were 10/20/30 years ago (depending on age of participants)? How?
    - What role do climate factors play relative to other factors? (and what are the other factors)
    - How has men and women's access to, and use of, resources changed? In response to what?

The note taker should carefully transcribe the key points of the discussion.

This is the first "line of enquiry" that you may wish to use. Since we do not know how communities will respond to these, we cannot tell you what to ask next! But it is critical that you do not merely use the suggestions here and end up with a very superficial question-and-answer type discussion. Remember to probe any issues arising, in particular the gender and climate dimensions.

Hazard Maps

Hazard maps are very similar to resource maps, and the two can be combined.



Example of a hazard map (CARE, 2009)

Objectives

- ✓ To become familiar with the community, and to see how the physical (and social) environment of the community is perceived by men and women
- ✓ To identify important livelihoods resources in the community, and who has access and control over them
- ✓ To identify areas and resources at risk from climate hazards and natural disasters
- ✓ To analyse changes in hazards and planning for risk reduction

How to Facilitate

This activity should take approximately 1 hour and 30 minutes including discussion: 45 minutes for the map, and 45 minutes for discussion. In order to draw out the different perceptions of men and women with regard to livelihood resources and climate hazards it is important to divide men and women into separate groups.

1. Explain to the participants that you would like them to build a map of their community.

2. Choose a suitable place (ground, floor, paper) and medium (sticks, stones, seeds, pencils, chalk) for the map. If the map is made on the ground or floor, the note taker will then have to copy the map on a flipchart or in his/her notebook. A photo can also be helpful and is recommended.

3. First, build the community map. Ask the community members to identify a landmark in the community.

4. Put a mark or a stone to stand for the landmark (e.g. a school, a Church, a hospital, etc.) NOTE: The facilitator should help the participants get started but let them draw the map by themselves.

5. Ask the community members to draw the boundaries of the community.

6. Ask men and women to draw the location of settled areas, critical facilities and resources in the community. This should include houses (the map doesn't need to show every house, but the general area where houses are located), facilities such as churches/mosques, health clinics, schools, and resources such as forested areas and water bodies.

7. When the community members have agreed that the map is representative of their community, begin the second step: identifying the hazards.

8. Ask the community members to identify the areas at risk from different types of hazards. These should include:

- Natural hazards
- Health crises such as HIV/AIDS or malaria
- Socio-political issues such as conflict or redistribution of land, etc.
- Hazards that are mentioned that are not location-specific should be noted on the report.

This is the first "line of enquiry" that you may wish to use. Since we do not know how communities will respond to these, we cannot tell you what to ask next! But it is critical that you do not merely use the suggestions here and end up with a very superficial question-and-answer type discussion. Remember to probe any issues arising, in particular the gender and climate dimensions.

Learning and Discussion

When the map is complete, ask the group members the following questions:

- Who has access to the resources shown on the map? Who controls this access?
    - Are there differences between men and women? Have they changed over time?
- What are the impacts of the hazards identified?
    - Are there different effects on men and women? On powerful vs. less powerful members of the community?
- Are the hazards different now than they were 10/20/30 years ago (depending on age of participants)? How?
- Are there places in the community that are safe from the hazards?
    - Is there a correlation with where the powerful people in the community live?
- Are these safe places used to protect from hazards (e.g. to store food and inputs, or to shelter livestock)?
    - If so, by whom? Does everyone have access to them?
- Who are the members of the community who are most at risk from the different hazards? Why?
- How do people (men and women) in the community currently cope with the impacts of the specific hazards identified? Are the current coping strategies working? Are they sustainable?

The note taker should carefully transcribe the key points of the discussion.

Seasonal calendar

Example of a seasonal calendar (CARE, 2009)

Objectives

- ✓ To identify periods of stress, hazards, diseases, hunger, debt, vulnerability, etc.
- ✓ To understand livelihoods and coping strategies for men and women
- ✓ To analyse changes in seasonal activities for men and women
- ✓ To evaluate use of climate information for planning by men and women

How to Facilitate

This activity should take approximately 1 hour and 15 minutes including discussion: 30 minutes for the calendar, and 45 minutes for the discussion. In order to draw out the different perceptions of men and women with regard to the different periods and strategies it is important to divide men and women into different groups to work on this activity separately.

1. Use the ground or large sheets of paper. Mark off the months of the year on the horizontal axis.

2. Explain to the participants that you would like to develop a calendar to show key events and activities that occur during the year.

3. Ask men and women to list seasons, events, conditions, etc., and arrange these along the vertical axis. The list should include:

- Holidays and festivals
- Planting and harvest seasons
- Periods of food scarcity
- Dry and rain seasons
- Times of migration
- Timing of hazards/disasters such as cyclones, droughts and floods
- When common seasonal illnesses occur
- Etc.

4. When the key events have been listed, plot the timing of them in the table based on agreement among the participants. The note taker should note any events for which the group has difficulty deciding on timing.

Learning and Discussion

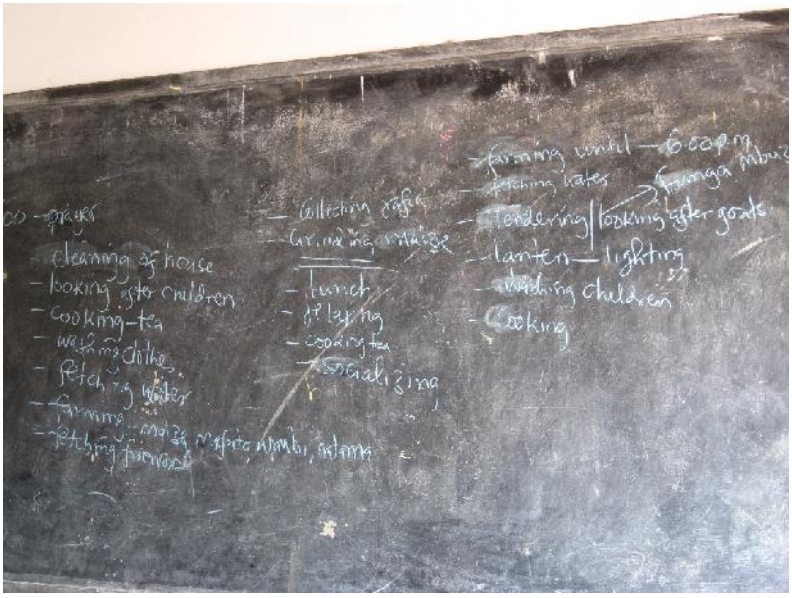
When the calendar is complete, ask the group members the following questions:

- What are the most important livelihoods strategies employed at different points of the year?
    - Do they differ between men and women?
    - Have climate factors played a role in bringing about change over time?
- What are current strategies to cope during the difficult times? Are they working?
    - Do men and women employ different strategies?
- Are there any differences in the timing of seasons and events as compared to 10/20/30 years ago?
- Have livelihoods/coping strategies changed based on the changing seasons or events?
    - Are there incidences where new strategies have had to be employed to deal with recent changes?
- How are decisions made on timing of livelihoods strategies?

The note taker should carefully transcribe the key points of the discussion.

This is the first "line of enquiry" that you may wish to use. Since we do not know how communities will respond to these, we cannot tell you what to ask next! But it is critical that you do not merely use the suggestions here and end up with a very superficial question-and-answer type discussion. Remember to probe any issues arising, in particular the gender and climate dimensions.

Daily calendar



Example of a daily calendar (K. Vincent, 2012)

Objectives

- ✓ To identify the various different tasks and activities that men and women engage in on a daily basis, at different times of the year
- ✓ To understand livelihoods and coping strategies for men and women
- ✓ To analyse changes in seasonal activities for men and women
- ✓ To evaluate use of climate information for planning by men and women

How to Facilitate

This activity should take approximately 1 hour and 15 minutes including discussion: 30 minutes for the calendar, and 45 minutes for the discussion. In order to draw out the different roles and tasks which men and women undertake at different times of the year it is important to divide men and women into different groups to work on this activity separately.

1. Use the ground, a large sheets of paper or a chalk board if available. Ask the group what time they days start and end – this will determine the period your daily calendar has to cover. Mark off columns for different times of the day. In order to get detailed information each column should represent as short a time period as possible e.g. 1 hour.

2. Explain to the participants that you would like to develop a daily calendar to show key tasks and activities that take place each day during a particular season (it is important to be specific about the season as tasks and activities will change throughout the year).

3. Ask men and women of each separate group to list the tasks and activities they undertake during each hour of the day. Ask them to be as specific as possible about each task or activity e.g. not just "farming" but a particular farming task – ploughing, weeding, guarding against wild animals etc. or not just "housework" but feeding children; washing clothes; cooking food, etc.

4. Remember to not only include tasks but activities such relaxing, visiting with friends, etc. as well.

5. The above task should be repeated for different times/ seasons of the year (use divisions that make sense to the group) in order to see how tasks and activities change throughout the year.

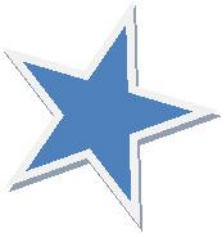
	5am	6am	7am	8am	9am	10am	11am	12am	1pm	2pm	3pm	4pm	5pm	6pm	7pm	8pm
Summer																
Autumn																
Winter																
Spring																

Learning and Discussion

When the daily calendar is complete, ask the group members the following questions:

- What are the most important tasks and activities undertaken at different times of the day, at different points of the year?
    - Do they differ between men and women?
    - Have climate factors played a role in bringing about change over time?
- What are current strategies to cope during the difficult times? Are they working?
    - Do men and women employ different strategies?
- Are there any differences in the tasks and activities undertaken by men and women as compared to 10/20/30 years ago?
- Have daily tasks and activities and they time allocated to them changed over time? If so, why?

The note taker should carefully transcribe the key points of the discussion.



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Historical timeline

Note that this tool can easily be combined with the seasonal calendar into one exercise

Objectives

- ✓ To get an insight into past hazards, changes in their nature, intensity and behaviour
- ✓ To make men and women aware of trends and changes over time
- ✓ To evaluate extent of risk analysis, planning and investment for the future by men and women

How to Facilitate

This activity should take approximately 1 hour and 15 minutes including discussion: 45 minutes for the timeline, and 30 minutes for the discussion. In order to draw out the different perceptions of men and women with regard to changes over time, men and women should be divided into different groups to work on this activity separately.

1. The facilitator should consult with the group to decide on how they wish to represent history – often a long line is useful, with one end at the present, and other events can be placed relative to that.

2. Ask men and women if they can recall major events in the community such as:

- major hazards and their effects
- changes in land use (crops, forest cover, houses etc.)
- changes in access and use of resources (including ocean resources)
- changes in land tenure

- changes in food security and nutrition
- changes in administration and organization
- major political events

3. The facilitator can write the events down on a blackboard or large sheets of paper in chronological order.

4. Periodically run back through the events already reported to prompt recall and help the informant to fill in gaps. Just concentrate on key events.

NOTE: It must be kept in mind that there may be a bias in the timeline as events in recent memory are more likely to be noted.

Historical timeline in Mkokoni Village, Kenya (K. Vincent, 2012)

Discussion Questions

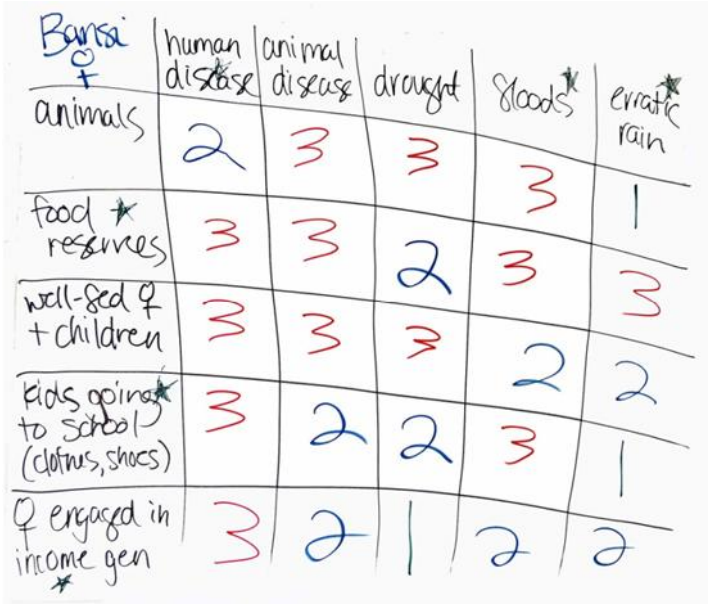
When the timeline is complete, ask the group members the following questions:

- Are there any trends or changes in the frequency of events over time?
- How important are climate factors relative to others?
- What are current strategies to cope during the difficult events? Are they working?
    - How do they differ between men and women?
- Have coping strategies changed based on the changing frequency of events?
    - Have they changed for both men and women? If not, why not?
- What events do you expect will occur in the future? When?
- Does this perception of future events affect your plans for the future?
    - Do you anticipate changes to your livelihoods?
    - Do you anticipate changes to gender roles and relations?

The note taker should carefully transcribe the key points of the discussion.

This is the first "line of enquiry" that you may wish to use. Since we do not know how communities will respond to these, we cannot tell you what to ask next! But it is critical that you do not merely use the suggestions here and end up with a very superficial question-and-answer type discussion. Remember to probe any issues arising, in particular the gender and climate dimensions.

Vulnerability/risk matrix



Example of a vulnerability matrix (CARE, 2009)

Objectives

- ✓ To determine the hazards that have the most serious impact on important livelihoods resources for men and women
- ✓ To determine which livelihoods resources and productive assets are most vulnerable for men and women
- ✓ To determine who is most vulnerable to different hazards
- ✓ To identify coping strategies currently used by men and women to address the hazards identified

How to Facilitate

This activity should take approximately 1 hour and 30 minutes including discussion: 45 minutes for the matrix, and 45 minutes for the discussion. This can be combined with hazard mapping as well. As with hazard mapping, it is advantageous to divide men and women into different groups to work on this activity separately.

1. Prepare a matrix in advance. This can be done on the ground or on flip chart paper.

2. Ask the group to identify whatever you are investigation: could be their most important livelihoods resources – may be current or a "wish list " of those resources and assets they consider to be most important in achieving well-being; or different population groups within the community.

3. Ask the group to identify the key resources that they consider to be MOST important in achieving well-being. List (or use symbols/ pictures) these priority resources down the left side of the matrix on the vertical.

4. Ask the group to identify the greatest hazards (natural or caused by humans) to their livelihoods. Do not limit the discussion to only climate-related hazards, but you may want to prompt the group if they are not identifying environmental hazards. NOTE: It is important to be specific in the hazards, and to ensure that the issues identified are actually hazards. Participants may identify conditions such as "food insecurity" as hazards. It is up to the facilitator to ask the group to break down these conditions to determine if they are caused by hazards (e.g. food insecurity may be the result of a drought, which is a hazard). Similarly, some groups may identify scarcity of resources, such as "lack of money", as a hazard. In this case, it should be determined whether the lack of a resource is the result of a hazard, or in some cases, whether the resource should be added to the list of priority resources identified in the previous step. The four most important hazards should be listed horizontally across the top of the matrix, again using symbols or pictures if necessary.

5. The most important hazards should be listed horizontally across the top of the matrix, again using symbols or pictures if necessary.

6. Ask the community to decide on a scoring system for the hazards against the livelihoods resources and productive assets, identifying significant, medium, low and no hazard. The scoring system should be as follows:
3 = significant impact on the resource
2 = medium impact on the resource
1 = low impact on the resource
0 = no impact on the resource
You can use stones, symbols or different colours of markers (e.g. red = significant risk to resource, orange = medium risk, green = low risk, blue = no risk). Ensure that all members of the group understand the scoring system.

7. 7. Ask the participants to decide on the degree of impact that each of the hazards has on each of the resources. This will involve coming to consensus as a group. The note taker should note key points of discussion that lead to the scores assigned, and any disagreements on the scores.

8. Use prompting questions to get the community to discuss the results in more detail.

Discussion Questions
When the matrix is complete, ask the group members the following questions:

- Are the hazards the same for men and women? For powerful and less powerful members of the community?
- What coping strategies are currently used to deal with the hazards identified? Are they working?
- Are there different strategies that you would like to adopt which would reduce the impact of hazards on your livelihoods?
- What resources do you have that would help you to adopt these new strategies?
- What are the constraints to adopting these new strategies?

The note taker should carefully transcribe the key points of the discussion.

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Venn Diagram

Objectives

- ✓ To understand which institutions are most important to men and women in communities
- ✓ To analyse engagement of men and women, and other vulnerable groups, in local planning processes
- ✓ To evaluate access to services and availability of social safety nets for men and women

How to facilitate

This activity should take approximately 1 hour and 30 minutes including discussion: 1 hour for the diagram, and 30 minutes for the discussion. In order to draw out the different perceptions of men and women with regard to what is important in their community, men and women should be divided into different groups to work on this activity separately.

1. There are a number of different ways to do the Venn Diagram. You can draw and write with a stick on a soft ground or you can work on paper. If you decide to use paper, people should first use a pencil in order to be able to make changes. Another option is to cut circles of different sizes from coloured paper and let participants decide which size of circle represents the different institutions.

2. If people find it difficult to understand this tool, it may be helpful to draw a simple example for them. As with other tools, you do not need to use the name of the tool with the participants – "Venn diagram" will be unnecessarily confusing!

3. Ask the participants which organisations/institutions/groups (from government, civil society, private sector, religious groups, etc.) are found in the village and which other ones from elsewhere are working with them. Encourage them to also think about informal groups and community-based organizations.

4. Write down all the institutions that are mentioned and give each organisation a symbol which everybody can understand. Include information on which are for men, women or both sexes. You could also note others which have "accessibility" criteria – for example a women's saving wheel will be contingent on ability to contribute.

5. Ask the participants to draw a big circle in the centre of the paper or on the ground that represents them.

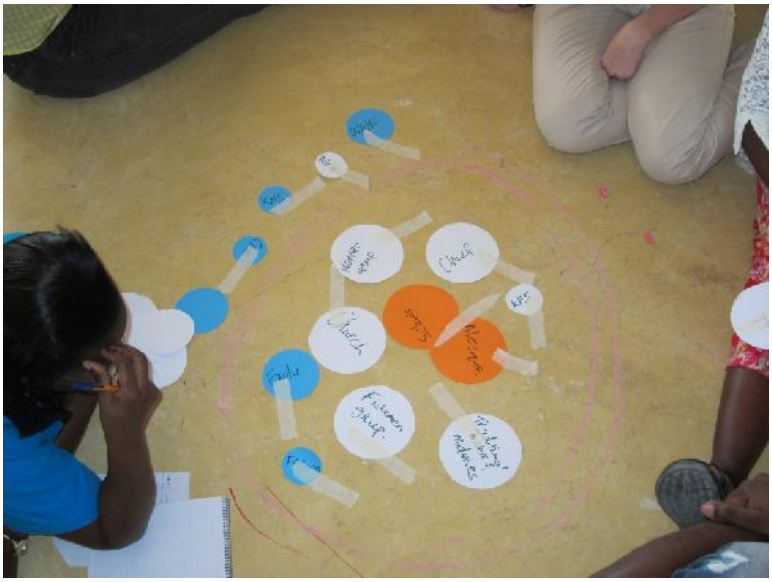
6. Ask them to discuss for each organization how important it is for them. The most important ones are then drawn as a big circle and the less important ones as smaller circles. Ask the participants to compare the sizes of the circles and to adjust them so that the sizes of the circles represent the relative importance of the institution, organization or group.

7. Every organization/group should be marked with the name or symbol.

8. Ask them to discuss in which way they benefit from the different organizations.

9. The note taker should transcribe the discussion, noting why the different organizations are considered important or less important.

10. Ask them to show the degree of contact/co-operation between themselves and those institutions by distance between the circles. Institutions which they do not have much contact with should be far away from their own big circle. Institutions that are in close contact with the participants and with whom they co-operate most, should be inside their own circle.



Constructing a Venn Diagram, CVCA training, Lamu, Kenya (K. Vincent, 2012)

Discussion Questions

When the diagram is complete, ask the group members the following questions:

- Are any of the organizations shown only open to membership by men or women? Do any only offer services to men or women?
- Are there any other groups that are excluded from membership or service for the organizations identified?

- In what ways do these institutions play a role in the community?
    - Any role related to climate?
    - Any role related to natural hazard-based disasters?
    - Any role related to gender roles and relations?
    - Any role related to empowerment of vulnerable groups?
- Do any of the organizations offer support in times of crisis?
    - To whom is the support available? Everyone, or only particular community members? (if so, whom?)
- How do you receive information from the different organizations?
- How do you communicate information to the different organizations?

The note taker should carefully transcribe the key points of the discussion.

This is the first "line of enquiry" that you may wish to use. Since we do not know how communities will respond to these, we cannot tell you what to ask next! But it is critical that you do not merely use the suggestions here and end up with a very superficial question-and-answer type discussion. Remember to probe any issues arising, in particular the gender and climate dimensions.

Scenarios for determining future climate risk

Objectives

- ✓ Assess future climate hazard exposure (incremental climate change and extreme events)
- ✓ Assess future sensitivity (likely impacts on the natural systems)
- ✓ Assess future socio-economic scenarios (for adaptive capacity)

How to facilitate

This activity should take between 1 hour 30 minutes and 2 hours. In order to draw out the different perceptions of men and women with regard to likely impacts of climate change, men and women should be divided into different groups to work on this activity separately.

1. This exercise needs to be based around the three objectives. You will have some familiarity with climate projections for the area but it is important to ground that within people's own experiences. You could start off, therefore, with asking people to discuss changes in weather and climate that they have observed.

2. Within the broad categories that emerge, you can explain how climate is projected to change into the future. Within the broad categories of "temperature increase" and "change in rainfall" there are specific changes that will affect people – e.g. number of hot days, later onset of the rainy season, more stormy events etc. Facilitate the discussion so that you have consensus on what some of the most critical hazard exposures might be. Mark those hazard exposure priorities on a flip chart.

3. The next step is to determine the effect that exposure to such hazards will have on the natural environment (i.e. the level of sensitivity and biophysical vulnerability). Questions that you could ask include:

- What likely changes in biophysical parameters are expected? (E.g. change in land use, land cover, water availability and quality, crop yields and production)
- Will the demand for a resource exceed its supply?
- Does the system have limiting factors that may be affected by climate change? (e.g. is there already a limited supply of wood and higher temperatures will kill off remaining trees?)

4. Then you need to determine the nature of social vulnerability and impacts that those changes would potentially have on livelihoods and on men and women (and/or other groups in the community). The table gives an example of the type of information that you would hope to obtain (from CARE, 2014):

Climate parameter	Scenario	Effects	Impacts on local people and environment (Consider including separate columns for impacts on food security, core systems, services, infrastructure)
Monsoon rainfall	Low volume	Reduced soil moisture, dry spells, low stream/ river flow.	Crops fail; people hungry. Springs dry. Forest fires. Micro-hydro fails.
	Same volume, more erratic, high intensity	Dry spells, greater run-off, reduced infiltration, floods, river scouring, landslides.	Crops under stress, at risk of drying out and vulnerable to pests and disease, soil erosion, loss of land and other assets, loss of life, damaged infrastructure.
	Reduced timeframe (Delayed onset and/or early finish)	Shortened growing season.	Rice seedlings over-mature in nursery beds, delayed planting, crops do not mature.
	High volume	Flooding, river scouring, landslides, increased soil moisture.	Water logging of crops, crops susceptible to rotting and disease, crops unable to ripen. Damaged infrastructure. Better post-monsoon crops.

The note taker should carefully transcribe the key points of the discussion.

This is the first "line of enquiry" that you may wish to use. Since we do not know how communities will respond to these, we cannot tell you what to ask next! But it is critical that you do not merely use the suggestions here and end up with a very superficial question-and-answer type discussion. Remember to probe any issues arising, in particular the gender and climate dimensions.

Future visioning

Objectives

- ✓ To understand what (developmental) outcomes people want to achieve at various points in the future in order to identify appropriate adaptation options that both address current and future risks and also support attainment of those outcomes.

How to facilitate

This activity should take between 1 hour and 30 minutes and 2 hours. In order to draw out the different perceptions of men and women with regard to what is important in their community, men and women should be divided into different groups to work on this activity separately.

1. The idea is to understand what men and women consider to be important in the future, and the developmental outcomes that they would like to achieve. This must be skilfully facilitated by a focus group discussion.

2. After explaining the purpose of the discussion, a good opening questions is "What are your hopes for your children (and/or grandchildren, depending on the age of group participants)?" Examples might include variants of:

- People have access to adequate nutritious food
- Homes are weather-proof so that we do not feel the impacts of floods
- People are growing new crop varieties that will be more suited to the expected changes in climate
- People no longer have to live on the flood plain

3. Once the discussion has begun and people are beginning to look to the future, it is possible to draw out different time frames. These may become evident from the future visions and, if so, you can seek confirmation. In other cases, you can further probe what they would like to see in in 5 years time, or in 20 years time. You can be guided by any implicit timeframes that seem to be emerging in the discussion. This can be recorded in note/picture form – or in a "future timeline" (similar to the historical timeline), where the different visions are linked to the appropriate timeframes.

4. Once the future visions have emerged, discussion can be directed to adaptive capacity. Linking back to the current and future nature of climate risks (many participants will have already participated in exercises that identify these but, if not, you can provide a brief overview), participants should be encouraged to consider what adaptive capacity looks like – i.e. what they would need in order that climate hazards do not cause disruption to their livelihoods.

5. Within the adaptive capacity discussion, probe around the five different types of adaptive capacity – social, natural, human, physical and financial capital. You do not need to classify the notes you record publicly by these different capitals, but ensure you keep track of them in order to ensure that you probe all of them effectively.

6. It is likely that other actors will be identified as important to play a role in developing the required adaptive capacity – e.g. government, councillor, agricultural extension, etc. This is also important to note.

Discussion Questions

Potential questions that you might consider using to prompt discussion around adaptive capacity include:

1. What are impacts that are of most concern for you/your community/the livelihood sector in which you work?

2. What kind of responses would you like to undertake to reduce negative impacts of these climate hazards in the future?
3. Which of these responses are you currently about to undertake? Is anyone in the community currently able to respond? What enables them to respond when others cannot?
4. Who would benefit from those responses? Would men and women benefit equally?
5. What would you need in order to be able to implement those responses? Who could support you in obtaining that?

The note taker should carefully transcribe the key points of the discussion.

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Appendix B: Fieldwork and Data Management Plan

Planning for fieldwork			
Date	x	x	x
Exercise planned			
Men's facilitating team (if appropriate)			
Women's facilitating team (if appropriate)			
Responsibility for community arrangements			
Time by which community arrangements need to have been made			
Materials required and responsibility			
Managing fieldwork findings			
Responsibility for writing up notes			
Responsibility for checking notes			
Responsibility for keeping notes			
File name			