A GUIDE TO CLIMATE CHANGE RESPONSE:

A Learning Manual for Cambodian Organisations and Institutions

FACILITATOR'S GUIDE FOR PART 1

CONTENTS

The Joint Climate Change Initiative is a collaborative effort between Forum Syd, DCA/CA and Cord. The JCCI works to enhance the capacity of its 22 Cambodian NGO partners and the communities in which they work in order to reduce their vulnerability to climate change.

A Guide to Climate Change Response: A Learning Manual for Cambodian Organisations and Institutions
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INTRODUCTION

INTRODUCTION TO THE MANUAL

This manual is intended to be used by NGO and government staff to enable them to provide training to their counterparts in climate change causes, effects, and response measures. It comprised of five parts, each of which has a different objective.

It is assumed that not all users of this manual have considerable experience facilitating training; as such the first section of the manual provides tips on how to facilitate effectively, and what steps to consider when organising a training session.

It is strongly recommended that a training needs assessment be conducted prior to the training to measure the level of knowledge and experiences of different participants.

HOW TO USE THE MANUAL

The first part of the manual is intended to raise awareness and build a general understanding of climate change causes, impacts and responses. The Part 1 also serves as a reference document or a bridge for facilitating the tools or sessions in Part 2 and Part 3 of the manual. Part 2 provides tools for facilitating the participatory planning process to integrate and address climate change at the community level. Tools should be used to collect information from community members to develop an integrated plan for climate change response. Part 3 supports the NGO or government staff to assess their capacity to respond to climate change by supporting the implementation of climate change projects at both organisational and project levels. Part 4 includes a glossary of terms and acronyms used in the manual, while the Part 5 serves as facilitation guide specifically for Part 1. Part 6 is a supplementary facilitation guide for the entire manual that contains helpful hints and information about training tools that the facilitator may wish to use when planning for or facilitating the training on climate change.

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FACILITATOR'S GUIDE FOR PART 1
Tips for Facilitators

Preparing for the Training

Conducting a Training Needs Assessment

Before conducting a training, it is important to conduct a training needs assessment. This will help you as a trainer make necessary adjustments to your training so that it suits the learning needs of participants. Some questions to guide the process of conducting the training needs assessment could include:

- Who has requested this training?
- What was the stated reason for requesting the training?
- Who are the participants at the training? What is their experience in working on climate change issues?
- Have participants or the requesting organisation/institution explained how they intend to apply learning from the training? If yes, what is the stated intention?
- What is the educational background of participants? Is it different from the facilitator's educational background?
- Does the facilitator expect that they might need to make adjustments to the training so that the content is easier to understand?

Organising a Training

There are several key steps that should be followed in order to ensure that the training is well organised so that it runs smoothly. Session plans and all training material should be prepared well in advance. The trainer should also take time to familiarise himself or herself with the manual, particularly with the facilitator's guides, ahead of the training. Clear session plans will also help the trainer deliver the training effectively. It is very important to have something in writing to use as a guide when delivering the training to keep you on track during the training.

Booking a venue

It is very important to have a suitable venue in which to deliver the training. The venue should be large enough to accommodate all participants; also keep in mind that more space may be required when people break up into groups than when they are in plenary. Furniture should be easy to move to allow for flexible groupings. Conducting large group sessions with the group seated in a circle is better for discussion dynamics than row-style seating. The training venue should also be well-lit and well ventilated to prevent participants from getting sleepy and losing concentration.

Developing the agenda and session plans

Before the training begins you will need to prepare both an agenda and session plans. The agenda is a general outline of the training that will be given to participants that should also specify responsibilities of the facilitator (if there is more than one). It does not need to be very detailed, but should include a brief outline of learning objectives for each session, session numbers, and the time frame for each session.

The session plan is what you will use as a guide in delivering the training. It should be more detailed than the agenda and should include specific steps for each section of the training. The session should include specific information about the learning objective or aim of the session, teaching methods to be used for each part of the session, materials required, and so forth.

As a trainer, it is important to familiarise yourself with part 5, which is the facilitation guide for part 1 of the manual, so that you feel confident about leading the session. Note that for part 1 the trainer is required to prepare some material in advance, such as definitions of terms (weather, climate change, global warming, etc.) on index cards.

Facilitating a Training[1]

Introducing the training

The first step you will take at the training will be to introduce yourself, and to give a general introduction to the training, which could include information about the number of days the training is expected to take and what the overall learning objectives of the training are. You should then take some time to have participants introduce themselves, which could be done using an ice-breaker exercise.

1 Adapted from: Economic and Social Commission for Asia and the Pacific (2003) Conflict negotiation skills for youth.

Ice-breakers

Icebreakers are useful at the start of training to:

- Help participants to get to know each other.
- Create a stimulating learning environment.

Energizers

Energizers can be inserted at any point during training to make the atmosphere more exciting and to enhance participants' learning. If the facilitator does not have any energizers planned, participants may be asked to take charge of these activities that can include songs and short games. Some facilitators prefer to use energizers that are linked closely to the topic of the sessions.

Establishing ground rules for the training

At the start of a training course, it is important to establish ground rules for the training. These could relate to simple guidelines such as: how to manage cell phones, when participants can take breaks, what are the rules for discussion. It is important to note that these points of agreement should be agreed upon by all, and the facilitator should note them on a flip chart at the training outset.

Hopes and expectations for the training

At the start of the training, participants may be uncertain about what they will be asked to do, and whether the training will be useful for them. One way to address this is to ask participants to note down the following on two coloured cards (using a different colour for each):

(a) What do I expect to get out of the training? (Expectations)
(b) What do I hope to contribute the training? (Hopes)

The cards can then be placed anonymously in a pile. When all the cards are in, the participants return to the pile and each draw one card. Each participant reads one card to the rest of the group. A brief discussion can follow, in which people's hopes and expectations are acknowledged.

Facilitation techniques

It is important that the facilitator use as many interactive teaching methods as possible. Interactive facilitation keeps participants interested in the training content, and helps them remember what they learn. A good training uses a mixture of interactive facilitation techniques, including plenary sessions, small-group work and role plays. These are explained in detail below.

In an interactive session, participants are able to:

- seek clarification
- raise questions
- think actively
- speak out their assumptions
- practice what they learn

During such a session, the facilitator:

- Feels challenged
- Develops relationships with the learners
- Begins to understand the learners' needs, limitations and strengths
- Starts responding to the learners' needs
- Starts learning herself/himself
- Adds to her/his own knowledge

Plenaries

Plenaries is a method used for bringing all the participants back together after they have worked in small groups or on individual and sub-group activities or assignments. Plenaries can take the form of short reports presented to the rest of the group by group representatives or informal group discussions.

Plenaries need to be well managed, especially taking into account the time needed to conduct them. The facilitator should set strict time limits for each group representative and work out beforehand the time allocated for each presentation in a plenary session.

The facilitator should be able to manage feedback and be prepared to ask the group representatives for further clarification on points.

Small group work

Within a training session, a small group would usually have four or five members. Small groups work on tasks identified in the whole group (plenary). Small groups may work in parallel or on different parts of the same task. Small group work can be used in many situations, for example, whenever participants need to exchange experiences, make decisions or do problem solving. Some management is necessary to ensure the effectiveness of small group work. Groups usually have a limited time frame to do their task, so they have to work quickly and effectively. The facilitator should ensure that:

- Groups know and understand the task assigned to them.
- The facilitator is available for explanation while the task is in progress.
- Feedback from small groups is managed and group rules established so that each group knows how long their presentation will last.
- Decisions are made on how to handle intergroup questions and comments.

Role-plays

Role-plays are a valuable tool in training. They have two main uses:

- Show the experiences of participants that are relevant to the training, e.g., a villager who has lost his/her livelihood due to the impacts of climate change.
- Provide participants with the opportunity to practice situations they might face in real life, e.g. a discussion with a local commune councillor about watershed problems in their area.

Participants may volunteer for different roles or may be selected by the facilitator. Role-plays normally last only a few minutes. Role-plays may be conducted by the whole group or by smaller groups. They may be presented in turn by the smaller groups to the whole group or done as a "fish bowl" exercise where only a few actually take part while the others observe.

Every role-play needs to be followed by a follow-up discussion or debriefing session for participants to talk about how they felt and to share new insights.

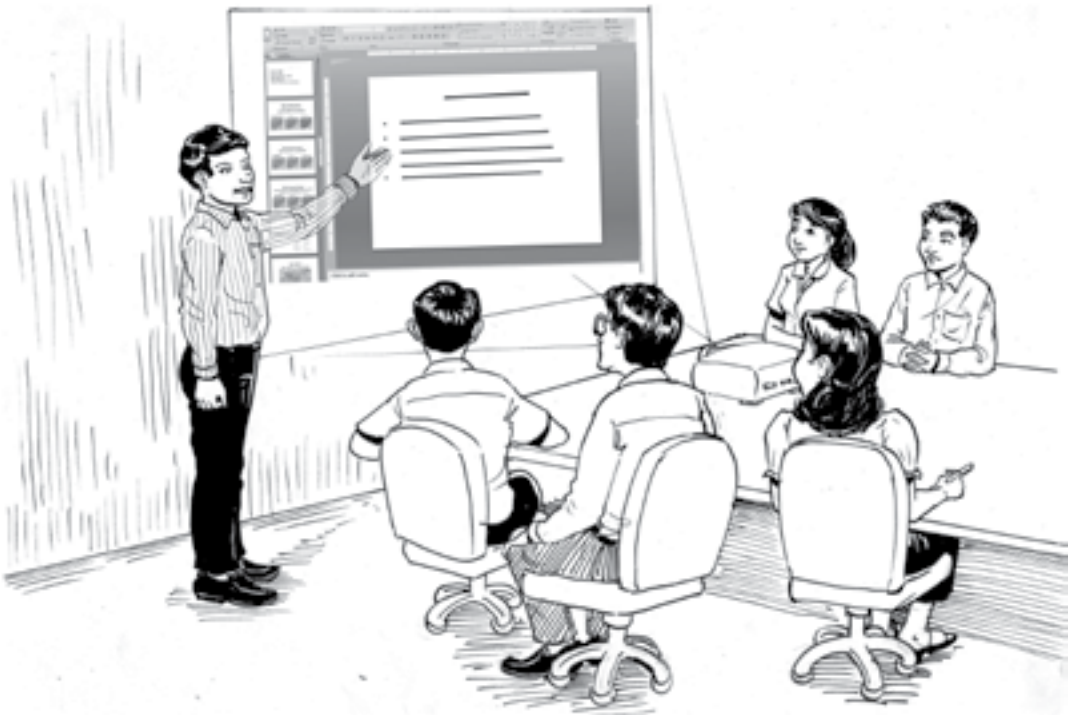
Using Audio-Visual Materials

Presentation of Contents of Part 1 of the Manual

As you will note, the content of sessions in part 1 should be delivered by the facilitator as part of a presentation. The facilitator can decide how to present material in each session, but they should have some visual aids to use during their presentation; this could be flipcharts or white boards on which key points are written (if there is no access to electricity), or a Power Point presentation prepared by the facilitator.

Power Point Presentations

Most facilitators will find it convenient to prepare a Power Point presentation summarising key points from sessions 1-8 in part 1. You may use the manual as a basis for your presentation, copying some of the material directly where relevant, for example when presenting definitions of terms. However, it is important to remember that your presentation should be a summary of content of the sessions. Do not copy and paste paragraphs from the manual into a Power Point presentation. It will be difficult for



participants to read a lot of text on the slides; presenting a lot of text on each slide is not an effective way to deliver a presentation. Be sure to include only 2-3 key points on each slide. Detailed information can be presented verbally, and is also available to participants in the text of the manual.

Whiteboards

Whiteboards are good for exercises such as brainstorming, where the facilitator needs to write a lot of ideas quickly. However, when using the whiteboard, only write down key issues or ideas, and allow participants enough time to take down or think about the ideas for themselves.

Flip charts

Flip charts are useful when points made or ideas shared are referred to in subsequent sessions. These can be displayed around the room. They can also be kept for future reference or for use in further training exercises, or as a record of what was discussed for training reports.

Assessing the Training

Monitoring & Evaluation

Evaluation is an important part of any training. Evaluation can be done during the training and at the end, in order to further improve planning and facilitation of sessions. On-going participatory monitoring during training can also help engage participants and provide them with ownership of the training process.

Monitoring during the training

One technique is to provide monitoring sheets which are collected at the end of each day. The monitoring sheet should contain 2-3 questions such as "what went well during the session today,?" or "what improvements could be made?" Try to make sure that participants respond to substantive issues like how the training is being delivered or whether they understand the content of the training. These forms should be analyzed by the facilitators in the evening, in order to make changes for the following day, if necessary and possible.

Evaluation at the end of the training

Evaluation can be incorporated in the closing session of the training. A final evaluation form can be circulated for each participant to comment in writing more extensively on the training experience, and whether skills and knowledge have improved as a result of the training.

A last word before beginning

The facilitator should feel comfortable before beginning the first day of the session. The facilitator should review 'Do's and Dont's for facilitators,' in order to refresh some useful pointers for how to proceed in the first session. In addition, before beginning any training or coaching session, the 'Checklist for Facilitators' - should be used to ensure that all preparation has been completed.

Do's and Don'ts for Facilitators[2]

Do's	Don'ts
Prepare the session thoroughly	Have too many ideas or activities in one training course
Coordinate tasks and responsibilities with your co-facilitator (if necessary)	Use fancy language or jargon which participants cannot understand
Be flexible and prepare extra items if time permits, or be ready to cancel certain items if there is not enough time	Worry if an exercise fails – try to find the reason why from the participants
Be prepared to adjust activities to match the number of participants (more or less)	Substitute a planned activity for something else
Plan enough breaks and time for participants to socialize and get to know one another	Repeat points if it is not necessary
Get to know the participants names and titles, and show them proper respect	Interrupt participants or judge their responses or performance
Adjust your language to suit the background of the training participants	Introduce unrelated activities to the learning process
Repeat points as often as necessary to achieve comprehension by participants	Have excessive breaks without firm rules for restarting the session
Try to include everybody in the learning process	Speak for long periods of time. The ratio of teacher to participant talk time should be 30% to 70% (i.e. in a 5 hour training, you should talk for 90 minutes, the participants should talk for 210 minutes)
Ask clear and open-end questions	Make critical remarks at any stage for any reason
Create a good learning environment	Make decisions which should be made by participants
Have clear but well understood expectations	Allow conflict to occur between the participants
Arrange the seats in a circle fashion so everyone can see their peers	Show your disappointment if participants fail to grasp a
Use energizers or warm ups when needed	Give special treatment to certain participants and not others
Maintain good body language	Be impolite or offensive in your body language

2 Adapted from "Economic and Social Commission for Asia and the Pacific (2003) Conflict negotiation skills for youth," http://www.creducation.org/resources/Conflict_Negotiation_Skills_Youth_UNESCAP.pdf

Training Checklist for Facilitators

ITEM to CHECK	Tick here (X)
1. Get to know the participants as much as possible: who they are, how many there are, origins, and backgrounds.	
2. ke sure you and your co-facilitator have carefully prepared what you are actually going to do.	
3. Make sure the participants are aware of what they are going to take part in.	
4. Check the venue and facilities. If possible, visit the place where the workshop will be held and try to see if there is anything that is missing.	
5. Write a list of what is needed and give it to the person in charge of the facilities, such as the following things: • photocopies of training agenda • photocopies of sessions from the manual (as required) • training pre-tests and post-tests • training evaluation forms • training attendance list • flipchart paper • markers • tape • LCD projector • drinking water and snacks • other items to be identified for each course	
6. If you cannot visit the venue in advance, make sure you are there early, before the participants arrive, so that you can organize the venue before they arrive.	
7. Make sure the participants have all the information they need, especially if the workshop goes on for several days, including: • information about the location of venue and time of training • phone number where you can be reached if necessary • contact person and details, in case participants need to call in on an emergency	
8. Ask the participants in advance if they have any special needs related to food, accommodation, and access to training venue and information related to training material and content.	

This section of the facilitation guide is designed to support participatory training on Part 1 of the manual. It includes a variety of participatory approaches such as group discussions, individual exercises, and plenary sessions. The trainers can, of course, use alternative training methods if necessary.

It is recommended that the trainer conduct a test before and after the training on Part 1 in order to measure the participants' level of knowledge. Also, trainers should prepare training materials such as presentation, flipcharts, markers in different colours, and other relevant items required by each session of the manual in advance of the training.

The training is divided into 8 sessions including:

1. Session 1: Causes of Climate Change
2. Session 2: Vulnerabilities and Impacts of Climate Change
3. Session 3: Disaster Risk Reduction
4. Session 4: Climate Change Adaptation Strategies
5. Session 5: Climate Change Mitigation
6. Session 6: Global and National Climate Change Frameworks
7. Session 7: Climate Change, Development and Human Rights
8. Session 8: A Rights-Based Approach to Climate Change Response

SESSION 1

CAUSES OF CLIMATE CHANGE

This session aims to equip partici-pants with a basic nderstanding of the causes of climate change that includes the Greenhouse Effect, sources of Greenhouse Gases (GHGs), and GHG emissions in Cambodia.

MATERIALS:

- Session 1 of Part 1
- Index cards with words and concepts
- Flipcharts
- Markers

PREPARATION STAGE:

1. Make photocopies of the session for participants
2. Prepare 3-4 sets of 5 coloured cards. On each card, write the words: weather, climate, green-house gases, greenhouse effect and global warming.
3. On a flipchart or your power point slides, write the following questions:
   a. Have you heard about GHGs and the greenhouse effect?
   b. If so, do you know what they are?
   c. Do you know where GHGs come from?
   d. What are the sources of GHG emissions in Cambodia?
4. Prepare a summary of Session 1 of Part 1 for your Power Point presentation or on flipcharts for presentation to participants.
5. If there is electricity, prepare a LCD projector to present your Power Point presentation and to play the videos about the greenhouse effect.

TIME: 2 hours

FACILITATION STEPS:

1. Explain the objectives of the session
2. Divide participants into 3-4 groups

3. (Prepare in advance) Write one of the following words or concepts on each index card in 3-4 sets, and give a set to each group. Each group will have a full set of cards listing each of the words/terms below:
   a. Weather
   b. Climate
   c. Greenhouse gases
   d. Greenhouse effect
   e. Global warming
4. The groups should try to define or describe the words/concepts and then 20-30 minutes later each group should present their definitions or descriptions to all participants for further discussion.
5. Next, ask the following questions. Have the participants read Session 1 of Part 1 for answers.
   a. Have you heard about GHGs and the Greenhouse effect?
   b. If so, do you know what they are?
   c. Do you know where GHGs come from?
   d. What are the sources of GHGs emissions in Cambodia?
6. Present the summary of Session 1 of Part 1 of the manual so that participants understand all the definitions, the greenhouse effect phenomenon, and types and sources of greenhouse gases.
7. Play the video on the greenhouse effect (found on the DVD accompanying this manual) if time allows and if you have electricity and LCD projector.
8. Q&A and wrap-up session.

COMMENTS:

- For a more in-depth under-standing of the issues/concepts of climate change look in the Annex for links to useful websites.
- It is important that participants understand the concepts in this session before moving on to the next session.
- A video produced by the Ministry of Environment in Khmer language about the greenhouse effect and climate change impacts can also be used for this session. It is in the CD at the back of the manual.
- The National Geographic video about the greenhouse effect is interesting:
  http://video.nationalgeographic.com/video/player/environment/global-warming-environment/global-warming-101.html

SESSION 2

VULNERABILITIES AND IMPACTS OF CLIMATE CHANGE

Session 2 explains why Cambodia is vulnerable to climate change; what are the potential climate change impacts on agriculture, forests, water resources, fisheries, ecosystems, and health; and how changes might affect women and children, as well as peace and stability.

MATERIALS:

- Session 2 of Part 1
- Tapes
- Flipcharts and paper
- Index cards
- Markers

PREPARATION STAGE:

1. Make photocopies of the session for participants
2. Prepare three index cards with the words "impacts, vulnerabilities and risk" written on them.
3. Write down the questions in step 4 below on the top of flipcharts – one question per flipchart.

TIME: 2 hours

FACILITATION STEPS:

1. Explain the objectives of the session
2. Stick the cards with the following terms and their definitions on the wall:
   a. Impact
   b. Vulnerability
   c. Risk
3. In a plenary session, ask participants to read the words out loud and discuss what they think the terms mean
4. Divide the participants into 3-4 groups to discuss the following questions. Each group should choose two questions to discuss:

a. What are the climate change impacts on water resources in Cambodia?
b. What are the climate change impacts on agriculture and fisheries in Cambodia?
c. What are the climate change impacts on the health sector in Cambodia?
d. What are the climate change impacts on coastal areas in Cambodia?
e. What are the climate change impacts on forests and ecosystems in Cambodia?
f. Why are women more vulnerable to climate change?
g. How might climate change impact overall peace and stability in Cambodia?

5. Encourage the participants to find the answers from Session 2 of Part 1 of the manual if necessary.
6. After each group presentation, summarize the results from the group discussions to link to the key points from the session.
7. Present an overview of Session 2 on why Cambodia is vulnerable to climate change, and what are the potential impacts of climate change on the different sectors.
8. Review the key impacts of climate change on each sector.
9. Q&A and wrap-up session.

SESSION 3

UNDERSTANDING DISASTER RISK REDUCTION

Session 3 provides a basic under-standing of DRR words, concept of DRR, disaster management cycle and process of risk reduction, the difference between DRR and climate change adaptation, and key inter-national DRR frameworks.

MATERIALS:

- Session 3 of Part 1
- Index cards
- Markers
- White board
- Flipcharts

PREPARATION STAGE:

1. Make photocopies of the session for participants
2. Prepare the summary of this session for presentation
3. Prepare 3-4 sets of 6 index cards – one word per card as described in step 1 below.
4. Write definitions of the six words on separate cards – one definition or picture per card to describe the words in step 1 below.
5. On each index card, write down an element of the disaster management cycle using the terms provided.

TIME: 2 hours

FACILITATION STEPS:

1. Explain the objectives of the session
2. Divide participants into 3-4 groups
3. Provide each group with a set of 6 index cards with the words and their definitions or pictures about the followings words:
   - Hazards
   - Risk

- Disaster Risk
- Disaster Risk Reduction
- Capacity
- Resilience

4. Ask them to match the words/concepts with their definitions or pictures provided.
5. Encourage participants to arrange the elements of the disaster management cycle with the terms provided so that it matches the diagram found in the manual.
6. In group discussions, ask participants if they have activities in their communities that address identified vulnerabilities – what hazards and impacts are they addressing, and how are they increasing climate change resilience?
7. Present the summary of Session 3 of Part 1 so that participants understand the DRR cycle and the difference between disaster risk reduction and climate change adaptation.
8. Q&A and wrap-up session.

COMMENTS:

This is a very important session because it contains the vocabulary and concepts that are necessary for all the following sessions. It provides a foundation for understanding future information and assessments. You should be sure that the words are understood. This is a long session and should be broken up with several breaks. Also, it can be interesting to introduce one or two successful disaster risk reduction projects in Cambodia.

SESSION 4

CLIMATE CHANGE ADAPTATION STRATEGIES

In this session, you will equip the participants with an understanding of the concept of adaptation and response measures to reduce climate change impacts. In Cambodia, building adaptive capacity including knowledge and resources is very important to respond to climate change impacts.

MATERIALS:

- Session 4 of Part 1
- Flip chart paper
- Markers
- White board

PREPARATION STAGE:

1. Make photocopies of the session for participants.
2. On top of a flipchart, write down a climate impact or vulnerability that communities where they work or live are facing. If there are three major impacts or vulnerabilities, write all three – one per flipchart.
3. Prepare the summary of Session 4 of Part 1 for presentation.

TIME: 2 hours

FACILITATION STEPS:

1. Explain the objectives of the session.
2. Divide the participants into 3-4 groups according to the number of participants.
3. Ask each group to think and write down any possible adaptation strategies to address a potential impact in a community they identify; for example, drought, flood, or rain fall pattern change. The participants can find the answers from Session 4 of Part 1 of the manual and based on their knowledge or experiences.

4. Each group should rotate to the next group's flip chart every 10 minutes and write down additional adaptation strategies on each flip chart until all groups have 'visited' the flip charts of all other groups (World Café method).
5. Ask each group to present the results and open a discussion.
6. Present the summary of Session 4 of Part 1 so that participants understand the adaptation options and coping strategies, including case studies if any.
7. List some key adaptive options that would be appropriate for Cambodia.
8. Q&A and wrap-up session.

COMMENT:

It can be informative to introduce one or two successful climate change adaptation projects in Cambodia. You can find some from the Good Practices Booklet produced by the Joint Climate Change Initiative (JCCI).

SESSION 5

CLIMATE CHANGE MITIGATION

Session 5 introduces some appropriate measures of reducing greenhouse gases that cause climate change. The interventions include renewable energy including forestry and energy efficiency. Also, in this session you will explain to participants some of the key relevant concepts or mechanisms such as Clean Development Mechanism (CDM), carbon offsets and Reducing Emissions from Deforestation and Forest Degradation (REDD).

MATERIALS:

- Session 5 of Part 1
- Flipcharts or whiteboards
- Markers
- Some pictures if necessary

PREPARATION STAGE:

1. Make photocopies of the session for participants.
2. Prepare some flipcharts for each group to list down the measures to reduce greenhouse gases such as CO_2, CH_4, N_2O, etc.
3. Prepare the summary presenta-tion of Session 5, Part 1 for this session.

TIME: 2 hours

FACILITATION STEPS:

1. Explain the objectives of the session.
2. Divide participants into two groups. One group should focus on energy (renewable energy and energy efficiency), while the other one should focus on agriculture.

3. Ask each group to think about what Cambodia can do to reduce greenhouse gases in the energy and agriculture sectors. They can find some mitigation options from Session 5 of Part 1 of the manual.
4. Each group presents their results.
5. Present the mitigation options to participants so that they include Clean Development Mechanism (CDM), REDD, and renewable energy technologies such as biogas, efficient cook stoves, solar power and hydro power.
6. List the mitigation measures that are appropriate and relevant for the participants to know about.
7. Q&A and wrap-up session.

COMMENTS:

- Be certain that everyone under-stands the difference between adaptation and mitigation.
- Participants should understand what they can do personally and in their communities, as well as through advocacy and lobbying of provincial and national government departments.

SESSION 6

NATIONAL AND GLOBAL CLIMATE CHANGE FRAMEWORKS - GOVERNMENT STRUCTURES, POLICIES, STRATEGIES, AND NEGOTIATIONS

In this session, you will inform participants about climate change frameworks at international and national levels. The frameworks include the United Nations and national structures, policies, and international negotiations on climate change.

MATERIALS:

- Session 6 of Part 1
- Flipcharts
- Markers in different colours

PREPARATION STAGE:

1. Make photocopies of the session for participants.
2. Prepare the of Conference of Parties (CoPs) diagram in the manual on a flipchart or on a Power Point slide.
3. Prepare a summary of the session.
4. Have some flipcharts ready to write on during the group discussion.

TIME: 1½ hours

FACILITATION STEPS:

1. Explain the objectives of the session.
2. Divide the participants into two groups. One group should search for information about national policy frameworks in the manual while the other group looks for international climate change frameworks. At the national level, they review the manual for information about NAPA, policy framework, national climate

change committee, and other strategies. At the international level, they should review the manual for information about the UNFCCC process, CoPs outcomes, and other policy frameworks or mechanisms. In addition to consulting Session 4 of Part 1, participants can find the answers from relevant websites if they have access to the internet. Ask them to summarise the findings.

3. Invite each group to present their findings in a plenary session.
4. Present the summary of Session 6 of in Part 1 about the UNFCCC process, including annual CoPs and the Kyoto Protocol, and Cambodia climate change policy frameworks and other strategic plans including the National Adaptation Program of Action (NAPA), the Green Growth Roadmap, and the Cambodia Climate Change Strategy Plan (CCCSP).
5. Ask participants to speak about the structure of the National Climate Change Committee including roles and respon-sibilities.
6. Open discussion with Q&A and wrap-up session.

COMMENTS:

You can find more information on the websites below:

- UNFCCC website: www.unfccc.int
- At the national level, visit the website of the Cambodia Climate Change Department: http://www.camclimate.org.kh

SESSION 7

UNDERSTANDING CLIMATE CHANGE, DEVELOPMENT AND HUMAN RIGHTS

This session explains the linkages between climate change, development, and human rights.

It looks at human rights and global justice issues from an international perspective, and outlines why climate change issues are a matter of global justice, why justice is important to human development, and why climate change is also considered to be a women's issue.

MATERIALS:

- Session 7 of Part 1
- Flipcharts
- Markers
- White board

PREPARATION STAGE:

1. Make photocopies of the session for participants.
2. Summarise the fundamental rights on the flipcharts if necessary.
3. Prepare presentation of this session.
4. Have some flipcharts ready to write on during the group discussion.

TIME: 1-2 hours

FACILITATION STEPS:

1. Explain the objectives of the session.
2. Divide the participants into three groups.
3. Ask them some basic questions about fundamental human rights.
4. Ask each group to discuss each of the human rights; and in the context of climate change, how each of these basic rights relates

to food security or agriculture, water resources, health, forestry, access to information, and participation in decision making. Each group should discuss the linkage of human rights with all five concerns.

5. Invite a representative of each group to present/summarize the views from the group discussions.
6. Present the summary of Session 7 of Part 1 to understand more about the human rights, development and climate change connections.
7. Open discussion with Q&A and wrap up.

COMMENTS:

In the annex, you can find further information about international agreements (many of which Cambodia has signed) that will give you an in-depth understanding of international agreements. From these documents, participants can begin to understand their rights, and which government departments are responsible for granting these rights.

SESSION 8

UNDERSTANDING A RIGHTS-BASED APPROACH TO CLIMATE CHANGE RESPONSE

In this session, you will explain the concept of a rights-based approach to development, and how the duty bearers and rights holders are accountable to each other to address climate change.

MATERIALS:

- Session 8 of Part 1
- Flipcharts or whiteboard
- Index cards
- Markers

PREPARATION STAGE:

1. Make photocopies of the session for participants.
2. Draw a table with the information as you see in the table on the next page.
3. Prepare some flipcharts for the group discussion.
4. Prepare presentation to describe Rights-based approach and what participation means if necessary.

TIME: 1-2 hours

FACILITATION STEPS:

1. Explain the objectives of the session.
2. Divide participants into three focus groups.
3. Use the table for the group discussion by listing all the basic rights in the first column.
4. Base the focus group discussions on the following questions:
   a. What are the roles and responsibilities of rights holders (citizens) and duty bearers (government)?
   b. What are the challenges of holding the government accountable to its citizens to address climate change?
5. Present or review Session 8 of Part 1 to gain more understanding about rights-based approaches and climate change responses.
6. Q&A and wrap up.

COMMENTS:

It is important to emphasise that rights come with roles and responsibilities at all levels. You may want to consider here having a discussion on responsibilities related to rights. One way that groups may be facilitated in looking at this is to review roles and responsibilities in relation to their rights.

Human Rights	Individual roles and responsibilities in the community	Civil society organizations (NGOs)	Government/ duty bearers roles and responsibilities	Challenges in holding government accountable to its citizen
Right #1				
Right #2				
Right #3				
Right #....etc.				

This learning manual is a joint effort of a working group composed of JCCI (Forum Syd DCA/CA, and Cord), Plan International Camdodia, World Vision Cambodia, Caritas Cambodia, in cooperation with the Ministry of Environment's Climate Change Department.

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GLOSSARY AND ACRONYMS

GLOSSARY

Adaptation: An adjustment in natural or human systems in response to the actual or expected effects of climate change. This adjustment/adaptation can moderate harm or exploit beneficial opportunities.

Afforestation: The planting of new forests on lands that historically have not contained forests.

Annex I Parties: The industrialized countries listed in Annex I to the United Nations Framework Convention on Climate Change, which are committed to returning their greenhouse-gas emissions to 1990 levels by the year 2000 as per Article 4.2 (a) and (b). They have also accepted emissions targets for the period 2008-12 as per Article 3 and Annex B of the Kyoto Protocol. They include the 24 original OECD members, the European Union, and 14 countries with economies in transition. (Croatia, Liechtenstein, Monaco, and Slovenia joined Annex 1 at COP-3, and the Czech Republic and Slovakia replaced Czechoslovakia.)

Assessment: An estimate or evaluation of the size, value, or quality of something.

Biodiversity: The variety of life forms (plants and animals) in a particular habitat or ecosystem.

Capacities: Individual and collective abilities and resources that can be used to adjust to climate change hazards and shocks, to moderate, to reduce or cope with the damage, or to take advantage of its opportunities. These capacities can either prevent or mitigate the impact of a given hazard, or prepare the community to respond better to the impact (readiness) – all resulting in improvements in community resilience.

Capacity building: The process of developing technical skills and other capabilities in both individuals and institutions/ organisations. This will enable them to effectively address the causes and effects of climate change.

Carbon sequestration: The process of removing carbon from the atmosphere and depositing it in a reservoir, such as an underground geologic formation, to securely store it away from the atmosphere.

Carbon sink: A natural or artificial reservoir that accumulates and stores carbon containing chemical compounds for an indefinite period. The process by which carbon sinks remove carbon dioxide (CO_2) from the atmosphere is known as carbon sequestration. The main natural sinks are absorption by the

oceans through physiochemical and biological processes, and through photosynthesis by plants and trees.

Clean Development Mechanism: A mechanism under the Kyoto Protocol through which developed countries may finance greenhouse-gas emission reduction or removal projects in developing countries, and receive credits for doing so, which they may apply towards meeting mandatory limits on their own emissions.

Climate: The long-term average of conditions in the atmosphere, as described by statistics such as the mean and variability of the elements of atmospheric conditions. This represents prevailing atmospheric conditions over a long time period (30 years, as defined by the World Meteorological Organisation).

Climate Change: A gradual change in the long-term climate. This includes changes to air and sea temperatures, rainfall and wind patterns, global ice cover, etc. These changes occur as a natural part of the climate system, and are also caused by human activity.

Climate change adaptation: Adaptation is understood as the thing we do, planned or not planned, that results in adjustments to new conditions, stresses, and natural hazards. Together they enhance people's resilience to climate change.

Conference of the Parties: The supreme body of the United Nations Framework Convention on Climate Change (UNFCCC). It currently meets once a year to review the Convention's progress. The word "conference" is not used here in the sense of meeting, but rather of association. The Conference meets in sessional periods.

Disaster: A serious disruption in a community involving widespread human, material, economic, or environmental losses, which exceeds the ability of the affected community or society to cope using its own resources. Disasters are often the result of the combination of: 1) being in a hazard-prone area; 2) the intensity of the weather event; and 3) insufficient capacity or measures to reduce or cope with the negative consequences of extreme weather events.

Disaster risk: The potential for disasters, which could occur in a community or society in the future. Historically, in most areas, specific disasters over the long term are predictable. In some areas, there is a continuously present condition of risk. With knowledge of the prevailing hazards, disaster risks can be assessed and addressed.

Disaster risk management: Disaster risk management aims to avoid or reduce the adverse effects of hazards through activities and measures for prevention, mitigation, and preparedness. This is done by individuals, and through organisations and government, at both the local

and national levels. Disaster risk management cuts across many sectors and includes: effective planning, land use management, conservation of key resources, early warning systems, and emergency response.

Disaster Risk Reduction is an approach that attempts to reduce people's vulnerability to hazards through:

a. Ensuring that DRR is both a national and a local priority with strong institutional support for implementation
b. Identifying, assessing, and monitoring disaster risks and enhancing early-warning systems
c. Using knowledge, innovation, and education to build a culture of safety and resilience at all levels
d. Reducing the underlying risk factors
e. Strengthening disaster preparedness for effective responses at all levels

Disaster risk reduction plan: A document prepared by an organisation or government that sets goals, specific objectives, and actions for reducing disaster risks. Disaster risk reduction plans should be guided by the Hyogo Framework and considered and coordinated within development plans, resource allocations, and adapted to programme activities. Linkages to climate change adaptation plans should be made where possible.

Within the Strategic National Action Plan for Disaster Risk Reduction 2008-2015, Cambodia has established an inter-Ministerial National Committee for Disaster Management (NCDM) which includes provincial, district, and commune-level committees for local action.

Disaster Mitigation: Mitigation reduces the risk of a problem becoming a disaster. Proper land-use planning and management are very important for most communities.

Disaster Preparedness: Preparedness aims to reduce the loss of human life and damage to property by making/having plans for immediate response to disasters. Effective preparedness allows communities and institutions to provide a quick, organized response to disasters: For example; early warning systems, planned evacuation routes and sites, and food storage initiatives, etc.

Disaster Relief: Collective actions carried out immediately after a disaster with the objective of saving lives, alleviating suffering, and reducing economic losses. For example, relief includes getting people to safe locations, provisioning of food and clothing, etc.

Disaster Recovery: Recovery is designed to return life and infrastructure to minimum living/operating standards after a disaster. This includes building temporary housing and providing basic household needs. It also guides long-

term efforts to return life to normal.

Disaster Rebuilding: Rebuilding is the long-term response to a disaster. In this phase, permanent infrastructure is rebuilt, ecosystems are restored, and livelihoods are rehabilitated.

Ecosystem: A biological community of interacting organisms and their physical environment.

Global Warming: The rising average temperature of the Earth's atmosphere and oceans and its projected continuation. In the last 100 years, the Earth's average surface temperature increased by about 0.8 °C (1.4 °F) with about two-thirds of the increase occurring over just the last three decades.

Greenhouse gases: The gases responsible for causing global warming and climate change. The major GHGs are carbon dioxide (CO_2), methane (CH4), and nitrous oxide (N20). Less prevalent, but other very powerful greenhouse gases, are hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulphur hexafluoride (SF6).

Hazard: A potential event, given historical data and experience that could cause loss of life, or damage to property, the environment, livelihoods, and human dignity.

Impact: The strong effect, result, or consequence of an action or event.

Intergovernmental Panel on Climate Change: established in 1988 by the World Meteorological Organisation and the UN Environment Programme, the IPCC surveys worldwide scientific and technical literature and publishes assessment reports that are widely recognized as the most credible existing sources of information on climate change. The IPCC also works on methodologies and responds to specific requests from the Convention's subsidiary bodies. The IPCC is independent from the Convention.

Kyoto Protocol: an international agreement standing on its own, and requiring separate ratification by governments, but linked to the UNFCCC. The Kyoto Protocol, among other things, sets binding targets for the reduction of greenhouse gas emissions by industrialized countries.

Least Developed Countries: the world's poorest countries. The criteria currently used by the Economic and Social Council (ECOSOC) for designation as an LDC include low income, human resource weakness, and economic vulnerability. Currently 48 countries have been designated by the UN General Assembly as LDCs.

Livelihood: A means of living or sustenance.

Mitigation: in the context of climate change, a human intervention to

reduce the sources or enhance the sinks of greenhouse gases. Examples include using fossil fuels more efficiently for industrial processes or electricity generation, switching to solar energy or wind power, improving the insulation of buildings, and expanding forests and other "sinks" to remove greater amounts of carbon dioxide from the atmosphere.

Reforestation: replanting of forests on lands that have previously contained forests but have been logged or converted to some other use.

Resilience: The capacity or ability of a system or community to recover and respond adaptively to the effects of hazards in a timely and efficient manner, and preserving or restoring its essential basic structures and functions. But rather than simply returning to the pre-existing state, it may mean transforming into a new state that is more sustainable within a climate change context.

Sustainable: The capacity to endure and support over the long term in which resource use meets human needs while preserving the environment for future generations.

Vulnerability: The degree to which physical structures, people, or natural and economic assets are susceptible to, and unable to cope with loss, injury or damage caused by the impact of a hazard.

Weather: The state of atmosphere at a given time and place measured in terms of variables that include temperature, precipitation, cloudiness, humidity, air pressure and wind. This may change over the course of a day, and from one day to the next.

ACRONYMS AND ABBREVIATIONS

CBA: Community-Based Adaptation

CCCA: Cambodia Climate Change Alliance

CCD: Climate Change Department

CCTT: Climate Change Technical Team

CDM: Clean Development Mechanism

COP: Conference of the Parties

CSR: Corporate Social Responsibility

DNA: Designated National Authority

DRR: Disaster Risk Reduction

GHGs: Greenhouse gases

IDNA: The Interim Designated National Authority

INC: The Initial National Communication

IPCC: Inter-governmental Panel on Climate Change

ISDR: International Strategy for Disaster Reduction

LDCs: Least Developed Countries

MDGs: Millennium Development Goals

MoE: Ministry of Environment

MRC: Mekong River Commission

NAPA: National Adaptation Programme of Action

NCCC: National Climate Change Committee

NCDM: National Committee for Disaster Management

NSDP: National Strategic Development Plan

OECD: The Organisation for Economic Cooperation and Development

RBA: Rights-Based Approaches

REDD: Reducing Emissions from Deforestation and Forest Degradation

RGC: The Royal Government of Cambodia

SNC: The Second National Communication

UNCED: The United Nations Conference on Environment and Development

UNDP: United Nations Development Programme

UNFCCC: The United Nations Framework Convention on Climate Change

USEPA: The United States Environmental Protection Agency

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ASSESSING ORGANISATIONAL CAPACITY TO ADDRESS CLIMATE CHANGE

CONTENTS

Part 3

CAPACITY, OPPORTUNITY AND INSTITUTIONAL NEEDS

Part 3 builds on the results of the field-based investigations and assessments. It is designed to support government and NGO staff to identify the capacities of their institutions for integrating climate change into their programmes. To do this, a tool called Organisational Self-Assessment (OSA) is used to refine capacities and identify institutionalneeds.

This tool helps organisations identify who they are, what they do, and what their strengths are, as well as understand what capacities are needed to integrate climate change mitigation and adaptation responses in the field and within an organisation.

Part 3 ends with moving the OSA towards the incorporation of specific organisational capacity development needs within proposed pilot project designs. This ensures the effective delivery of a response at the field level, and the sustainability of the organisation's efforts to implement climate change projects in the future.

Objectives

- Be able to determine capacity needs at both the field level and the organisational level.
- Understand the capacities needed to integrate climate change mitigation and adaptation actions, and importantly, how these fit with an organisation's mandates, visions, and goals.
- Learn about the processes that together make up an OSA, which reveals an organization's climate change readiness profile.

Target Audiences

NGO or government officials who wish to develop their institutional capacity plan to support the implementation of climate change projects.

SESSION 1

WHAT DOES CAPACITY DEVELOPMENT MEAN?

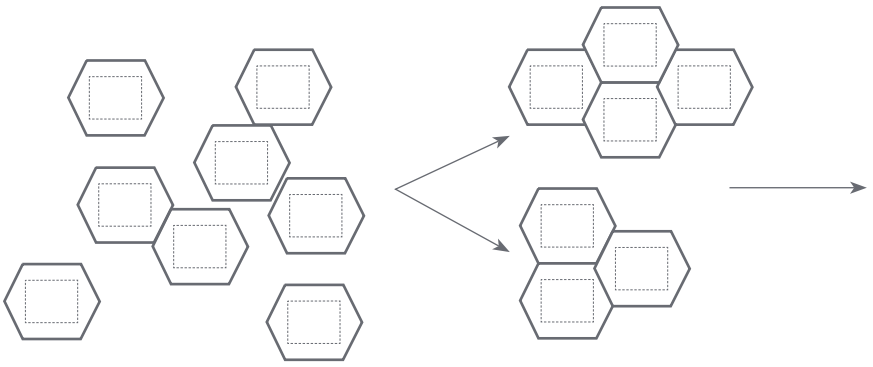
MATERIALS:

- Flipcharts
- Index cards
- Markers

TIME: 1 hour

FACILITATION STEPS:

- Prepare a set of hexagons and give each participant 3 hexagons
- Each participant will answer in one or two words the following:
  - ☑ What do you think of when you hear the words 'sustainable development'? – Write your answer on Hexagon 1
  - ☑ What do you think of when you hear the words 'climate change capacity'? – Write your answer on Hexagon 2
  - ☑ What do you think of when you hear the words 'climate change capacity development/building'? – Write your answer on Hexagon 3
- Bring hexagons with similar themes together and discuss the meaning of each theme
- Summarize your discussion with all participants and ask the question: What does capacity development mean in a climate change context?



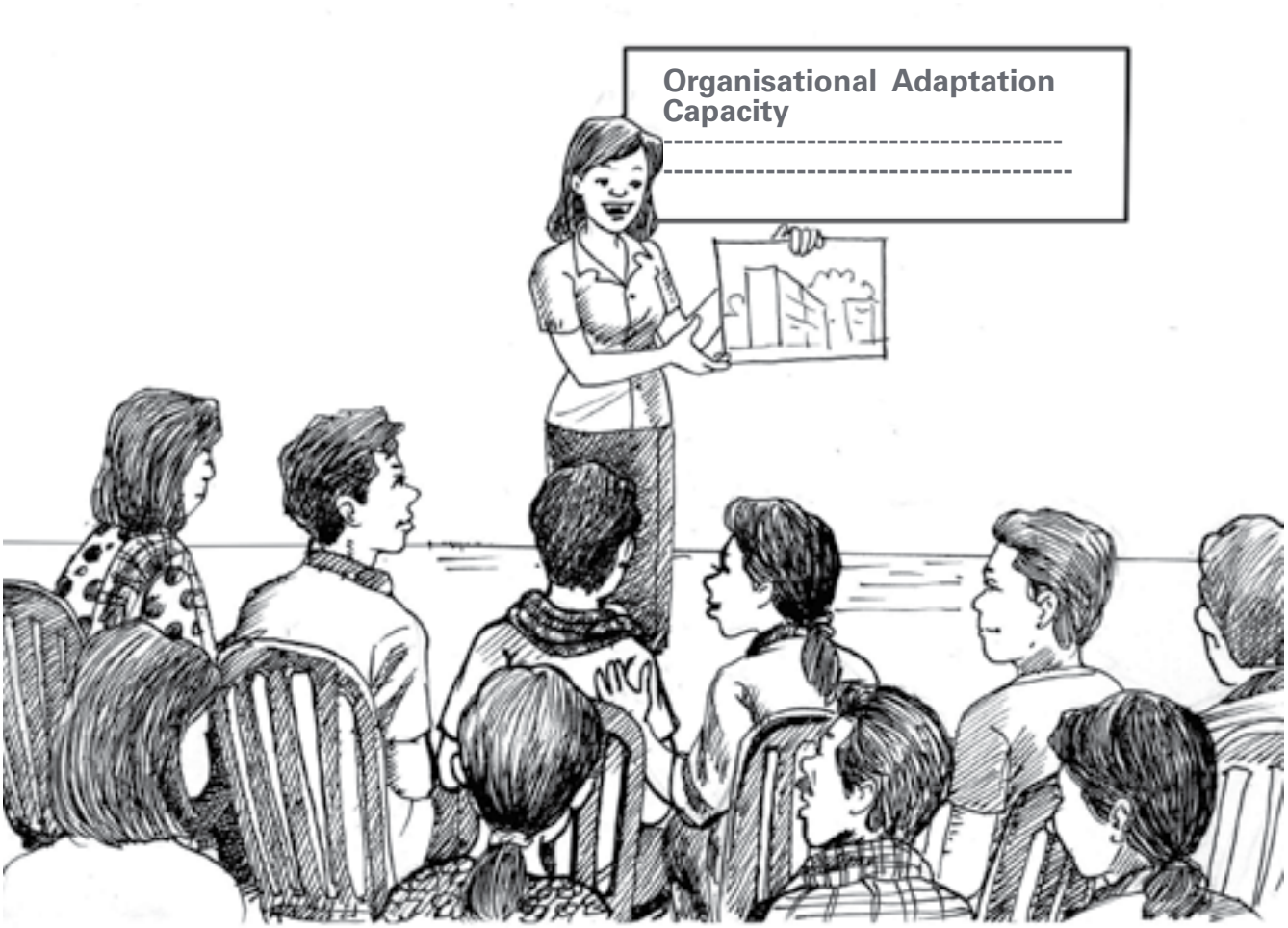
PLENARY:

What does capacity development mean?

Note for the facilitator: you can find the definition of capacity and capacity building in the glossary section of the manual.

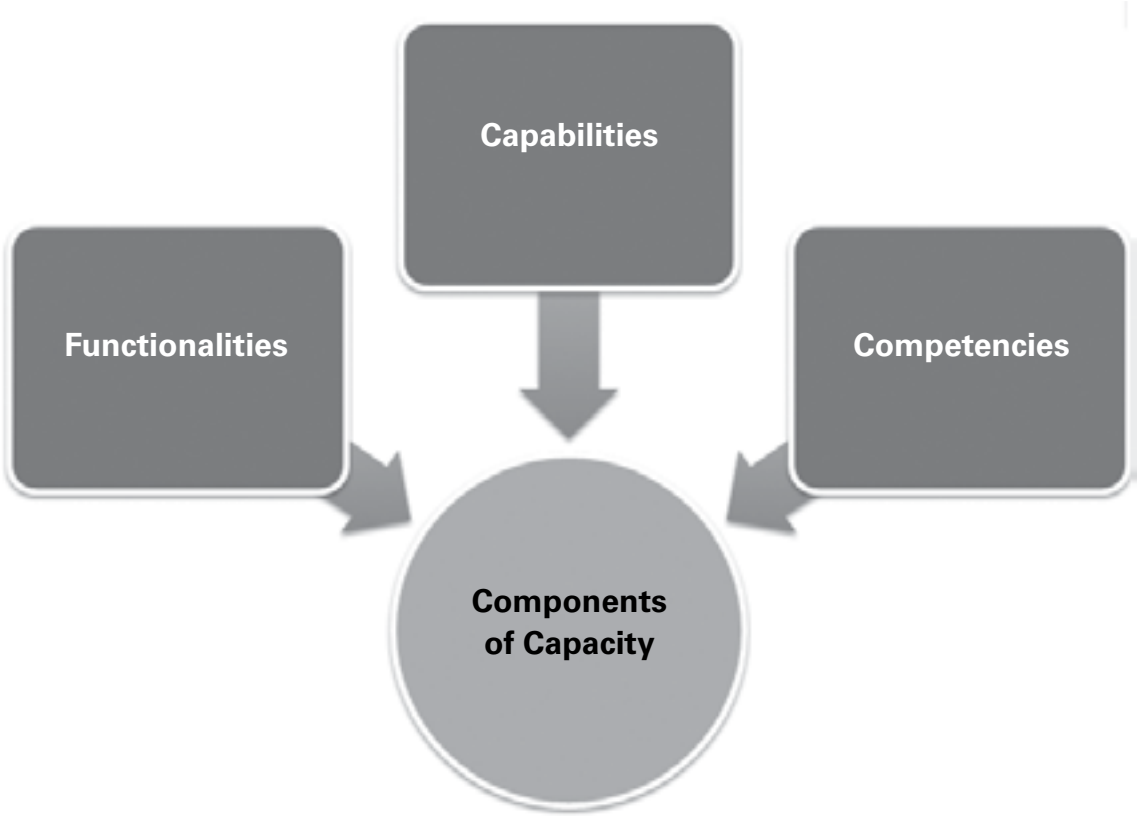
There are 5 central characteristics of the concept of capacity:

1) The ability to act
2) The ability to generate development results
3) The ability to relate
4) The ability to adapt and self-renew
5) The ability to achieve coherence



Together they can be grouped into 3 concepts: the functionalities, capabilities, and the competencies.

Functionalities	Value
	Culture
	Information
	Structure
	Financial
Capabilities	Technology and logistics
	Social technologies to earn legitimacy
	Social technologies to adapt
	Social technologies to create meaning and identity
Competencies	Influence
	Behaviours
	Energy
	Individual Abilities
	Skills



Option: Fill in a description of your organization's capacities

Functionalities	Value	
	Culture	
	Information	
	Structure	
	Financial	
Capabilities	Technology and logistics	
	Social technologies to earn legitimacy	
	Social technologies to adapt	
	Social technologies to create meaning and identity	
Competencies	Influence	
	Behaviours	
	Energy	
	Individual Abilities	
	Skills	

Note for the Facilitator: This session should finish with a discussion on the barriers to capacity development, and suggested ways forward.

SESSION 2

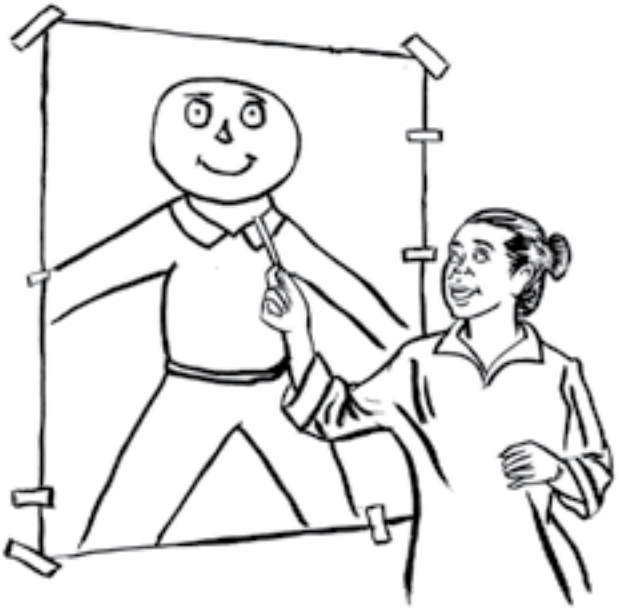
EXPLORING AN ORGANISATIONAL SELF-ASSESSMENT

MATERIALS:

- Flipcharts
- Markers

TIME: 1 hour

FACILITATION STEPS:



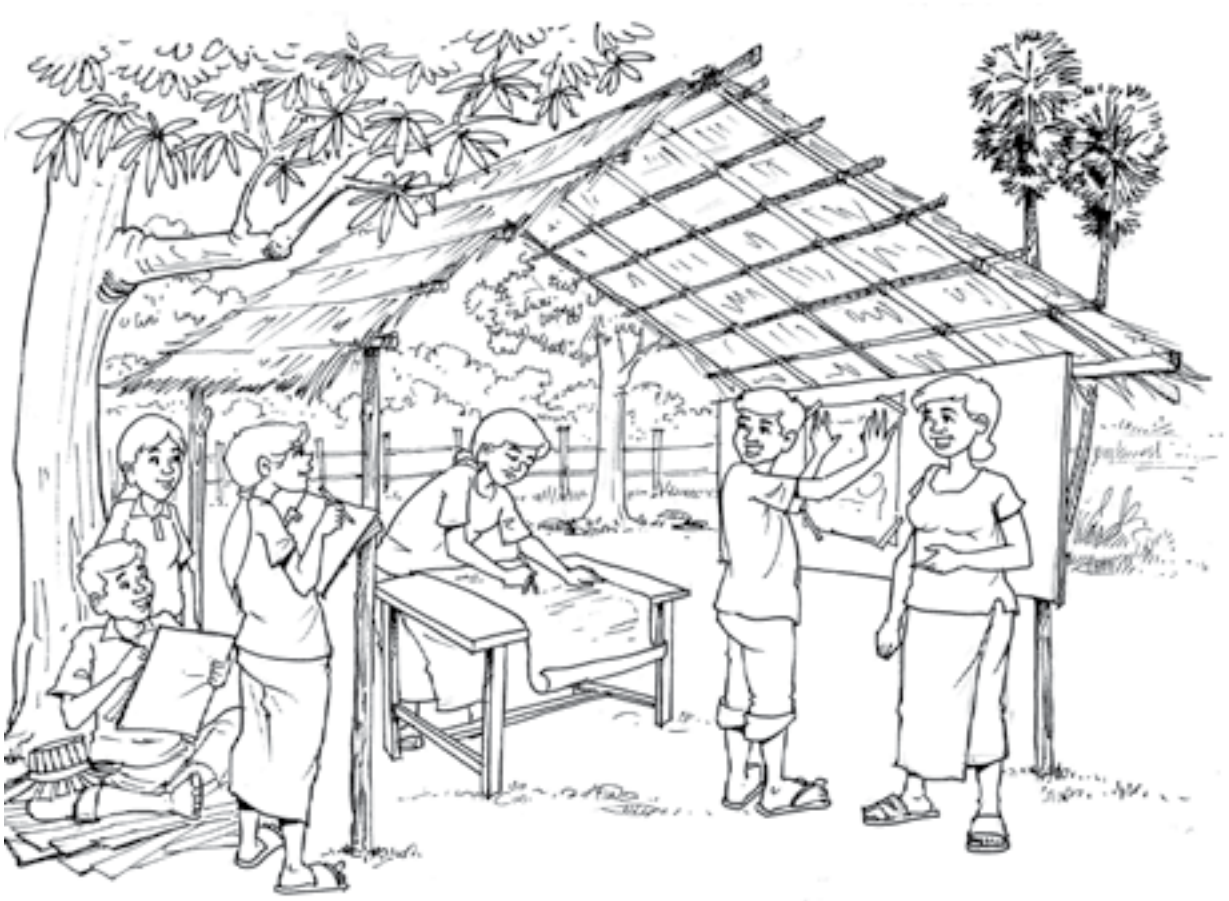
- To begin this session, it is necessary to review the results from the field work, and to define your organisation, considering it as a system to create development value. To do so, conduct a brain-storming activity using index cards stating briefly:
  - ☑ What is the vision of its identity (to be)
  - ☑ What it does (to do) in the context of programmes and its mandate
  - ☑ How it manages itself (to manage) in the context of the systems it uses
  - ☑ How it relates to others, e.g. partnerships, collaboration, and intentions (to relate)

HINT: Draw a picture of a person on a piece of flipchart paper and use it to structure the activity by placing cards in relevant areas of the picture of the person. For example, cards related to the vision of the organisation's identity ('to be') can be placed around the heart, for 'to do,' place cards around the legs, 'to manage' – place cards around the head, and 'to relate' – place cards around the hands.

A SHORT EXAMPLE:

To Be	To Do	To Manage	To Relate
Be a leader in climate proof agriculture-based livelihood.	• Integrated soil, water, and farm management training and support programme • Project-based collaboration and innovation with research institutes • Diversification of agricultural livelihoods for small farm holders - project • Farmer to farmer extension support project	• Work in collaboration – to stay informed on current agricultural climate-proof technologies • Internal training programme • Maintenance of organisational and local-level knowledge management systems • Efficiency and diversity within micro-finance system mandated	• Project based partnerships with farmer organisations, academia, and government line agencies • Advocacy programme in support of land and farm tenure rights

Note for the facilitator: the resultsfrom the field observation and assessment in Part 2 of the manual, in particular the outcome from the climate change adaptation plan, should be used as a reference for this exercise. This is related to the planned response activities, cooperation and resources.



SESSION 3

AN ORGANISATIONAL SELF-ASSESSMENT FOR PLANNING CAPACITY DEVELOPMENT

MATERIALS:

- Flipcharts
- Markers

TIME: 1-2 hours

FACILITATION STEPS:

- We can now arrange the information produced in Session 2 into chart form. Note that 'TO BE' is a vision statement and should be placed within each chart to remind the organization/institution of what it aspires 'TO BE' as it conducts the OSA.

A SHORT EXAMPLE:

To Be (a statement):		**Climate Change Integration**	
To Do (a list of programmes, projects, and/or activities)	Current Capacity Strengths (To do)	Chosen Response (Your Proposal)	Capacities Needed to do the Response (Field Level)

Start ----------►

Work across the charts as if they were one, i.e. keeping the 'Response Options' aligned.

Continue ----------►

To Be:		Climate Change Integration
To Manage (Systems)	Current Capacity Strengths (To manage)	Capacities Needed to MANAGE the Chosen Responses (Organisation/ Institutional Level)
		THESE ARE NEWLY DEFINED, NOT FROM THE CHART SHOWN ABOVE

Continue ----------► **End**

To Be:		Climate Change Integration
To Relate	Current Capacity Strengths (To relate)	Capacities Needed to RELATE the Chosen Response (Advocacy, Collaboration, Partnership)
		THESE ARE NEWLY DEFINED, I.E NOT FROM THE CHART SHOWN ABOVE

- With the charts complete, we can now define the ORGANISATION'S CAPACITY GAPS. One example is demonstrated below.
- The following should be done for each portion of the OSA. Information derived can then be used to inform the development and delivery of an organisational capacity development plan for integrating climate change development initiatives.

To Be:		Climate Change Integration
To Do (a list of programmes, projects, and or activities)	Current Capacity Strengths (To do)	Capacities Needed to DO the chosen Response – Field Level
To Manage (Systems)	Current Capacity Strengths (To manage)	Capacities Needed to MANAGE the Chosen Response
To Relate	Current Capacity Strengths (To relate)	Capacities Needed to RELATE the Chosen Response (Advocacy, Collaboration, Partnership)

The differences between these two columns are your CAPACITY GAPS. It is these gaps that will make up the organisational capacity development plan.

SESSION 4

DEVELOPING AN ORGANISATIONAL ACTION PLAN FOR CLIMATE CHANGE CAPACITY DEVELOPMENT

Thus far the activities in Part 3 have enabled participants to identify various climate change response opportunities and options at an organisational or institutional level. Many organisations and institutions implement internal capacity development programmes, and often actions are funded in conjunction with their donor funded projects and programmes. The chart below can be used to organize the output of your OSA, as well as identify how the organisational capacity development needs can be included into a proposal.

MY OSA CLIMATE CHANGE PROFILE

To Be (a statement):.....

	What are my key climate change integration responses?	What are my identified capacity gaps?	How can these capacity gaps be filled?	What resources are needed to fill the capacity gaps?	What would be the barriers to progress?
To Do	•	•	•	•	•
To Manage	•	•	•	•	•
To Relate	•	•	•	•	•

This is reflected in the 'project/ programme' components of your proposal.

This can be reflected in your proposal in two possible locations, 1) in the activity profile, 2) in the methodology... it will depend on how you have chosen to address the gap.

Depending on how you have chosen to address the gap, this may be reflected in the budget line items of your proposal, or as a counterpart to the cost of the proposal.

This column reflects RISKS... exploring relevant good practices or cases is needed to deal with these risks

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PARTICIPATORY TOOLS FOR ADAPTATION PLANNING

CONTENTS

Part 2

CLIMATIC RISK ASSESSMENT, STAKEHOLDER ANALYSIS, AND ADAPTATION PLANNING

Building climate change-resilient communities requires informed local action. As Cambodia continues to implement decentralization reforms there will be increased opportunities to address climate change adaptation at the sub-national level. This will require rural communities to work together with local authorities, civil society, and the private sector to achieve more integrated, cross-sector approaches to addressing climate change.

The Part 2 contains two modules: Module 1, through the use of assessment tools, focuses on identifying a community's knowledge and understanding of their hazards, vulnerabilities, and capacities to adapt. Module 2 analyses all stakeholders involved in climate change response – from village communities to institutions and organisations – and identifies appropriate adaptation and mitigation measures to address their vulnerabilities and strengthen their capacities.

MODULE 1: CLIMATIC RISK ASSESSMENT

This module is focused on drawing from community members' knowledge and understanding of the hazards affecting them, and their vulnerabilities and capacities to adapt to climate change. The primary methodology used for this purpose is a set of Participatory Rural Appraisal (PRA) tools which aim to build knowledge and skills to facilitate climate change investigations. PRA tools facilitate the collection and analysis of information by and for stakeholders that share a situation – but not always similar ideas. PRA emphasises local knowledge and involves communities of stakeholders in the assessment, planning, implementation, and monitoring of development initiatives. Because the building of climate change resilience is a collaborative process, PRA actively empowers marginalised communities, de-emphasises hierarchies, and identifies the resources that can be used, and those that are needed.

PRA methods serve multiple purposes. They provide information to multiple stakeholders and communities in order to evaluate their climate change adaptation strategies. There are four tools used in this module:

1. Climatic Hazards, Vulnerability and Capacity Mapping
2. Climatic Hazard Historical Timeline
3. Seasonal Calendar
4. Ecosystem Services Change Matrix

Note to the Field Facilitator

It is important that the PRA facilitators take time to carefully prepare a strategy for community discussions in order to move stakeholders from one step in the discussion to the next. PRAs are often most successful if done in steps. After each step, the PRA facilitation team will require time to analyse the data that emerges as part of the discussion and to reflect on findings.

Moving from one PRA tool to the next requires a good set of key questions to guide the stakeholders in their progress. PRA tools help organise information, and the key questions will provide guidance to the discussions. The key questions should focus on the purpose of the inquiry process and what needs to be found out. However, often it is not practical or appropriate to ask these questions directly, so they should be separated into several parts. Questions must be easy to understand, and the key questions should join together to form the 'bigger picture.'

The key questions should be a combination of closed-ended and open-ended questions. Closed-ended questions require a definite answer, while open-ended questions can generate opinion. An example of a closed-ended question would be: "How many pigs do you own?" An open-ended question would be: "Why do you raise pigs?" At the village level, 'yes or no,' and 'better or not' questions work well, followed by 'why' questions. However, asking 'why' once is never enough – it is a question that should be asked more than once so that detailed information about an issue can be collected.

Questions should also relate to the villagers' experience – with examples always being given by the facilitator. Because of the importance of social hierarchy in Cambodia, a researcher must know who to question, and when to end the questions. Key questions should not embarrass villagers, point out uncomfortable situations, or make existing conflicts worse. Instead, they should help to bring about constructive thinking. Researchers should also recognize that asking 'why' may sometimes be a new experience for villagers. Be sure to explain to them why you are asking why!

When working with different levels of government, key questions become more challenging because of political concerns. If possible,

try to ask the questions generally and avoid any reference to politics, at least until you have built up trust with these stakeholders. When asking questions, try to take a positive approach, focusing on existing

strengths rather than on weaknesses. For example, if finding out about climate change adaptive capacity needs is the purpose of the questioning, don't be overly negative by focusing questions on capacity weaknesses. Try to frame your questions in a positive way, and highlight the respondent's existing capacities and areas of achievement, before moving to asking about their needs.

Before conducting a lengthy investigation process, it is advisable to have a focus group discussion with your participants. The focus group discussion is used as a 'warm-up' activity to introduce the topic of climate change, the aim and purpose of the investigation, and to allow participants time to share and openly discuss their 'climate change' experiences. This would include changes in their surrounding environment, impacts on their livelihoods, and development changes resulting from climatic related impacts.

IMPORTANT NOTE

It is not that important to introduce the subject of 'CLIMATE CHANGE' at the beginning of the research. For many local stakeholders this is a very abstract concept. The community facilitators should consider focusing only on 'CHANGES.' Changes noted can then be related to climate change concepts at the end of the discussion.

TOOL 1

CLIMATIC HAZARDS, VULNERABILITIES AND CAPACITY MAPPING

While some members of a community already know the hazards, vulnerabilities, and capacities of their communes, other members have not thought much about these matters. For those who know, this tool will help focus the issues, and for others, it should give them an introduction to hazards and risk, and help identify the vulnerable members of the community, especially the elderly and disabled who are put at risk by hazards like floods. It should also give community members their first introduction to planning for a disaster.

Objectives

- Identify areas at risk from specific climate-related hazards and the vulnerable elements and members of the community.
- Identify available resources that could be used by community members in disaster risk management.

FACILITATOR'S GUIDE

MATERIALS:

- Flipcharts
- Markers in different colours
- Pencils
- Index cards

TIME: 3-4 hours

FACILITATION PROCESS:

1. Write down the following words on index cards: resources, infrastructure, hazard-prone areas, and community boundaries. Place the cards on a piece of flipchart paper.
2. Ask the participants to identify resources and infrastructure in their community. Write these down under the index card headings on the flipchart. Let the participants use local language; you can have the English translation in parenthesis

beside the local name of the resources and infrastructure. Break down the information – e.g., trees, identify the different species of trees; list different housing materials such as concrete, thatch, etc.

3. Have the participants draw a legend for each entry on the same flip chart. Legends for hazard-prone areas can be drawn and agreed upon after participants have drawn all resources, infrastructures, and the community boundary on the map.

4. The community members are now ready to draw the climate-related risk map, i.e. hazards, vulnerabilities, capacities. They should use pencils for drawing the boundary. This will enable the community members to erase as they go along. The facilitator guides the community members to:

- Identify N-S-E-W (cardinal) directions
- Start with a landmark
- Be consistent with the legends as they draw the resources, infrastructure, and community boundary.

5. When the map is finished, go back to the legend and ask participants to agree on legend colours for hazard-prone areas, e.g. yellow diagonal stripes for flood-prone areas. Have the participants go back to the map and indicate the hazard-prone areas, using the agreed legends.

6. Ask community members to give a title to their community climate-related risk map. Use local language. English translation can be in parenthesis.

7. On a flipchart, have the community members write down their names as participants in the mapping activity. Alternatively, you can list down the names. Include the date and venue on the list.

The following are sample key questions to ask after the mapping exercise is complete. You should note the answers on a flipchart. While you ask the questions, refer to the map, and make modifications to the map if required, during the discussion.

1. What are the potential hazards that put the community at risk?
2. What places/areas in the community are at risk?
3. What community infrastructure or critical facilities are in danger? Which are resistant to climatic hazards? Why? (For example, look at roads, schools, hospitals, pagodas, and temporary shelters).

4. Who are the people that are most exposed to risk and will likely need assistance?
5. What resources can be found in the community?
6. Who has the least resources in the community (family or community members)?
7. Who has access to and control over the available resources?
8. What resources are at risk? Why are they at risk?
9. Are there resources that are highly resistant to climatic hazards? Why?
10. Is there any safe hill? If so, mark on the map.

Note: If a community map exists, you can decide if the map can be used or updated for your purposes.

Helpful hints

Defined boundaries.....	• Political and/or livelihood orientation
Ecosystem composition.....	• Grass and agricultural lands, forest type, wetlands, marine system components
Key geo-physical elements.....	• Hills, rivers/streams, mountains, natural embankments, and directions of water flow
Natural assets within ecosystems..	• Fresh water and marine products, NTFPs, timber, agroforestry, fodder, agriculture, water
Human made infrastructure.....	• Roads, homes/buildings, dikes, water wells, reservoirs, irrigation, water gates
Land use.....	• Agricultural, fisheries, forestry, animal husbandry, waste disposal
Land management.....	• Note key areas for protection, conservation, exploitation, degradation, conversion, cultural use
Hazards.....	• Commonly affected areas, commonly affected villages, common areas where livelihoods are affected, water flow during wet season and extreme events, and drought patterns

Map sample: Lalok Village, Risk and Evacuation Map, provided by World Vision Cambodia

TOOL 2

CLIMATIC HAZARD HISTORICAL TIMELINE

This tool is designed to identify major changes in the community related to hazard occurrence, intensity, location, and impacts, as well as food security and nutrition, land use and tenure. This tool can also facilitate awareness-raising among community members with regard to changes in their situation over time.

Objectives

- Learn about changes in the nature and intensity of past disasters, in order to prepare for future climate change hazards and potential impacts.
- Increase the awareness among community members of changes in their socio-economic condition and the environment.
- Enable community members to understand the link between hazards and their vulnerabilities.

FACILITATOR'S GUIDE

MATERIALS:

- Flipcharts
- Pieces of coloured bond paper
- Markers in different colours

TIME: 1½ hours

FACILITATION PROCESS:

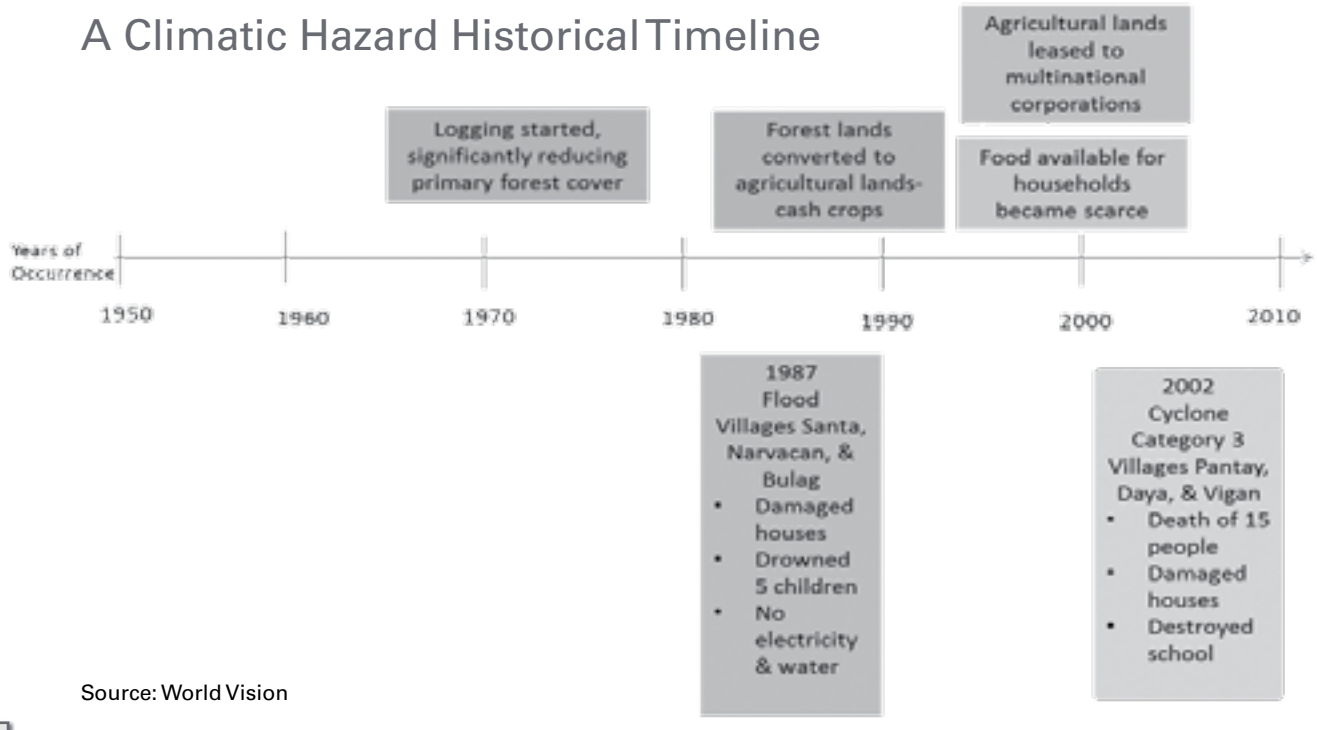
1. On a flipchart, draw a timeline with ten-year period intervals, backdating it 50 years. Label this timeline as "years of occurrence."
2. Ask participants to identify the hazards that have occurred within the ten-year periods, indicating the particular year, intensity of the disasters, their location and impact. Ask participants to write these down on a coloured bond paper and put them under the timeline within the corresponding time period.
3. At the upper portion of the timeline, ask participants to write down on coloured paper the changes in land use, crops, forest cover, water resources, fisheries, changes in land tenure, and changes in food security and nutrition. Each category should have a designated coloured paper.

4. Put the answers on the timeline within the corresponding time period.

The following are sample key questions for discussion after completing the Climatic Hazard Historical Timeline. You should note the answers on a flipchart. While asking the questions, refer to the output of the participants, and change, if needed, along with the discussion.

1. What are the changes in the intensity and frequency of the hazard you have observed over the years?
2. What have been the changes in the impacts of the particular hazards?
3. What infrastructure as well as groups (e.g. women, children, elderly, etc.) have been increasingly affected? Why?
4. What risk reduction measures have been incorporated over the years in rebuilding infrastructure to lessen the impact of hazards?
5. What risk reduction measures and capacity building for vulnerable groups have been undertaken to lessen impacts of hazards?
6. How have the changes in land use and tenure increased or decreased the vulnerability of the community to hazards? Specify the groups whose vulnerability has increased or decreased due to these changes.
7. What changes in ecosystems have you observed/experienced due to the changes in land use and tenure? How has this increased vulnerability of different groups?
8. How have changes in food security and nutrition increased or decreased the vulnerability of different groups?

A Climatic Hazard Historical Timeline



Source: World Vision

TOOL 3

SEASONAL CALENDAR

The Seasonal Calendar provides information on seasonal changes relating to hazards, diseases, food availability and shortage, economic activities including migration and other activities occurring within specific months of the year. The calendar can indicate the degree, severity, or extent of seasonal changes in the above categories.

Objectives

- to increase community awareness of the links among seasonal hazards, diseases, food availability and shortage, and economic activities.

FACILITATOR'S GUIDE

MATERIALS:

- Flipcharts
- Index cards
- Markers in different colours

TIME: 2 hours

FACILITATION PROCESS:

In preparation for this session, divide a flipchart into 13 columns (see the calendar matrix below). In the far left side column, write down the categories of information you and the participants think are appropriate for your investigations, and then write down the 12 months in the remaining 12 columns. Write down on index cards the categories of information you will use during the session.

1. At the beginning of the session, refer to the flipchart prepared by community participants on the Hazard Historical Timeline and their Hazards, Vulnerabilities, and Capacity Map. Refresh their memory of the hazards they have identified that affected or impacted their community.
2. Next, put the index card on "Seasons and Hazards" in the calendar matrix. Let the participants start with this category of information. Instruct them to put the seasons and hazards in the calendar,

depending on their occurrence within the year. Participants can draw or make use of materials in their surroundings.

3. Then, have the participants fill in their other categories of information (economic activities, etc.), according to their occurrence within the year. You can work on one category at a time, or you can work on all the rest of the categories at once. Let them use drawings or available materials, e.g. stones or sticks, if necessary.
4. Rank the level of each hazard from the lowest (0) to the highest (5).

Ask the following sample key questions during discussion after preparing the Seasonal Calendar. You should note the answers on a flipchart. While you ask the questions, refer to the map, and change, if needed, along with the discussion.

Financial and Physical Capital

1. What properties and economic assets do you have? (For farmland, include hectares of cultivated area and value of produce).
2. What tools and equipment do you own for your productive or economic activities?
3. Are there other sources of livelihood that you have, other than those indicated under economic activities? What are these and when do you source them?
4. What is the average income you derive from each economic activity? From other sources of livelihood?
5. What are the regular items and costs you incur for your monthly expenditures?
6. Do you have savings? How do you save? What do you use your savings for?
7. Do you have loans?
8. What credit schemes exist for community members? Do you have access to these schemes?

Human Capital and Health

9. Which community members are often affected with the illnesses and diseases you have indicated in the calendar?
10. What health services are provided in your community, including treatment for the illnesses and diseases you have indicated? In the district and province?

11. Do you have access to these health services?
12. How does access or lack of it affect your economic role/contribution to the family?

Knowledge and Skills

13. What knowledge and skills do men and women have which enable them to undertake alternative or additional sources of income to respond and adapt to seasonal hazards and changing climate?
14. What knowledge and skills do children and youth have that enable them to respond and adapt to the seasonal hazards and changing climate?

Calendar Matrix

Information	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Seasons & Hazards												
Economic Activities												
Food Shortage												
Migration												
Illnesses & Diseases												

TOOL 4

ECOSYSTEM SERVICES CHANGE MATRIX

This tool provides information about changes in the community's ecosystems, and changes in the services/products the ecosystems provide. The exercise helps the participants focus on the many possible dimensions of 'change,' and where climate change impact and adaptation may be happening already. The facilitator must ensure that participants consider all components of their surrounding ecosystems – examples are given in the table below. Note that significant changes are to be further investigated – asking for more specific 'what' information, (e.g. quality and quantity of the noted change), and questions of 'why,' to bring forth discussion of ecosystem use and management systems.

Objectives

- Identify changes noted in surrounding ecosystems, and in the services these systems provide, e.g. supporting, providing, and regulating services over a period of time; and
- Help participants focus on the multiple dimensions of 'change,' and to provide investigators with an idea of the context and where climate change impact and adaptation may already be happening.

FACILITATOR'S GUIDE

MATERIALS:

- Flipcharts
- Markers in different colours

TIME: 1 ½ hours

FACILITATION PROCESS:

1. Explain to the participants the purpose of the exercise and what the output, the 'matrix,' will be used for. Are the ecosystem changes due to climate change or human development and changing land use patterns?

2. Prepare the matrix on a flipchart, use several if needed, to ensure there is sufficient space for information collected, and to keep the information organised neatly (see table below).

3. Ask participants to list the various ecosystems and ecosystem components that they use. An example is given in the table below in relation to forest communities. After listing the ecosystems, ask participants to list what is provided to them by these ecosystems, e.g., water, food, materials, etc.

4. Moving across the matrix, ask participants to describe in detail how they benefit from the 'provisional services' of the ecosystem components. Following each answer, immediately move to the next column: 'Has this benefit changed over time? From when to when?,' and record the answer. Now move to the next benefit listed and follow the same process (see table below).

5. Once the matrix is filled in (except for the FGD column) summarise one at a time, what is happening within each ecosystem (for example, 'forests'), then discuss 'why the change,' and record inputs accordingly. Now move on to discussing what to do next?

6. To wrap up the session, ask participants to express their feelings about what is happening within their surrounding natural environment, and perhaps what changes do they feel are caused by climate change, and what changes are caused by development patterns, and/or something else.

Note: You must have knowledge about ecosystems, and ensure that participants consider all components of their surrounding ecosystem – an example is given in the table below. Note that significant changes are to be further investigated: ask for more specific 'what' information, e.g., quality and quantity of the noted changes, and questions of 'why' to bring out ecosystem use and management systems.

SUGGESTED ECOSYSTEM SERVICES CHANGE MATRIX LAYOUT FOR FOREST COMMUNITIES

Ecosystem/Ecosystem Component - What is Provided? -	How do you Benefit from these?	Has this changed over time? If so, from when to when?		Why the change? (FGD)
		Before	Now	
Forests • Soil stability • NTFPs…		☺ : Explain:	☹ : Explain	Political
Fresh water habitat • Streams: Drinking water, fish/ food… • Lakes…		☹ : Explain	☹☹ : Explain	Political
Agriculture lands • Upland… • Lowland…				
1st column to complete	*2nd set of columns to complete – move horizontal*			*3rd column to complete*

Helpful Hints:

- **How do you benefit?** Most local stakeholders will be focused on their livelihoods as benefits – it is important for facilitators to help participants also think in terms of the supporting and regulating ecosystem services. Doing this from the start will help participants identify a wider range of 'hazards' and 'effects' later on in the investigative process. Also, encourage the participants to think in terms of food security, health and safety, household needs, and economic production. You must also try to get quantitative data when possible.
- **Has this benefit changed over time?** Participants may have difficulty giving quantitative and/ or qualitative information over time intervals, (e.g., going back 5 years at a time). As an option, using 'before' and 'after' with an explanation will yield good information. Other helpful hints are:

☑ Ask participants to think back in time to when they thought the benefits were different – they may provide a date.

☑ Use 'before' and 'now' columns, then try to search for a date.

☑ Make use of the faces – this provides participants with visual clues and promotes detailed 'what' explanations, e.g., ☺ to ☹ to ☹☹ to indicate if the benefit gained was good, ok, or not good.

- **Why the change?** This FGD column focuses on the 'why', the 'what' is focused on in the previous columns.

PERCEPTIONS ON ECOSYSTEM SERVICE CHANGES IN BOEK KRANG VILLAGE, PREY NOB COMMUNE, SIHANOUK PROVINCE

Ecosystem Provisions	How do you Benefit?	Benefit Changed Over Time?		Why the Change?
		Before	Now	
Marine waters • Natural fish production	• Income 90% • Consumption 20%	🙂 Before dikes were built to stop marine water intrusion	🙁🙁 Loss of marine habitat	• Illegal fishing • Chemical fertilizer and pesticide • Decreased forest cover Comment: shift from marine to fresh water (land use conversion
Mangrove Forest	**Construction materials, food etc.**	🙂 **Abundant**	🙁 **Reduction in forest**	**Why the Change?**
Fresh water habitat • Fresh water production of food	• Income 80% • Consumption 20%			• Fresh water • Natural fish populations have decreased(exploitation) • Compensate through aquaculture and technology
• Agriculture Ecosystem • Livestock (cows) • Birds • Fruits	• Income 70% • Consumption 30%	🙂 🙂	🙂 🙂 🙂	• Increase in agriculture for food production • Increase in fresh water for duck farming • Possible because of fresh water retention
Inland Forests • Soil for agricultural production • NTFP • Water retention for agriculture • Grass lands/fodder • Rain water	• Nutrients for crop production • Income 70% • Consumption 30% • Water for the home garden • Transportation • Agriculture production (rainy season) • Livestock feeds • Compost for vegetable production • Income • Agriculture use and equates to saving money	🙁 Salt water no crop production 🙁 🙂 Fisheries 🙁 Agriculture 🙂 🙁🙁	🙁 Reduction in agriculture production 🙁 🙁🙁 🙁🙁 🙁 🙁🙁	• Natural system cannot keep up • Dike – loss of ecosystem function • Dike – land use change • Use of chemicals • Land conversion has limited useable grasses, and climate variability • One month storage only – at best • Noted increase in flooding problems and prolonged drought periods

MODULE 2: STAKEHOLDER ANALYSIS

This module seeks to identify and analyse the vulnerabilities to climate hazards of all the stakeholders, as well as collect information about the support institutions involved in both responses and community capacities to adapt.

TOOL 1

STAKEHOLDERS' VULNERABILITY ANALYSIS

For the purpose of this analysis we will divide stakeholders into two categories: 1) community groups who are vulnerable to climatic hazards, and are also actors in responding and adapting to these hazards; and 2) institutions like government, CBOs, NGOs, UN agencies, donors, and pagodas whose decisions and actions are intended to strengthen community adaptation capacities and resilience.

Note: Before using this tool, it is advised that the climatic hazards perceived by the community be validated with a relevant scientific reference, or by an expert.

Objective: to understand the vulnerabilities and capacities of different vulnerable groups in the community, including their socio-cultural practices and roles at the household and community levels.

FACILITATOR'S GUIDE

MATERIALS:

- Flipcharts (2-5 depending on the number of participants)
- Markers in different colours

TIME: 2 hours

FACILITATION PROCESS:

1. The facilitator presents and explains the objective of this tool to the community participants. The facilitator should prepare a flipchart beforehand.

2. The facilitator then divides the participants into groups. Ensure a mixture of stakeholders in each group.
3. Each group will focus on one of several vulnerable groups in the community and identify the vulnerabilities of that group on a per hazard basis.They will also identify the capacities of their vulnerable group.
4. Have each group use a flipchart to write down their answers.
5. When all groups are finished, post the flipcharts on the wall.
6. Let the participants choose a flipchart and stand in front of it. Ensure that participants are equally distributed in front of each flipchart.
7. Instruct the participants to take a look at the flipchart output behind them for 2 minutes.Then, let the participants add any vulnerabilities and capacities they think should be included. Let them use different coloured pens/markers to distinguish from the output of the group.
8. After two minutes, the facilitator should then ask the participants to move to the next flipchart. The facilitator then repeats steps 7 and 8 until the participants have seen all flipcharts.

Ask the following sample key questions for discussion after doing the Stakeholders' Vulnerability Analysis. The facilitator should note the answers on a flipchart. As these questions are asked, refer to the flipchart outputs of the participants, and changes, if needed, should be made along with the discussion.

Social Capital

Take note of answers relating to vulnerable groups.

1. What are the roles of each group at home and in the community?
2. How do these roles contribute to vulnerability to hazards?
3. How do these roles contribute to capacity to respond and adapt to hazards?
4. What socio-cultural practices and values contribute to vulnerability to hazards?
5. What socio-cultural practices and values contribute to capacity to respond and adapt to hazards?
6. What relationships among the different groups contribute to each group's vulnerability to hazards?

7. What relationships among the different groups contribute to each group's capacity to hazards?
8. What environmental management practices contribute to vulnerability to hazards?
9. What environmental management practices contribute to capacities to respond and adapt to hazards?

STAKEHOLDERS' VULNERABILITY ANALYSIS

Vulnerable Stakeholder Groups (depending on the groups we want to target)	Vulnerabilities to the identified and prioritized climatic hazards (include socio-cultural practises that make each group vulnerable)				Existing Capacities (include household and community roles)
	Hazard #1	Hazard #2	Hazard #3	Hazard #n	
Children					
Youth					
Adult Female					
Adult Male					
Elderly					
People with Disabilities					
People with HIV/AIDS					
Ethnic Groups (identify)					

Note: The hazards that you will write down depend on what has been identified and prioritised by community members during previous sessions. The facilitator will use this matrix tool (using Excel or Word) later to transfer all the flipchart outputs of the participants, including discussions on the sample key questions.

TOOL 2

SUPPORT INSTITUTION ANALYSIS

This tool is applied to collect information about the support institutions, community perceptions of their support, and the relationships between them and communities.

Objectives

- To identify support organisations, including their roles, forms of assistance, as well as community perceptions about these.

FACILITATOR'S GUIDE

MATERIALS:

- Flipcharts (2-4 depending on the number of participants)
- Index cards
- Markers in different colours

TIME: 1-2 hours

FACILITATION PROCESS:

1. Ask the participants to name the different institutions or organisations that have been supporting them.
2. Write down each institution's name on an index card.
3. Then, divide the participants into groups, depending on the number of institutions identified. Each group should have a demographic mixture of children, youth, adult females, adult males, elderly, disabled people, etc.
4. Next, give each group an institution/index card. The group will post the institution's name/index card on a flipchart.
5. On the same flipchart, in one column, ask the group to identify the assistance that the institution has been providing to the community.
6. In another column of the flipchart, facilitate the group to write down their perceptions of the institution.

Ask the following sample key questions for discussion after using the Institutional Analysis Tool. You should note the answers on a flip chart. While you ask the questions, refer to the flipchart outputs of the participants, and change, if needed, along with the discussion.

Note down the differences in answers of vulnerable groups (refer to vulnerable group categories in previous tools).

Social Capital

1. What relationship do you have with the different support institutions which contribute to your vulnerability to climate change?
2. What relationship do you have with the different support institutions which contribute to your capacity to adapt to climate change?
3. What leadership or management styles are demonstrated by the different support institutions that contribute to your vulnerability and capacity?
4. Who among you are members of committees formed by the support institutions?
5. Who usually has access to the support institutions? How does this contribute to your vulnerability and capacity?

Commune Development Council
Commune Committee for Disaster Management
Department of Environment
Cambodian Red Cross
DanChurchAid/ Christian Aid
Farmers' Cooperative
UNICEF

Group 1: Commune Development Council	
Assistance provided by institution	Community Perceptions

TOOL 3

POWER RELATIONS MAP

This tool seeks insight into power relationships and influence between different stakeholders in the community. Information gathered helps to design climate change adaptation support initiatives, i.e. what stakeholder relationships can be supported, and if needed, developed to improve village resilience to climate change.

This tool will try to find out what is working, what is not, and where there are gaps in support.

Objective

- To understand the power relationships among the stakeholders within the community.

FACILITATOR'S GUIDE

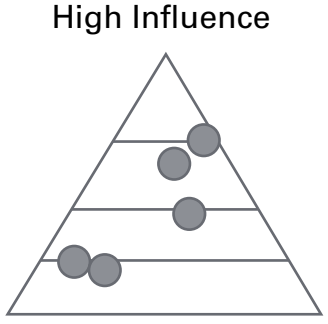
MATERIALS:

- Flipcharts
- Index cards
- Markers in different colours

TIME: 1 hour

FACILITATION PROCESS:

1. Copy and list all the stakeholders identified from the previous tool on the index cards.
2. On a flipchart, draw a pyramid and ask the participants to place the stakeholders in different layers of power and influence within the community.
3. Then, together with the community, identify the degree of influence among the stakeholders and how often they communicate. Draw lines to show the degree of influence and communication frequency between stakeholders, and broken lines to indicate the opposite.
4. At the end, you will have a power relations pyramid with information about the power relations and communication among stakeholders.



Good Relation and Communication

Poor Relation and Communication

MODULE 3: ARTICULATING COMMUNITY VISION AND ADAPTATION PLANNING

This module contains three parts: 1) consolidation of the PRA results into a cohesive analysis of the hazards, vulnerabilities, and capacities of the community, and identification of community-based climate change adaptation measures to address the risk from climate-related hazards; 2) articulation of a vision for a resilient and adaptive community with commitment of community members; and 3) validation of the detailed adaptation plan.

Facilitators should conduct sessions in this module on a different day than sessions conducted as part of the situational analysis in order to allow sufficient time for facilitators to consolidate results of the situational analysis PRAs conducted with communities. There are three tools in this module:

1. Hazards, Vulnerabilities, and Capacities (HVC) Analysis and Adaptation Measures
2. Community Visioning and Commitment
3. Climate Change Adaptation Plan

TOOL 1

HVC ANALYSIS AND ADAPTATION MEASURES

This tool contains two parts. The first part begins with the facilitator's preparatory work to consolidate the results of the PRA tools. The consolidation aims to provide a cohesive analysis of the risks confronted by community members in relation to climate-related hazards.

The second part begins with the presentation to the community members of the consolidated findings and analysis for validation purposes. This analysis becomes the basis for the adaptation planning that follows. The adaptation planning elicits community members' recommended measures to increase their resilience and adaptive capacity to deal with climate-related hazards.

Objectives

- To consolidate the findings of the PRA exercises into a cohesive analysis of hazards, vulnerabilities, and capacities.
- Develop a community-based climate change adaptation plan that includes measures to decrease vulnerabilities and increase capacities

FACILITATOR'S GUIDE

MATERIALS:

- Flipcharts
- Markers in different colours

TIME: This will depend on the number of hazards identified. You may need 2 hours for 1 hazard, covering parts 1 and 2 of the facilitation process

FACILITATION PROCESS:

PART 1: Validation of Hazards, Vulnerabilities, and Capacities

1. Once the community members are finished with the PRA tools, feed the PRA information into the HVC Analysis and Adaptation Measures Tool, on a per hazard basis (if there is more than one hazard, duplicate the matrix for each hazard). Only fill in the following sections: Hazard (no. 1), Frequency and Intensity (no. 2), Vulnerabilities (no. 3), and Existing Capacities (no. 5). This should be done before meeting the community members for the adaptation planning session in which you will fill in section (no. 4).

2. After filling in these sections of the matrix, present it to the community members to show them how the information from the PRA tools has been captured and consolidated into a cohesive analysis of climate-related hazards, vulnerabilities, and capacities.
3. Give enough time for the community members to validate the information. It is best that you post the community PRA results on the wall so that community members can refer to them as they validate the hazards, vulnerabilities, and capacities section of the HVC Analysis and Adaptation Measures Tool.
4. Continue to fill in other information in sections 1, 2, 3, and 5 which were not captured in the PRA tools through discussion with the participants.

PART 2: Identifying Adaptation Measures

5. Once the information in sections 1, 2, 3, and 5 have been validated and further filled in by community members, you can proceed to sections 4 and 6 of the HVC Analysis and Adaptation Measures Tool.
6. You can divide the participants into two major groups: One group discusses and then fills in section 4, "Adaptation Measures to Decrease Vulnerabilities to the Hazard," and the other group does the same with section 6, "Measures to Increase Capacities to Adapt to the Hazard." Each group can be further divided into sub-groups, if necessary, to examine different vulnerabilities or capacities. Have the sub-groups write down their answers on a separate flipchart.
7. Let each sub-group post their flipchart on the wall when they are finished. All sub-groups working on "adaptation measures to decrease vulnerabilities to hazards" should post their flipchart reports alongside one another on the same wall. This should also be done by the sub-groups working on "measures to increase capacities to adapt to the hazard."
8. Next, ask the participants to choose one of the flipchart reports posted on the wall, and then stand in front of the report they have chosen. Ensure that there are participants standing in front of each report.

9. Give the participants two minutes to look at the flipchart report they have chosen to stand in front of. Then ask the participants to write down on the flipchart additional measures they can think of. It is best to use another pen marker colour to distinguish from the previous entries. Add flipcharts to write down additional measures identified, if necessary.
10. After two minutes, ask the participants to go to the next flipchart report. Repeat steps 9 and 10 until all participants have worked on all the flipchart reports.

Helpful Hints:

To consolidate the results of the PRA and fill in sections 3 and 5 of the HVC and Adaptation Planning Tool, you can refer to the table below for the categories and information taken from the Sustainable Livelihood Framework.

In the Natural Capital category, the outcome from Tool 4, "Ecosystem Services Change Matrix" in Module 1 can be an input for this category. Just draw out the information about how ecosystem services have been affected by climate change impacts.

1. Categories	2. Information that you will draw out from the PRA results and feed into sections 3 and 5 of the HVC Analysis and Adaptation Planning Tool
Financial Capital (results of Tool 3 in Module 1)	• Sources of income/livelihoods • Average household income • Expenditure: items and cost • Savings • Loans • Properties/Economic assets (for farm land, include hectares of cultivated areas and amount of produce)
Natural Capital (results of Tool 4 in Module 1)	• Existing natural assets, such as forests, rivers, soil, water, etc.
Physical Capital (results of Tool 3 in Module 1)	• Infrastructure (indicate number): houses in hazard-prone areas (including types), roads, schools, hospitals, electricity networks, dams, temporary shelters • Tools, equipment that people use for productive purposes
Human Capital (results of Tool 3 in Module 1)	People's • Physical health • Knowledge • Skills
Social Capital (can be drawn from the results from questions in Tools 1 and 2 of Module 2)	Relationships and networks within the community as well as with people outside the community. These include: • Relationships • Committees • Networks • Cultural practices • Values • Leadership

1. Hazard	2. Frequency & Intensity	3. Vulnerabilities							
		Financial Capital*	Agriculture@	Fisheries@	Natural Capital* (incl. water and forest resources@)	Physical Capital* (incl. Infrastru-cture@)	Financial Capital*	Financial Capital*	Financial Capital*
Ex. Flood									
4. Adaptation Measures to Decrease Vulnerabilities to the Hazard (e.g. flood)									
5. Existing Capacities									
6. Measures to Increase Capacities to Adapt to the Hazard (e.g. flood)									

*Categories taken from the Sustainable Livelihood Framework
@Categories taken from the Climate Change Education and Awareness Strategy of Cambodia

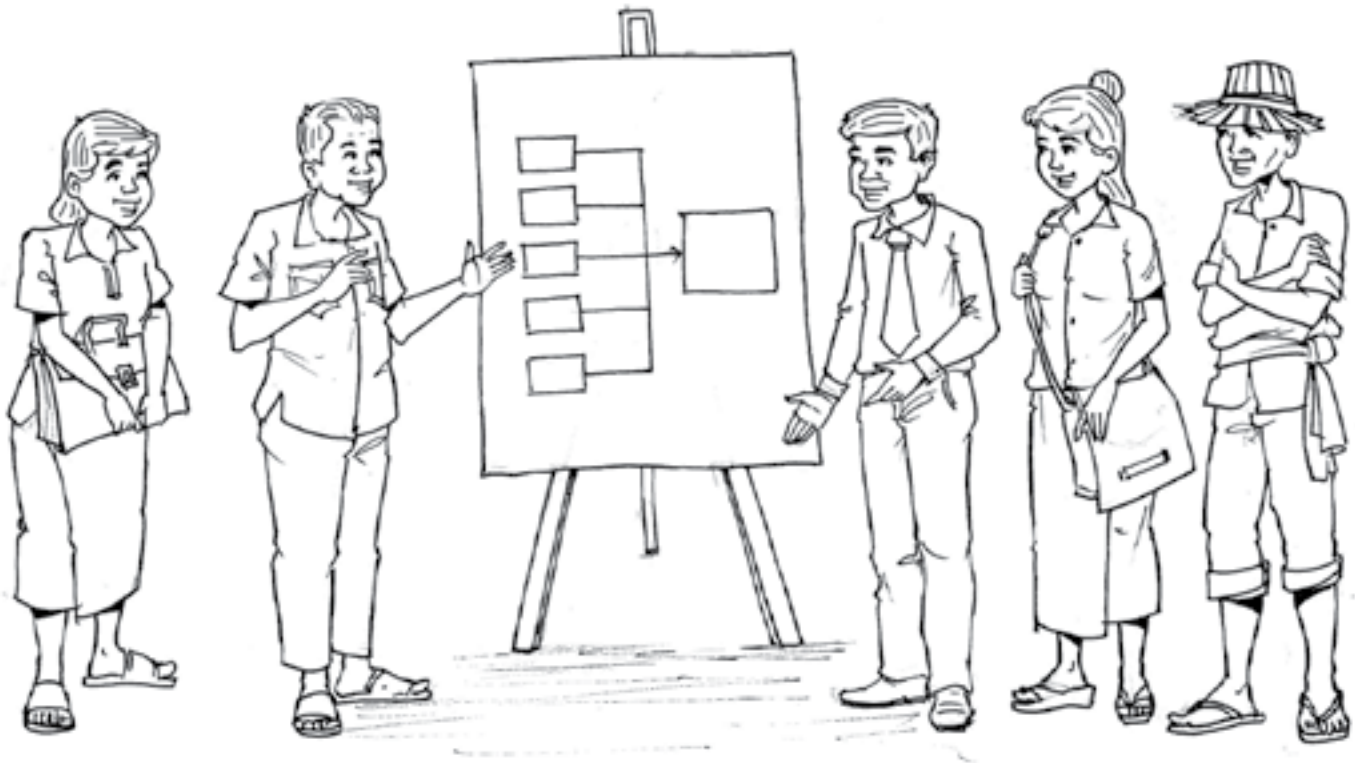
TOOL 2

ARTICULATING COMMUNITY VISION AND COMMITMENT

It is best to conduct the visioning exercise before adaptation planning, as community members would be in a better position to link their situation (hazards, vulnerabilities, capacities) and their identified concrete needs and plans (adaptation measures) to their broader aspirations in life as adaptive and resilient individuals, families, and community.

Objectives

- Enable community members to articulate their vision of a resilient and adaptive community.
- Determine and articulate community members' share of commitment in realising their vision and adaptation measures they will take.



FACILITATOR'S GUIDE

MATERIALS:

- Cloud-shaped coloured paper
- Flipchart reports of sub-groups on Tool 1 group work regarding adaptation measures to reduce vulnerabilities and increase capacities
- Large Post-It notes
- Markers in different colours

TIME: 2 hours

FACILITATION PROCESS:

PART 1: Defining Community Vision

1. Refer to the posted flipchart reports from the previous group work on Tool 1.
2. Then, ask the participants: "Why do you want all these adaptation measures to be realised? If you have achieved all these, how will you feel, what will become of your community? In other words, what is your dream of a resilient and adaptive community?"
3. Divide participants into groups and let each group draw their answers on a flipchart.
4. When they are finished, let each group report for 5 minutes. You should note down the descriptions or answers on another flip chart.
5. Then, combine the answers into one coherent sentence that captures a vision statement. You can ask the participants to form the coherent sentence with you as you try to verbally articulate the vision statement in front of the participants. Write down the statement on another flipchart.
6. Validate with the participants that the statement has captured all the ideas they have expressed in their drawings. Changes can be made as the participants validate.
7. Once the vision statement is finalized, write down the final statement on the cloud-shaped coloured paper and post it on top of the same flipchart.

PART 2: Articulating Commitment to the Vision and Plan

8. Ask the participants: "What will you give or do to realize your community vision?" Have them write down their answers on large Post-It notes.

9. Request the participants to stick their Post-It commitment statements on the same flipchart where the vision statement is posted.
10. Read the commitment statements once they are all posted on the flipchart.
11. Then, go back to the flipchart reports on the adaptation measures (group work using Tool 1). Again, ask the participants to stand in front of one of the flipcharts. The participants should have large Post-Its and coloured pens/markers with them.
12. Give the participants 2 minutes to look at the flipchart report. Then, ask them to write down on the Post-Its what they think they will do to contribute to any of the measures on the flipchart. The participants do not have to be compelled to write down their commitments, if they do not have any.
13. Let the participants put their Post-It answers beside the corresponding measures on the flipchart.
14. Then, ask the participants to move to the next flipchart. Repeat steps 11-13 until everyone has seen all the flipchart reports.

TOOL 3

CLIMATE CHANGE ADAPTATION PLAN

This tool consolidates the results of the community visioning and adaptation planning. It should be conducted separately from the two previous sessions to give enough time for preparation. It is recommended that the results from the previous relevant tools, in particular Tool 1 of Module 3 be prepared and that the concerned stakeholders' representatives from local government, civil society, education and private sector be invited in advance of this session to discuss the roles and possible cooperation of stakeholders to support community response to climate change.

Note to the facilitator: please use the following reporting template to document the outcome of the community climate change adaptation planning exercise.

Climate Change Adaptation Plan Reporting Template

1. Introduction

a. Location

b. Geographic description-including basic physical features and ecosystem composition of the area

c. Community dynamics: population living within the target area/ number of households, type of community

d. Climate context: general description of climate, climate hazards, overview of hazard impacts on the and community, changes of ecosystem

e. Community's existing capacity, including resources

2. Objectives

3. Methodology

4. Findings

a. Climate risks and vulnerabilities by focus sector and target group

b. Appropriate responses to climate change (adaptation and mitigation measures)

c. Existing capacities

d. Community vision

e. Stakeholder analysis

f. Power relation of relevant stakeholders

g. Verifying local perceptions and scientific information on climate risk and vulnerabilities

h. Measures to increase capacities to address climate change

i. Roles and responsibilities of stakeholders in response to the identified climate risks

j. Planning or designing project including budget

5. Conclusion

a. Climate risk and vulnerabilities by sector and target groups

b. Verifying local perceptions and scientific information on climate change impacts

c. Measures to increase the capacity to address climate change

d. Cooperation mode of stakeholders

6. Recommendations

a. For the communities

b. For the development partners

c. For relevant government institutions

Objectives

- Present to community members a cohesive result of their situational analysis, visioning, and planning exercises
- Enable communities to take ownership of the results of their situational analysis, visioning, and planning exercises
- Identify and discuss the next steps with community members

FACILITATOR'S GUIDE

MATERIALS:

- Flipcharts
- Markers in different colours
- Index cards (optional)

TIME: 2 hours

FACILITATION PROCESS:

1. First, refresh the memory of the participants about the previous community-based sessions that have been conducted. You can ask them what were the outputs or results of these sessions. Note this down on a flipchart.
2. Summarise the sessions and results in order by using another flipchart and refer to the answers of the community members. You can use index cards prepared beforehand for the summary; you can post the index cards on the flipchart while summarizing.
3. Then, present to the community members the consolidated results of the situational analysis, visioning, and adaptation planning.
4. Allow enough time for community members to look at the consolidated results.
5. Then, walk through the sections of the results slowly, one section at a time. On each section, give community members time to comment.
6. After the validation, proceed to identify the next steps with the community members. One crucial next step is to conduct stakeholder consultations with government, NGOs, academia if relevant, and the private sector to identify their possible contributions or roles in the implementation of the community adaptation plan. A timeframe could also be determined in these consultations when all stakeholders have indicated possible contributions or partnerships.

Note for the facilitator:

1. This tool consolidates all the results of the previous community-based exercises/sessions. When this tool has been filled in, you should present it to the community members for validation and ownership.
2. Cluster adaptation measures. Use the same cluster headings as those in Tool 1 (HVC Analysis and Adaptation Planning).
3. For the column on "Responsible Stakeholders: Roles & Resources," fill in only the column on "Community." Draw on the Post-It answers using Tool 1, Part 2 of the facilitation process (commitment to the vision and plan). Cluster similar answers and synthesise them into one statement. The answer should correspond to the specific adaptation measures in column 2.

Climate Change Adaptation Plan

Hazards	Adaptation Measures	RESPONSIBLE STAKEHOLDERS: ROLES & RESOURCES					Timeframe
		Community	Government	NGOs	Academe	Private Sector	
Hazard#1							
Hazard#1							
Hazard#1							

This learning manual is a joint effort of a working group composed of JCCI (Forum Syd DCA/CA, and Cord), Plan International Camdodia, World Vision Cambodia, Caritas Cambodia, in cooperation with the Ministry of Environment's Climate Change Department.

Funded by Sida

UNDERSTANDING CLIMATE CHANGE

CONTENTS

Part 1

UNDERSTANDING CLIMATE CHANGE CAUSES, VULNERABILITIES, IMPACTS, AND RESPONSES

Part 1 is divided into 8 sessions that focus on the climate change causes, vulnerabilities and impacts, and responses – both adaptation and mitigation – globally and in Cambodia. In other words: What is climate change? Why should Cambodians be concerned? How will climate change affect Cambodia? What can we do about it?

This Part also provides an overview of Disaster Risk Reduction (DRR), its difference from climate change adaptation, and international DRR frameworks, and rights-based approaches (RBA) and development in the context of climate change.

Learning Objectives

At the end of Part 1, the participants will:

- Have a general understanding of climate change causes, impacts and response measures globally and in the Cambodia context
- Have an understanding of DRR concepts international DRR frameworks and rights-based approaches and development in the context of climate change.

SESSION 1

CAUSES OF CLIMATE CHANGE

Introduction

Historical research suggests that the decline and collapse of the Angkor Empire was partly the result of shifts in climate patterns. However, the climate shifts that influenced Cambodia during the Angkor period were part of natural climatic cycles. The climate change that the country now faces is different. It is the result of man-made actions related to the burning of fossil fuels, deforestation, and land-use patterns, which have resulted in excessive greenhouse gas emissions (GHG) into the earth's atmosphere.

Since the beginning of industrialization in Europe in the 18th century, because of increasing levels of gas emissions and the associated greenhouse effect, global temperatures have been increasing at an accelerating rate. This increase in global temperature has led to changes in climate patterns.

Throughout history, the Earth's climate has undergone different types of changes. But in the second half of the 20th century, new types of changes became evident that were not part of the natural cycle of climatic variation, and were instead a consequence of human activity. Scientific evidence clearly demonstrates that these changes ('climate change'), as measured by rapid increases in average temperature, are likely to continue.

Increases in global temperature lead to changes in climatic patterns due to heating up of both land and ocean, and to melting of glaciers and the ice caps at the poles. In turn, these lead to other changes such as sea level rise, changes in rainfall patterns, hot and cold temperature waves, increasing frequency and intensity of droughts and floods, and other extreme weather events.

Learning Objectives

At the end of session 1, participants will:

- Understand the greenhouse effect, sources of greenhouse gases, and sources of emissions in Cambodia.

Understanding the Greenhouse Effect

The 'greenhouse effect' gets its name from greenhouses that stay warm for the purpose of growing plants (usually in cooler/temperate climates). This is essentially the same process that keeps the Earth warm for sustaining life.

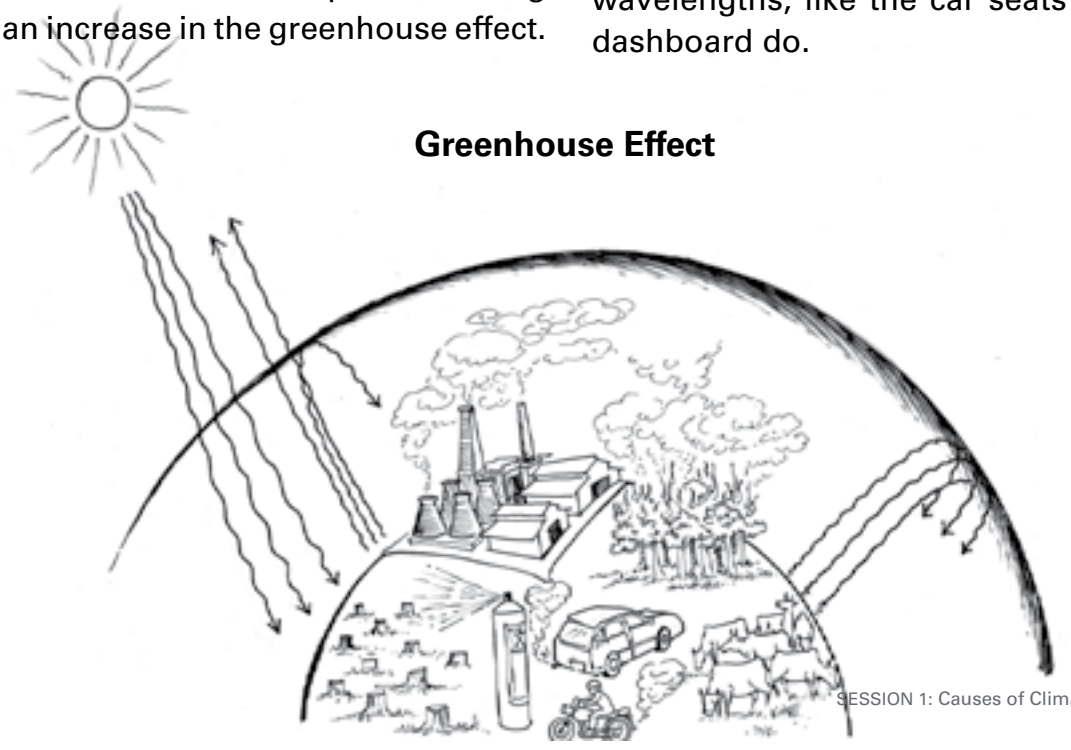
You might hear people talking about the greenhouse effect as if it is a bad thing. It is not a bad thing. The greenhouse effect is a good thing; without it the planet would be much cooler. However, too much of a greenhouse effect causes the average global temperature to increase, which affects all plants and animals.

Scientists are concerned because the Earth is warming up at an accelerating rate. This is happening because we are currently adding more of the greenhouse gases, Carbon Dioxide, Nitrous Oxide, and Methane to our atmosphere, causing an increase in the greenhouse effect.

Our planet's atmosphere traps energy just like a greenhouse or a car left in the sun with the windows closed. Energy from the Sun in the form of solar radiation enters the earth's atmosphere, but not all of it can easily find its way out again because it is trapped in our atmosphere by the gases in it. The more greenhouse gasses that are in the atmosphere, the more the sun's radiation that is reflected off the earth is trapped in the atmosphere; and because of this, the Earth gets warmer.

When the sun's rays hit the surface of the Earth, approximately 70% of the energy stays on the planet, absorbed by land, oceans, plants and other things. The other 30% is reflected back into space by clouds, snow fields, and other reflective surfaces. But even the 70% that gets through doesn't stay on Earth forever (otherwise the Earth would become a blazing fireball). The Earth's surface that absorbs the sun's heat eventually radiates some of that heat back out at a different wavelengths, like the car seats and dashboard do.

Greenhouse Effect



Some of that released radiation makes it into space, and the rest of it ends up getting reflected back down to Earth when it hits certain gases in the atmosphere, such as carbon dioxide, methane, and water vapour – just like the car windows keep the heat inside. The heat that doesn't make it out through Earth's atmosphere keeps the planet warmer than it is in outer space, because more energy is coming in through the atmosphere than is going out. This is the greenhouse effect that keeps the Earth warm.

If there were no greenhouse effect on Earth, our planet would probably look a lot like Mars. Mars doesn't have a thick enough atmosphere to reflect much heat back to the planet, so it gets very cold there. So the greenhouse effect is actually a good thing. And as with most good things, moderation is key. Since industrialization, the greenhouse effect has fallen out of balance. The Earth's atmosphere is now trapping too much heat.

In the Earth's natural state, Carbon Dioxide (CO_2) levels are kept in balance mostly through the absorption by plants and trees. But as humans started burning more and more CO_2-releasing fossil fuels, the levels have shifted out of balance. We're emitting too much CO_2 for the plants to handle (especially with the added effects of deforestation).

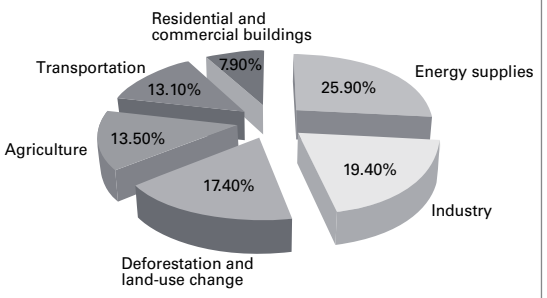
This increase has led to a 1 degree Celsius increase in Earth's temperature – which may not seem like much until you realize that scientists predict serious, irreversible global effects at a 2 degrees Celsius temperature increase, resulting in melting ice sheets, rising sea levels and accompanying flooding, extreme climate patterns, and widespread destruction of wildlife habitats.

Sources of Greenhouse Gases (GHG)

According to the International Panel on Climate Change (IPCC), the percentage of emissions between 1970 and 2004 came from:

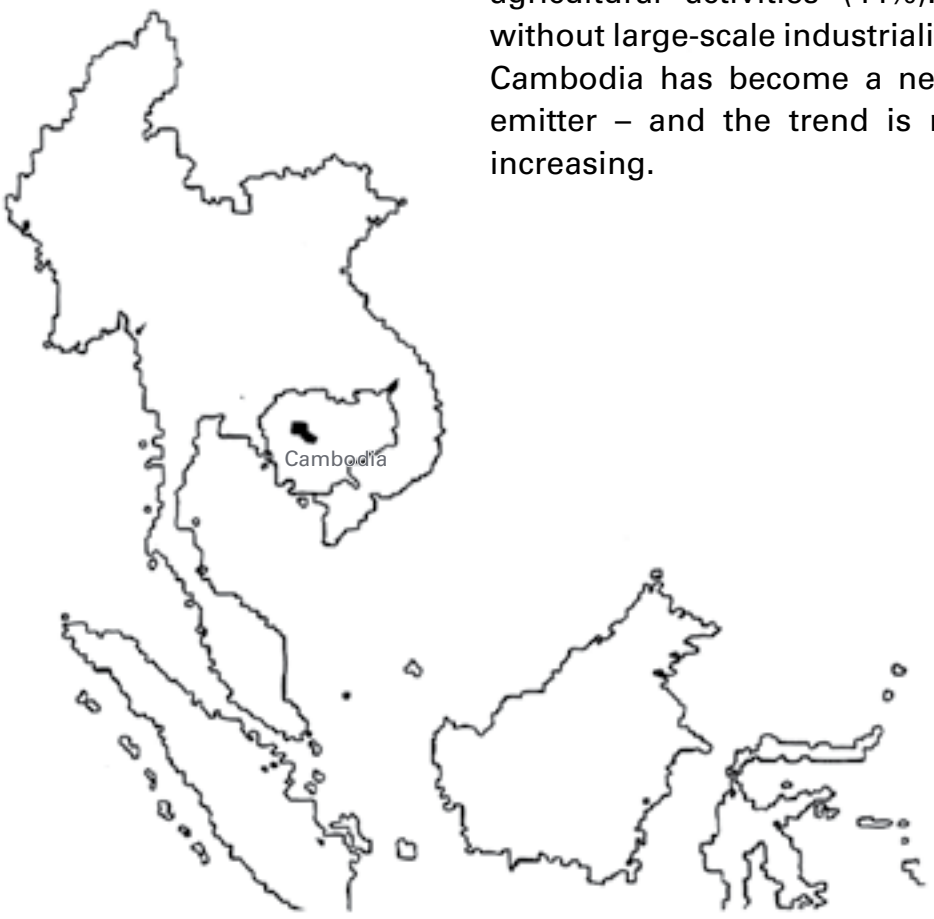
- Energy supplies (25.9%) such as oil, gas, coal, wood and other biomass
- Industry (19.4%)
- Deforestation and land-use change (17.4%)
- Agriculture (13.5%)
- Transportation (13.1%)
- Residential and commercial buildings (7.9%)

Global emissions by sector



Main Greenhouse Gases and Sources of Emissions

- **Carbon dioxide (CO_2):** from burning fossil fuels (coal, oil, natural gas) and from deforestation
- **Methane (CH_4):** from rice paddies, livestock, waste dumps, domestic sewage, and coal mining
- **Nitrous Oxide (N_2O):** mainly from chemical fertilizers used in intensive farming, and from fossil fuel combustion
- **Ozone (O_3):** in the lower atmosphere indirectly from automobile exhaust fumes
- **Chlorofluorocarbons (CFCs):** from aerosol sprays, air conditioners, and fridge coolants



Sources of Emissions in Cambodia

It is important to understand that our greenhouse gas emissions are the result of human activity. In 1994, Cambodia was able to absorb more GHGs through its forests than it was emitting. However, by 2000, because of deforestation and economic activity, Cambodia had turned into an emitter – the amount of GHGs emitted into the atmosphere now exceeds the amount the country is absorbing.

Unlike the sources of global GHG emissions, where industry and energy account for the largest share, in Cambodia the largest sources in the year 2000 were deforestation and land-use change (49%) and agricultural activities (44%). Even without large-scale industrialization, Cambodia has become a net GHG emitter – and the trend is rapidly increasing.

SESSION 2

VULNERABILITIES TO AND IMPACTS OF CLIMATE CHANGE

Introduction

The effects of climate change do not recognize national boundaries, and they have unequal impacts across the world. The people who have contributed least to global warming – the poorest, who are least equipped to respond – are expected to feel the effects of climate change the most. Poverty makes people more vulnerable to impacts. The poor often do not have adequate capacity and resources to adapt.

Climate change leads to both short-term shocks and long-term gradual changes in the environment, society, and the economy. Climate change impacts are felt at the global, regional, national, and local levels.

It should also be stressed that climate change not only brings new threats and issues, but can also worsen and multiply many existing problems. Most rural Cambodians depend on rain-fed agriculture and natural resources, and are highly vulnerable to changes in temperature and rainfall patterns. Most importantly, they are not well prepared to respond to climate change impact.

For twenty years the global community has been struggling to come to agreements and take action to reduce global GHG emissions – with little success. Developing countries continue to make the historical argument that the industrialized/developed countries have caused more emissions in total, and are still causing more emissions per person, while developed countries argue that developing countries together now account for the majority of emissions. On-going discussions at the international level that aim to reach a global agreement are now based on the principle of *"common but differentiated responsibilities and respective capabilities."*

Although concerted global action to reduce or mitigate emissions could be many years in the future, there are now incentives, financial agreements, and technology transfers that provide opportunities for countries like Cambodia. While the world continues to wait for agreements, in the meantime, countries and communities will need to reduce their risks and vulnerabilities and adapt to the inevitable consequences of climate change.

Learning Objectives

At the end of Session 2, participants will be able to:

- Understand what vulnerabilities to climate change are
- Learn about the impacts of climate change on agriculture, forestry, fisheries, water resources, society and development

Adaptation includes individuals and communities acting locally, as well as government and institutional policy implementation. Building adaptive capacity and climate-resilient rural livelihoods in the face of risk and uncertainty is a core development challenge.

Global Impacts of Climate Change

The Inter-governmental Panel on Climate Change (IPCC) has estimated that global temperatures will rise between 1.8 - 4.0 degrees Celsius by the end of the century. This projected temperature rise, along with associated changes in rainfall patterns, sea level rise, and an increase in extreme weather events will have varied impacts across countries and regions. Some countries are expected to be more affected than others.

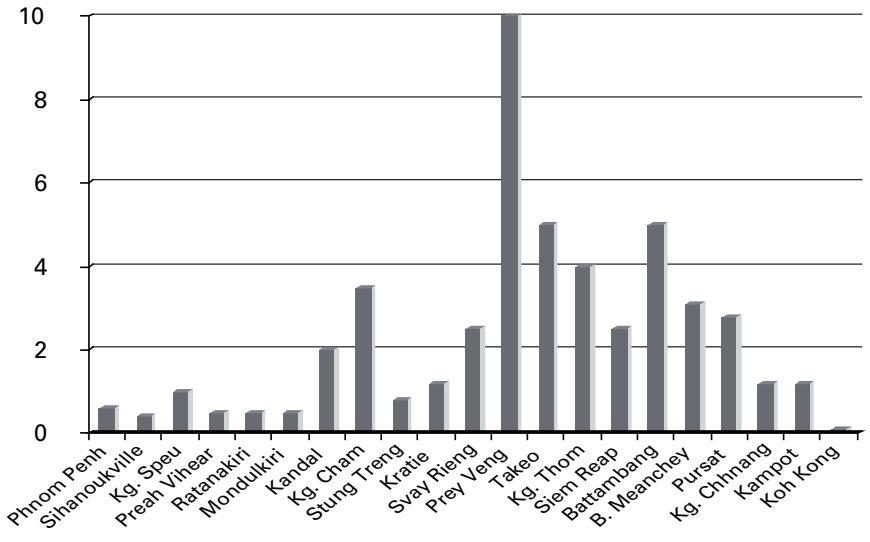
- Rising sea levels will threaten millions of people living in island states and in low-lying deltas in countries like Bangladesh, Egypt, Vietnam, and China.

- Global warming will affect water supplies and reduce food production in the tropics and subtropics. It will also damage non-tropical forests, lead to loss of species, and spread tropical diseases towards temperate regions.
- Irregular weather patterns and extreme weather events will become more common. This means more severe and long lasting floods and droughts, typhoons, and cold and heat waves.
- Rainfall will increase in some areas and decline in others. This will change flood and drought frequency and intensity, and affect both ground and surface water supplies.
- Changes in water temperatures could affect water quality and the survival, diversity, and productivity of freshwater ecosystems.
- Rising sea levels will affect coastal freshwater supplies due to seawater intrusion.
- Reduced water supplies will put additional pressure on people, agriculture, and the environment, and impact human health.

Climate Change Vulnerabilities and Impacts in Cambodia

Cambodia is highly vulnerable to climate change, because a large proportion of its population is dependent on climate-sensitive livelihood sectors such as rainfall-dependent agriculture and fisheries. The most significant climate change in Cambodia, and in much of the Lower Mekong River Basin, will be changes in the water flow of the river, its tributaries, floodplains, and the Tonle Sap Lake. Changes in rainfall patterns will result in uncertainty and variability of water supply. Other projected changes include:

Climate Change Vulnerability by Province



Source: Royal Government of Cambodia National Adaptation Programme of Action to Climate Change (2002)

- the entire region will be hotter
- the dry season will be longer and drier
- the wet season will start later, and will be shorter and wetter
- rainfall will increase and have greater intensity. In general, there will likely be changes to the beginning of seasons, the duration of seasons, and the intensity and severity of floods and drought.

The specific vulnerable sectors include:

- Water resources and fisheries
- Agricultural production
- Human health
- Coastal Areas
- Forests and Ecosystems

Cambodia is extremely vulnerable to floods, drought, ecosystems collapse, threatened livelihoods, and declining community safety and health.

What are the impacts of climate change on water resources in Cambodia?

The seasonal variation in water levels in Cambodia is extreme. This flood and recession – the flood pulse – is responsible for the natural productivity of agriculture and fisheries, but in some years it can also result in disasters. Cambodia is considered one of the most disaster prone countries in Southeast Asia. Cambodians are especially vulnerable to climate change because they mostly depend upon subsistence rain-fed rice agriculture (with very little irrigated land) for their food and livelihoods. Disasters like floods and droughts often worsen current conditions of food insecurity, low agricultural productivity, and poverty. The country has had a recent history of

natural disasters, especially floods and droughts in the last few decades, sometimes both disasters occurring in the same year.

Flooding starts with runoff from the Mekong Basin and heavy rains around the Tonle Sap Lake that, in turn, flood smaller rivers and low-lying areas of Siem Reap, Banteay Meanchey, Kampong Thom, Kampong Chhnang, Pursat and Battambang Provinces. Also, this flooding fills the holding capacity of the Tonle Sap Lake, resulting in water channeling downstream into the Mekong River, subsequently causing floods in Kampong Cham, Kandal, Prey Veng, Svay Rieng and Takeo Provinces.[i] [ii] [iii]

- Floods in 2000 affected 3,448,629 people, damaged 317,975 houses, and caused 347 deaths.
- Floods in 2011 inundated 1,360 schools, 115 health centers, and 300,000 hectares of paddy fields, displaced 52,000 families, drowned 1,675 cows and pigs, and killed 250 people throughout the 19 provinces affected.[iv]

Drought in 2002 affected 2,017,340 people in Cambodia. Cambodia is extremely vulnerable to drought because most farmers are dependent on rain-fed agriculture. Rising temperatures and changes in rainfall patterns will increase the risk of both local and regional droughts, as well as their intensity and duration.

Cambodia has an abundance of water resources, but its main challenge is the availability and distribution throughout the seasons and between users. In addition to climate change, the construction of dams and irrigation infrastructure on the Mekong and its tributaries could have a significant impact on Cambodia. Water flow in the Mekong River is very important for Cambodia. Water management issues are also important for all the Mekong Basin countries. Regional cooperation is absolutely necessary for sharing this important resource. Some very critical decisions will be made over the next few years that will result in long-term changes.

How are Cambodia's water resources vulnerable to climate change?

- Rainfall will increase in some areas and decline in others. This will change the intensity and frequency of flooding and drought.
- Changes in rainfall patterns may affect the regional distribution of both ground and surface water supplies. Water quality may also decline.
- Changes in water temperatures could affect the survival, diversity and productivity of freshwater ecosystems.
- Rising sea levels will affect coastal freshwater supplies due to seawater intrusion.
- Reduced water supplies would put additional pressure on people, agriculture, and the environment.

For Cambodia, the placement of dams on the Mekong River and the extraction of water by upstream countries changes water flow patterns. Downstream users will not have the same access to water as upstream users, and certain downstream activities, such as fishing, will be seriously degraded.

Although dams pose a threat to fisheries, the development of irrigation infrastructure is seen as a means of reducing the uncertainties of the seasonal changes in water availability. In addition, the price of electricity in Cambodia, one of the highest in the world, is seen as a major impediment to both industrialization and the development of the rural economy. Hydropower, which has enormous potential throughout the region and in Cambodia as well, remains an attractive source of energy for many development planners.

What are the impacts of climate change on agriculture and fisheries in Cambodia?

Agriculture

Impacts on rain-fed agriculture are of concern because farm livelihoods are largely based on this form of cultivation, and are highly vulnerable to climate stresses. Rice production losses in Cambodia have been mainly due to flooding (70%), followed by drought (20%). Production loss due to pests and diseases has been insignificant in comparison. The frequency and intensity of floods, drought, and

How are fisheries vulnerable in general?

- Many freshwater species may thrive in a changed climate, while others may die out.
- If dams are built, migrating species are most vulnerable.
- Extreme weather events that increase with climate change could harm fish production by causing loss of aquaculture stock and destroying fishing and aquaculture infrastructure.
- Conversion of flooded forests around the Tonle Sap to agricultural land will significantly impact natural fisheries.
- Building hydropower dams and irrigation structures has unpredictable consequences for ecosystems.
- Improved water storage and management provided by dams and other water catchment systems can improve water availability in the dry season for agriculture, but they can also block fish migrations and reduce fishery productivity – a loss to families dependent on fisheries production for their livelihoods.

storm damage may increase with changing climate conditions. This will expose farming households to even greater risks because of their dependency on monoculture rice farming and lack of adaptation strategies.

Temperature increases affect not only evaporation, but also the growing and flowering cycles of crops, including some popular rice varieties. Studies throughout the region suggest that rice yields can decrease by 10% for every 1 degree increase in growing season minimum temperature.

Climate change will not only result in more frequent and intense droughts and floods, but it will also make the onset of seasons less predictable. This will have a large impact on rice productivity, which is very sensitive to the timing of the first rains.

Among the rural poor, the main causes of food insecurity include the lack of access to land, livestock, credit, markets and agricultural inputs.

Fisheries

Cambodian freshwater fisheries are the fourth most productive in the world, and have a central role in rural food security and culture. Fish and other aquatic resources account for 80% of the animal protein in rural diets. Changes in fish production are likely to have the greatest impact on the people most dependent on fisheries, whose poverty, marginalization, and lack of livelihood alternatives leave them ill-equipped to cope.

Water changes in the Mekong Basin as a result of climate change and dams will have an unpredictable impact on fisheries, and may create a boom-and-bust cycle of fish catches, with years of plentiful catches followed by years of shortage.

What are the impacts of climate change on public health in Cambodia?

Selling land or livestock to cover unexpected health care costs is the main reason Cambodians fall into poverty. Ill health remains one of the main obstacles to achieving the country's Millennium Development Goals.

Climate change threatens to increase an already desperate nutritional and health situation. Climate change will likely affect all four dimensions of food security: food availability, access to food, stability of food supplies, and food utilization.

Also, climate-related extreme weather events will result in increased morbidity and mortality, destruction

of crops and livestock leading to malnutrition, and mental health impacts from the loss of family, home, livelihood, and income.

There are disease threats from both floods and droughts. However, even more than flooding, which has its associated diseases such as malaria and dengue fever, drought has the largest impact on a population's health by threatening food supplies and nutrition, as well as hygiene and sanitation-related illnesses: diarrhoea, scabies, conjunctivitis, and trachoma are associated with poor hygiene, which results from inadequate sanitation as water resources become depleted or degraded. The economic losses from poor sanitation and hygiene in Cambodia exceed $450 million annually. Climate change threatens to put even more pressure on already inadequate health care budgets and delivery.

What are the impacts of climate change on coastal areas in Cambodia?

Observations show that the global average sea level has risen by 10 to 25 cm over the last century, which is mainly because of an increase of 0.3-0.6 degrees Celsius in the global average air temperature since 1860.

If the current trend in global warming continues, sea level is predicted to rise another 15 to 95 cm by the year 2100. This will occur due to the thermal expansion of ocean water and an influx of fresh water from melting glaciers and polar ice caps.

The low-lying coastal zones and small islands are extremely vulnerable to sea level rise. It is projected that a 1 meter sea level rise would cause estimated land losses of 6% in the Netherlands, 17.5% in Bangladesh, and over 50% for some small island states.

Sea level rise

What are the impacts of climate change on ecosystems and forests?

Ecosystems

An ecosystem is a biological community of interacting organisms and their physical environment. An ecosystem is a community of living organisms (plants, animals and microbes) in conjunction with the non-living components of their environment (things like air, water and mineral soil), interacting as a system. Ecosystems are defined by the network of interactions among organisms, and between organisms and their environment. They are linked together through nutrient cycle and energy flow. The energy that flows through ecosystems is obtained primarily from the sun.

Globally, ecosystems are already under a number of stresses including:

- human and economic development
- hydropower, roads, and other infrastructure
- mining, expanding agriculture and fisheries
- population growth and human migration

The ecological landscape of Cambodia is changing rapidly as a result of unregulated development, illegal logging, expanding agriculture, destructive fishing practices, privatization of public natural resources, and economic land concessions in protected forest areas. The changes in the environment are largely the result of failure of governance, but have clear and immediate impacts on rural people's livelihoods.

Endangered biodiversity

There are over 60 rare or endangered species of wildlife in Cambodia, many of which are now extinct elsewhere in Southeast Asia.

There are four major ecological zones in Cambodia; each will be affected differently by climate change.

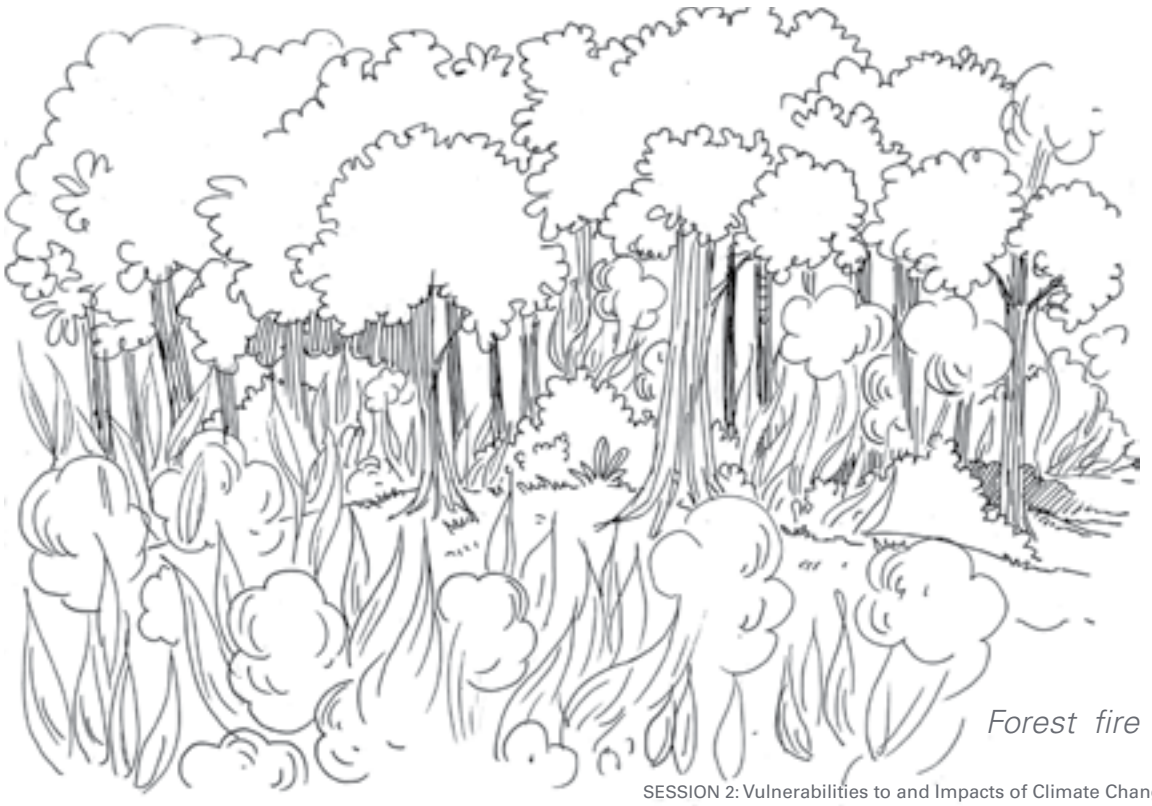
- Tonle Sap Zone: Over 500 species of fish and 2,000 plants have been identified, as well as 20 mammal, 200 bird, and 30 reptile species.
- Plateau/Cardamon Mountains Zone: The largest intact tropical forest in Southeast Asia, containing a variety of forest types, it is designated one of the world's 25 global hotspots – it is only 1.4 percent of the Earth's landmass, but is habitat to more than 60 percent of all terrestrial species.
- Plains Zone: The Mekong River floodplain is the main rice production area of the country, with the highest population density.
- Coastal Zone: The last remaining pristine mangroves in Southeast Asia, 64 offshore islands, and over 70 coral species.

Each zone requires a different set of planning priorities, and development and preparedness objectives. Cambodians benefit from a multitude of resources and processes that are supplied by natural ecosystems. Ecosystem services that will be impacted by climate change:

- Fisheries productivity
- Nutrient flow and deposition on floodplains
- Regulation of water levels, water quality, and flood pulse
- Prevention of saltwater intrusion;
- Water quantity for agricultural production and domestic use
- Pollination and other co-dependent services provided by biodiversity

Forests

Forests provide important benefits for Cambodians. More than 80% of Cambodians rely on fuel wood for their cooking, and forest resources account for 10-20% of household consumption and income. Some



Forest fire

indigenous communities are highly dependent on forest products. Resin harvesting, for example, accounts for most of the income for the "Phnong" indigenous people of Mondulkiri Province. Non-timber forest resources provide an important safety net for rural people. Indigenous people will likely suffer more from climate change because they are highly dependent on forests for their livelihoods.

Forests play an important role in natural climate systems. They are a major reservoir for groundwater storage and are a carbon sink. They also directly affect local, regional, and continental climate by influencing ground temperature, cloud formation, and rainfall.

Forest ecosystems will change as individual species respond to new climate conditions. Habitats will be degraded and fragmented by the combination of climate change, deforestation, and other environmental pressures. Some plant and animal species that are unable to cope with climate change impacts will likely become extinct.

An increase of just 1 degree Celsius in the global average temperature would affect the functioning and composition of forests. Entire forest types may disappear, while new combinations of species, and hence new ecosystems, may be established. Global warming may also cause more pests, pathogens and fires in forest ecosystems.

Why are women vulnerable to climate change?

Women are vulnerable to climate change for the following reasons:

- The specific needs of women may be overlooked because they are generally less involved in decision making regarding issues that impact the broader community, for example, with regards to improving infrastructure.
- There is a tendency in households to place increased burdens on women due to shifts in the gender divisions of labour, cropping choices, patterns and schedules.
- Women are traditionally tasked to transact loans and repayments, thus increased dependence on loans place new pressures on them.
- With the increased migration and mobility of men looking for alternative income sources, women are left behind to manage more domestic and agricultural activities .

What are the impacts of climate change on Peace and Conflict? [v]

Climate change has a number of connections to conflict, and by extension, peace. The hazards of climatechange—floods,windstorms, erosion, and droughts could have negative impacts on livelihoods and food security, and indirect negative effects on the networks of relationships within communities, as well as between the state and its citizens.

Most of these effects would be felt most severely by women and children. This is because women work primarily in agriculture and have less access to other income options. They are often the poorest of Cambodia's poor, and face discrimination at different levels of society. However, they are often faced with the household task of being the primary caregiver, which is the way the impacts are also felt by children.

Because conflict over natural resources will likely increase in climate-sensitive areas, it is critical that the environmental drivers and impacts of conflict are managed, that tensions are defused, and that natural assets are used sustainably to support stability and development in the longer term. Peace-building cannot proceed without taking into account climate change issues.

USAID offers several recommendations for how to achieve this:[vi]

- Ensure that adaptation to climate change is conflict sensitive, and takes into account local power structures and social orders.
- Make sure that peace-building is 'climate proof', so that its progress is not disrupted by climate change events (such as natural disasters).
- Support low carbon shifts that promote development and peace (unlike biofuel production which threatens food security by leading to competition for land resources and potential conflict over land use).
- Enhance capacity of communities to manage conflict and risk from climate change (through trainings, and awareness raising education).

- Improve governments' abilities to deal with climate-related migration .
- Use local adaptation mechanisms where possible, and build transparency and accountability, so that measures are sustainable and relevant.

Cambodia is particularly vulnerable to climate change because it has an economy with little diversification. In addition, most Cambodians live in rural areas, and natural resources such as land, forest, and water, are often poorly managed. Local agricultural productivity is generally low due to limited technology and knowledge. Moreover, most people don't produce their own food at home in gardens for example, and the majority of the country depends on rice production as their main income source. Because rice production in Cambodia is rainfall dependent due to lack of irrigation, it is therefore vulnerable to changes in rainfall patterns brought about by climate change. If there is less rainfall, the rice harvest is likely to fail. In the case of a drought, this could mean:

- Poor health (due to malnutrition caused by a lack of food)
- Lack of schooling (due to a lack of money with which to pay informal fees)
- Migration (due to failed harvests which force people to migrate in search of work)
- Possible conflict (over limited natural resources and lack of livelihood improvement opportunities)

Over the long term, climate change-related events have the potential to increase the tensions in already fragile situations and increase the likelihood of conflict that could threaten peace-building processes in Cambodia.

The solution is to build resilience at the local level through programs which are designed to increase the knowledge of farmers and help with informed planning in mitigation and adaptation, support rights-based approaches to decision making, and promote flexible solutions to local problems.

Natural Disasters in Cambodia, 1987-2007

	No. of Events	Killed	Injured	Homeless	Population Affected	Damage (US$)
Flood	12	1,125	53	275,805	9,514,614	327,100,000
Avg. per event		94	4	22,984	792,885	27,258,000
Drought	5	0	0	0	6,550,000	138,000,000
Avg. per event		0	0	0	1,310,000	27,600,000
Epidemic	8	788	0	0	413,570	0
Avg. per event		99	0	0	51,696	0

Source: EM-DAT: The OFDA/CRED International Disaster Database, www.em-dat.net

SESSION 3

UNDERSTANDING DISASTER RISK REDUCTION

Introduction

Disaster Risk Reduction (DRR) is the first line of defence against climate change impacts, and a useful starting point for developing climate change adaptation policies, risk reduction strategies, and building community resilience. DRR focuses on preventive actions to reduce the negative impacts of disasters. The ultimate goal of DRR is to build climate change-resilient communities. The key way to reduce risk is to build capacities to address local vulnerabilities.

Building individual and community capacities starts with awareness building, vulnerability assessments, and capacity assessments. These activities aim to produce an action plan of adaptation responses. DRR action plans can include activities such as: dike building to protect agricultural crops and for water storage, planting drought-resistant crops to improve food security, policy development, organisational development, and public awareness campaigns.

The goals of DRR:

- **Reduce** or avoid potential losses from hazards
- Provide prompt and appropriate **relief** and assistance to victims of disaster
- Rapid and effective **recovery**

Some key principles and actions that can help identify and shape options for building resilient communities include:

- Informed participatory planning and decision making
- Rights-based approaches to development
- Considering ecology at the heart of development
- Integrated area-based approaches
- Adaptive and flexible institutions
- Prioritize actions that address existing areas of vulnerability and poverty

Learning Objectives

At the end of this session, participants will:

- Have a basic understanding of DRR terminology
- Understand the concepts of Disaster Risk Reduction (DRR), the Disaster Management Cycle, and international DRR frameworks
- Understand how to reduce disaster risks

International DRR Frameworks

The Hyogo Framework for Action

A comprehensive approach to reduce disaster risks is set out in the United Nations-endorsed **Hyogo Framework for Action.** Adopted in 2005, its expected outcome is, "the substantial reduction of disaster losses, in lives and the social, economic and environmental assets of communities and countries."

The Hyogo Framework for Action sets out five priorities for action:

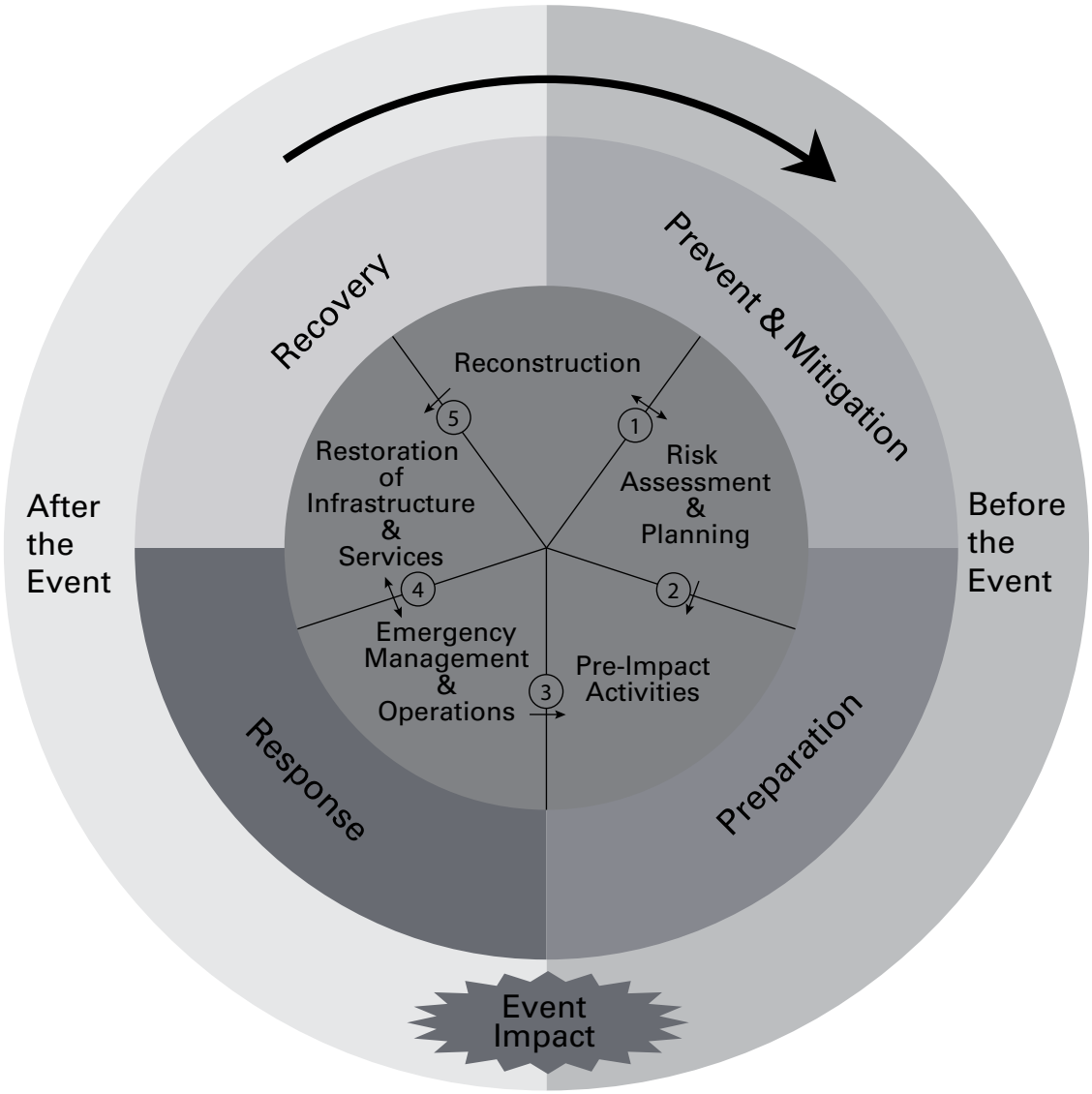
- Make disaster risk reduction a priority
- Know disaster risks and take action

- Build understanding and awareness
- Reduce risks
- Be prepared and ready to act

International Strategy for Disaster Reduction (ISDR)

The International Strategy for Disaster Reduction provides a vehicle for cooperation among governments, organisations and civil society actors to assist in the implementation of the Hyogo Framework. Note that while the term "disaster reduction" is sometimes used, the term "disaster risk reduction" provides a better recognition of the on-going nature of disaster risks and the on-going potential to reduce these risks.

Disaster Risk Reduction Cycle: Prevention, Mitigation, Preparedness



Process of Risk Reduction

Risk is seen as the accumulation of hazards multiplied by specific vulnerabilities. Risk is reduced by building capacities to address these vulnerabilities.

As capacities rise to address vulnerabilities, the levels of risk to communities, livelihoods, or ecosystems decreases.

$$\text{RISK} = \frac{\text{HAZARD} \times \text{VULNERABILITY}}{\text{CAPACITY}}$$

#1: Assess your RISK: HAZARDS, COMMUNITY VULNERABILITIES and your COMMUNITY CAPACITIES

↓

#2: Formulate risk mitigation OBJECTIVES

↓

#3: Develop a CLIMATE RISK REDUCTION ACTION PLAN

↓

#4: Build CAPACTIES to deliver the action plan → **prevention, mitigation, and preparedness responses**[vii]

SESSION 4

CLIMATE CHANGE ADAPTATION STRATEGIES

Introduction

This session provides a basic understanding of climate change adaptation and the difference between disaster risk reduction and climate change adaptation, which are overlapping and cross-sectoral. Both aim to strengthen assets and institutions, increase knowledge and information systems, and promote more inclusive decision-making.

However, climate change adaptation requires a more long-term perspective than emergency or crisis response, and should address the root causes of vulnerability and poverty. The effectiveness of building communities that are resilient to climate change is ultimately determined by the extent to which actions are incorporated into policies of different agencies at national and sub-national levels.

Learning Objectives

At the end of this session, the participants will:

- Understand the adaptation possibilities in the five sectors such as water resources, agriculture, health, coastal areas and forestry
- Understand the difference between disaster risk reduction and climate change adaptation

Adaptation to Climate Change

Adaptation to climate change is the ability of a system to adjust to climate change, to mitigate potential damage, to take advantage of opportunities, or to cope with the consequences. The Intergovernmental Panel on Climate Change (IPCC) defines adaptation as the "adjustment in natural or human systems to a new or changing environment. Adaptation to climate change refers to adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities. Various types of adaptation can be distinguished, including anticipatory and reactive adaptation, private and public adaptation, and autonomous and planned adaptation." The main objective of climate change adaptation is to achieve resilience. There are two types of adaptation: 1) **Autonomous adaptation** or coping strategies, and 2) **Planned adaptation.**

Common autonomous household adaptation strategies:

- Selection of appropriate crop varieties – then reverting back to traditional crops after the hazard
- Storing of food staples before and after a disaster
- Animal husbandry practices such as culling
- Storing fodder (grasses and straws)
- Alternative livelihood options – migrant labour, temporary labour shifts, exploitation of other ecosystems
- Credit or borrowing money

Autonomous adaptation is likely to play a larger role in responding to climate change than planned adaptation strategies implemented by national governments or other high-level entities. Individuals, households, businesses, and communities have much more intimate contact with the mix of constraints, opportunities, and risks emerging within local contexts than governments.

Autonomous Adaptation	Planned Adaptation
Short-term and immediate	Oriented towards longer-term livelihoods security
Oriented towards survival	A continuous process
Not continuous	Results are sustained
Motivated by crisis, reactive	Uses resources efficiently and sustainably
Often degrades resource base	Involves planning
Prompted by a lack of alternatives	Combines old and new strategies and knowledge, and is focused on finding alternatives

It should be noted that activities that increase climate change adaptive capacity are essentially the same as sustainable development activities and projects.

(See the National Program of Action to Climate Change 2006 for more information about Cambodia's ongoing adaptation projects).

Climate Change Adaptation in the Water Resources and Fisheries Sectors

Water is crucial for national economic development – for energy through hydropower, and for agricultural development through the expansion of irrigation. But even more importantly, water is fundamental for human health and well-being. The key challenge within the water resources sector is the management of equitable and sustainable access and distribution across all sectors.

Improved and more efficient management of water resources can help reduce vulnerabilities to climate change impacts. Some of the available adaptation measures include:

- Development of regulations and technologies for direct control of land and water use
- Economic incentives to change users behaviour
- Development of new sources
- Improvements in water management operations and institutions
- Watershed protection
- Protection of waterside vegetation
- Restoring river channels to their natural form and reducing water pollution

Drought adaptation: water retention and harvesting

Livelihoods are generally secure during good rainfall years, but in prolonged dry spells, crop failure and reduced vegetation for wildlife and livestock are likely, and in some cases drinking water supplies are insecure.

Planned adaptation responses focus on:

- Conserving water from rainfall. This can be done through a range of measures that, in many cases, involve large-scale land use changes.
- Safeguarding natural storage areas and water recharge functions, for example, through reforestation.
- Maximizing large public infrastructure to improve local water conservation and recharge.
- Implementing a wide range of water-harvesting measures.

Flood adaptation and the Mekong River Commission

The Mekong River Commission (MRC) mainly focuses on regional flood management including structural measures, flood proofing, flood emergency management, and mediation of trans-boundary flood issues. The MRC produces accurate regional flood forecasts with timely

and effective dissemination, and provides flood risk assessments. The MRC also conducts studies and assessments on the effects that infrastructure such as reservoirs, embankments, and waterways have on flooding, in order to provide guidelines and technical standards.

In addition, the MRC supports the improvement of existing emergency management systems to deal with the Mekong floods more effectively through capacity building, knowledge sharing, and public awareness campaigns at the provincial, district, and community levels. The MRC also facilitates dialogue and the resolution of issues on land management and land-use planning, infrastructure development, and the cross-border emergency management of floods. For more information, visit http://www.mrcmekong.org/

Adaptation in the fisheries sector

The fisheries sector is already under pressure from the use of destructive fishing gear and illegal practices, weak governance that denies equitable access, and the illegal clearing of fishery habitats such as the flooded forests around the Tonle Sap Lake.

Adaptation activities include:

- Improved governance
- Protecting dry season refuges to support the brood stock that will migrate to breed and spawn across the floodplain during the rainy season
- Building small-scale habitats with concrete rings set in the lowest point in each field to increase the survival rate during the dry season
- Promoting rice field fisheries
- Developing community fish ponds

Climate Change Adaptation in the Agriculture Sector

There is a strong link between secure landholdings and agricultural productivity. If farmers have secure land titles, they are much more likely to make long-term investments and improvements to their land.

Also, irrigation is key to increasing rice production, as well as reducing vulnerability to climate change. However, the low economic efficiency and poor performance of existing irrigation systems requires careful consideration of the types and scale of new systems. The challenges include weak capacity of farmer groups to maintain and manage systems, low incentives for collective action, and often poor design of the existing systems.

Effective adaptation policies and plans can help reduce potential impacts of climate change on agricultural productivity, and improve food security. The adverse effects of climate change can be reduced by the following strategies:

- Changes in crops and crop varieties
- Improved water management and irrigation systems
- Adapted planting schedules and reduced tillage practices
- Better watershed management and land-use planning
- Developing drought resistant crop varieties
- Improved dry season cropping techniques
- Ensuring appropriate crop seeds are in place before rains
- Developing village seed banks with seeds of traditional and improved drought-resistant crops and varieties
- Promoting training on economic water use
- Subsidizing and facilitating the supply of seeds and irrigation equipment
- Establishing farmer field schools and mobile libraries
- Using more localized meteorological forecasts and corresponding cultivation advise
- Improving soil moisture management and soil fertility through organic fertilizers and composting
- Reducing run-off and increasing rain water infiltration by planting barriers such as vetiver, lemon grass, agave, etc.
- Increasing fertility and water holding capacity of the soil through addition of organic manures and green manures
- Proper land-use planning as per land capability classifications
- Promoting mulching practices so that the limited available soil moisture is saved during critical stages of the crop growth
- Agricultural crop extension programs to increase crop diversity, technical skills, and timely weather information, etc.
- Funding for scientific agricultural research
- Increasing availability of improved rice seed varieties
- Commercial farm credit systems
- Improved irrigation
- Agro-forestry

Climate Change Adaptation in the Health Sector

Risks to human health because of climate change can be reduced through various adaptation strategies. For a country with limited adaptation capacity and resources like Cambodia, it is crucial that preventive measures be given a high priority in order to minimize the need for more expensive curative measures. Adaptation measures to address negative impacts of climate change on human health may include:

- Improved medical care services, especially for infectious diseases
- Health surveillance and sanitation programs
- Public education and awareness raising
- Improved environmental management
- Disaster preparedness
- Improved water and pollution control
- Professional development and research training
- Protective technologies such as housing improvements, water purification, and vaccination

Climate Change Adaptation in Coastal Areas

Saltwater intrusion is already affecting coastal farmers. It affects farming and livestock, as well as human health, by contaminating drinking water.

Possible response options to climate change impacts in coastal areas include:

- Protection by sea walls and dikes
- Wetlands creation
- Adoption of new building codes – a set of rules that specify the minimum acceptable level of safety for constructed objects such as buildings and non-building structures. The main purpose of building codes are to protect public health, safety and general welfare as they relate to the construction and occupancy of buildings and structures.
- Protection of threatened ecosystems
- Regulations and plans for new coastal development
- Improving design standards
- Strengthening fisheries management
- Integrated coastal zone management, which considers social, economic, legal, institutional and environmental measures, can offer a wide range of potential response options.

Climate Change Adaptation in Forests and Ecosystems

Deforestation and associated land-use changes have been the major cause of Cambodia becoming a net emitter of GHGs. It also affects sustainable livelihoods that are dependent on healthy ecosystems,

as well as local weather and climate. Forests in Cambodia have traditionally been common property resources, but weak governance and the enormous sums of money involved in logging has led to increased tension and conflict over forest use. Despite a moratorium on logging, deforestation continues to increase.

The National Forest Program 2010-2029 addresses the many economic and governance challenges to community forests and protected areas. The focus is on five key interventions:

- Demarcation, classification, and registration of forest land
- Forest reserve management and conservation
- Forest law enforcement and governance
- Promotion of forest plantations of up to 2 million hectares in size, which may include current community forests and community protected areas
- Sustainable financing

In the forestry sector, measures that can help natural ecosystems adapt to climate change may include:

- Creating natural migration corridors, and assisting particular species to migrate
- Reforestation and the integrated management of fires, pests, and diseases
- Proper selection of plant species for rangelands
- Controls on animal stocking
- New grazing strategies
- Introduction of drought-tolerant species and better soil conservation practices

Good practices in responding to climate change risk

Effective measures to reduce exposure to climate risks and impacts

- Provide technical assistance, through farmer organisations that promote learning, experimentation, and innovation such as Farmer Field Schools, Savings Groups, and Rice Banks, and encourage the use of more productive techniques such as the System of Rice Intensification.
- Determine crop suitability by examining indigenous species vis-à-vis climate projections. It is important to understand climate change impacts in order to choose varieties of crops that fit a specific climate condition, for example, short-term rice is suitable for drought-prone areas.
- Take a problem-oriented approach. This means identifying the root causes of climatic vulnerabilities so that adaptation plans are well-designed. For example, insufficient canals and water reservoir may be vulnerable to drought so it is important to increase water capacity storage with reservoirs, canals, ponds, etc.
- Design flexibility into projects.

Contributing to community well-being and building adaptive capacity

- Strengthen livelihoods through marketing and focusing on the comparative advantage of your community's crops or products.
- Establish community food and health banks.
- Strengthen livelihood resilience by restoring ecological systems.

Promoting gender equality and equity

- Conduct a gender analysis at the beginning of a project to learn more about gender roles, in particular at the household and community levels.
- Identify how men and women participate in planning and decision-making.
- Choose appropriate techniques or practices that reduce the burden of women: for example, the System of Rice Intensification requires less labour for women in transplanting because it requires fewer rice seedlings.

Innovation and incorporation of indigenous community practices

- Restore and promote indigenous sustainable practices. Incorporate local knowledge and practices into adaptation planning. The local community may have knowledge of autonomous adaptation. For instance, in drought-prone areas, farmers apply short-term rice.

Contributing to community cohesion and participatory decision making

- Invest in strengthening local institutions, such as Farmer Field Schools, Saving Groups, and Rice Banks.

- Engage local institutions to search for locally appropriate solutions.
- Support broader institutional development beyond the project to safeguard the project gains and avoid maladaptation.

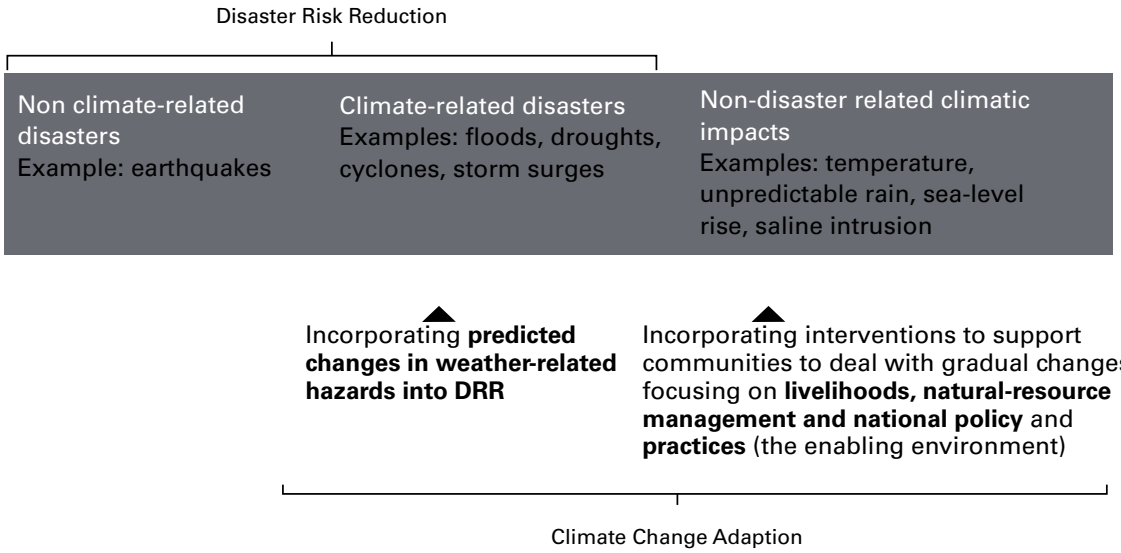
Mainstreaming and replication potential

- Identify good practices for replication and policy advocacy.
- Develop mainstreaming tools.

The Difference between DRR and Climate Change Adaptation

Disaster Risk Reduction (DRR) supports community adaptation to the impacts of climate change. However, not all DRR is about climate-related hazards (for example, other hazards include earthquakes, etc.) and, equally, not all climate change impacts are hazards (such as increasing temperature, unpredictable rainfall patterns, and changing seasons) – all of which are more long-term changes.

Climate Change and Disasters: similarities and differences



SESSION 5

CLIMATE CHANGE MITIGATION

Introduction

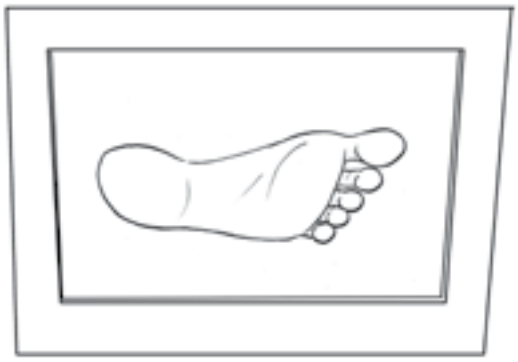
This session explains climate change mitigation concepts and options. Climate change mitigation actions are ways of decreasing the concentration of Greenhouse Gases (GHGs) in the atmosphere by, 1) absorbing carbon to reduce the amount of carbon dioxide and other greenhouse gases that are emitted into the atmosphere, or 2) lowering emissions by reducing their sources.

Learning Objectives

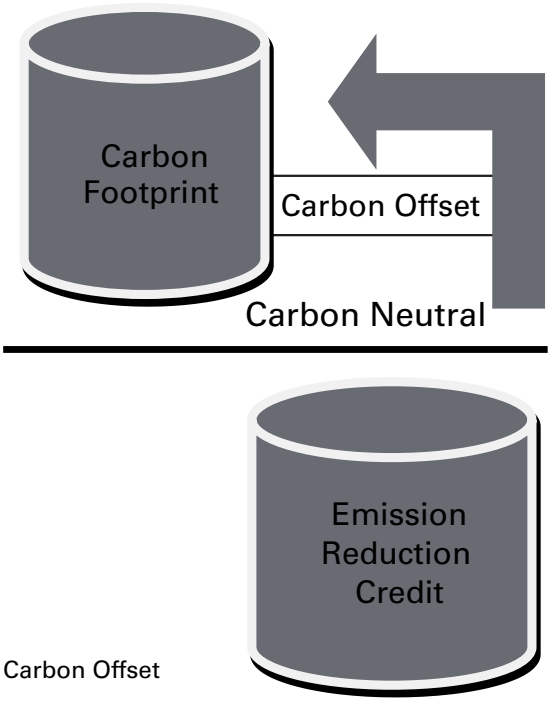
At the end of the session, the participants will be able to:

- Understand some basic concepts related to mitigation such as carbon footprints, offsetting, clean development, and REDD and market mechanisms
- Understand possible climate change mitigation measures

Understanding carbon footprints, carbon sequestration, and carbon offsets for climate change mitigation



Carbon footprint



Carbon Offset

- **Carbon footprint:** A carbon footprint is a measure of the impact our activities have on the environment, and in particular, climate change. It measures the amount of greenhouse gases that are produced as a result of our consumption of products and services. The biggest source of greenhouse gases are emitted when we burn fossil fuels (oil, coal, etc.) to produce electricity, and for transportation and industry. Other sources of greenhouse gases come from agriculture and deforestation.
- **Carbon sequestration and carbon sinks:** A carbon sink is a natural or artificial reservoir that accumulates and stores some carbon-containing chemical compounds. The process by which carbon sinks remove carbon dioxide (CO2) from the atmosphere is known as carbon sequestration. Public awareness of the significance of CO2 sinks has grown since passage of the Kyoto Protocol, which promotes their use as a form of carbon offset.

The main natural carbon sinks are:

- Absorption of carbon dioxide by the oceans via physicochemical and biological processes
- Photosynthesis by trees and plants

- **Carbon offset:** A carbon offset is a financial mechanism to reduce greenhouse gas emissions. Companies and governments buy

carbon offsets to comply with emission agreements for the total amount of CO2 they are allowed to emit. If they don't comply, this often results in financial penalties and the breaching of political agreements. Individuals, companies, or governments can also purchase carbon offsets voluntarily to mitigate their own greenhouse gas emissions from transportation, power use, and other sources in order to be **carbon neutral** or to improve their Corporate Social Responsibility (CSR) profile.

- **Clean Development Mechanism (CDM):** Adopted by the international community in 1997, the goals of the CDM are to promote sustainable development in developing countries and to allow industrialized countries to earn **carbon offset credits**. To earn credits under the CDM, a project must prove and have verified that the greenhouse gas emissions reductions are real, measurable, and additional to what would have occurred in the absence of the project. However, for small-scale projects that are most appropriate for developing countries and for rural communities, the process for approval of CDM finance is prohibitively bureaucratic and costly.
- **Reducing Emissions from Deforestation and Degradation (REDD):** Deforestation and forest degradation account for nearly 20% of global greenhouse gas emissions, which is more than the entire global transportation sector and second only to the energy sector. Reducing Emissions from Deforestation and Forest Degradation (REDD) is a financial incentive for developing countries to reduce emissions from deforestation, and invest in low-carbon paths to sustainable development. This scheme has considerable potential for tropical countries with extensive forest cover such as Cambodia.

Through these voluntary carbon markets, the private sector, including individuals, are able to purchase carbon credits to offset carbon emissions. Through forest conservation and sustainable forest management, and by credible measuring, monitoring, and valuing, REDD has the potential to generate substantial funding for the forest sector. It is important that the benefit sharing mechanism is in place to insure the interests from REDD can be equitably shared with local forest communities.

The benefits of REDD include:

- Mitigation of climate change
- Conservation of biodiversity and other ecosystem services
- Development support for developing countries
- Financial support for locally-driven development – the right to self-determination, and the right to participation.

For more detail, visit
http://www.redd-monitor.org/

Examples of projects that earn carbon offset credits under the Clean Development Mechanism (CDM)

In Cambodia, there are seven CDM projects approved by the government, as of 2010. The table below indicates the types of project and year:

Type of Project/ year	2006	2007	2008	2009	2010	Total
Biogas		2		1	1	4
Hydro power			1			1
Waste/heat gas utilization			1			1
Biomass	1					1
Total	**1**	**2**	**2**	**1**	**1**	**7**

Source: Climate Change Department, 2011 (for details, visit www.camclimate.org.kh)

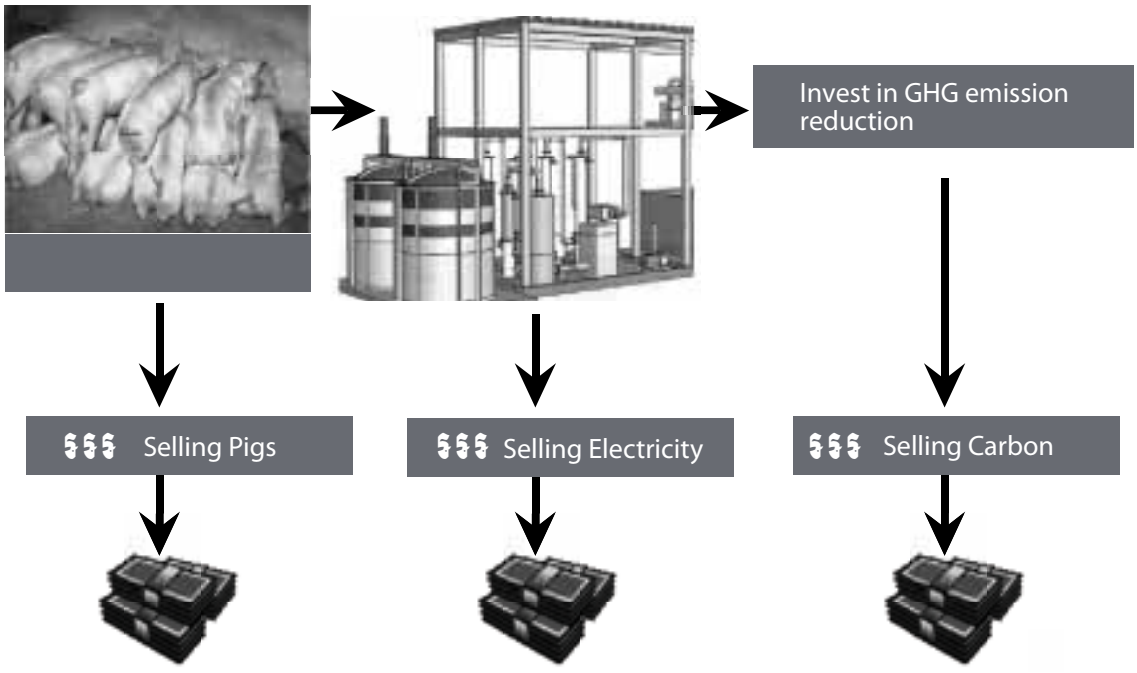
REDD in Udor Meanchey Province

The **Seima Protected Forest** in Cambodia was designed for the voluntary carbon market.

The forest is expected to sequester 1,566,000 tons of CO2 (this will be worth approximately 5.4 million USD over its first five years).

The **REDD** side of the project tends to build on existing conservation activities, specifically with a focus

Biogas Project



Source: Ministry of Environment

on reducing deforestation. It is hoped that this will also 'upgrade' the legal status of local indigenous communities and increase political support for the project. Additionally, leakage will be dealt with using a number of processes, e.g. expansion of patrolling, land titling, and alternative livelihoods as funds from carbon sales accrue. A portion of the funds will be used to establish direct incentive programs. Note that law enforcement patrols do not achieve full coverage of the project area, and deforestation rates are increasing; although less than in neighbouring areas. These are serious challenges to address.

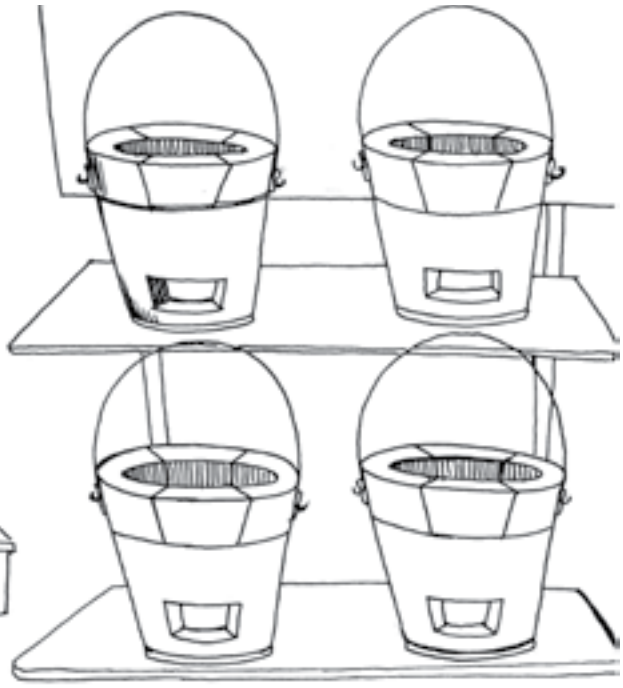
Other co-benefits of the project include the protection of 38 globally threatened species and the conservation of many non-timber products for indigenous people.

Mitigation Measures in the Energy Sector

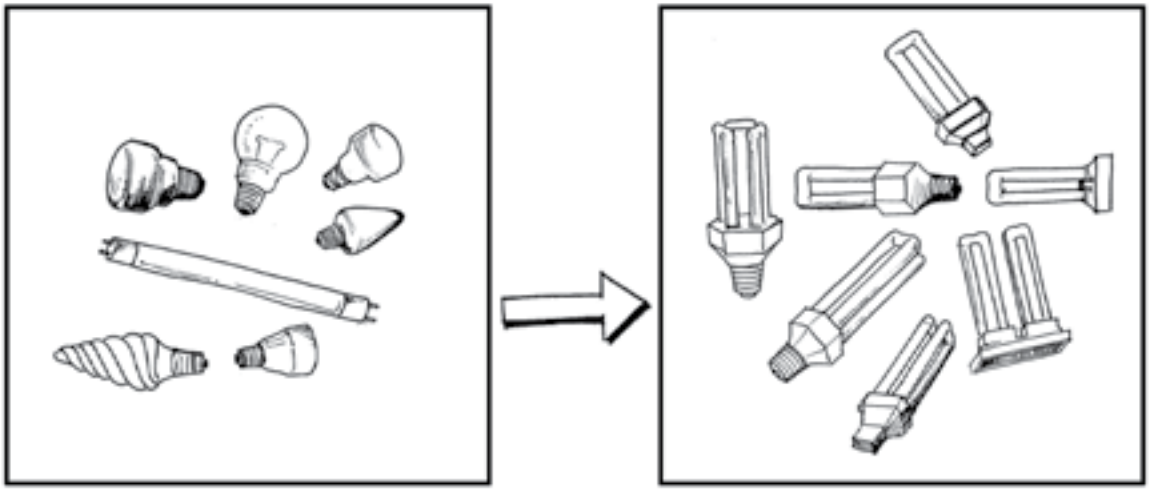
Energy Efficiency

Energy efficiency involves improved energy technologies that can reduce energy consumption and carbon emissions. In Cambodia, a New Lao Stove can save up to 30% on fuel wood in comparison with the traditional model. This emission reduction, approximately 0.4 tons of carbon dioxide per stove per year, can generate a significant amount of carbon credits, providing the sustainable financing necessary to implement a self-sustaining national cook stove program, as well as financing the sustainable production of sufficient firewood through community forestry and efficient charcoal production.

Traditional Stove



New Lao Stove (saves wood by 30%)



Incandescent lightbulbs

Compact fluorescent lightbulbs
(saves electricity by 80%)

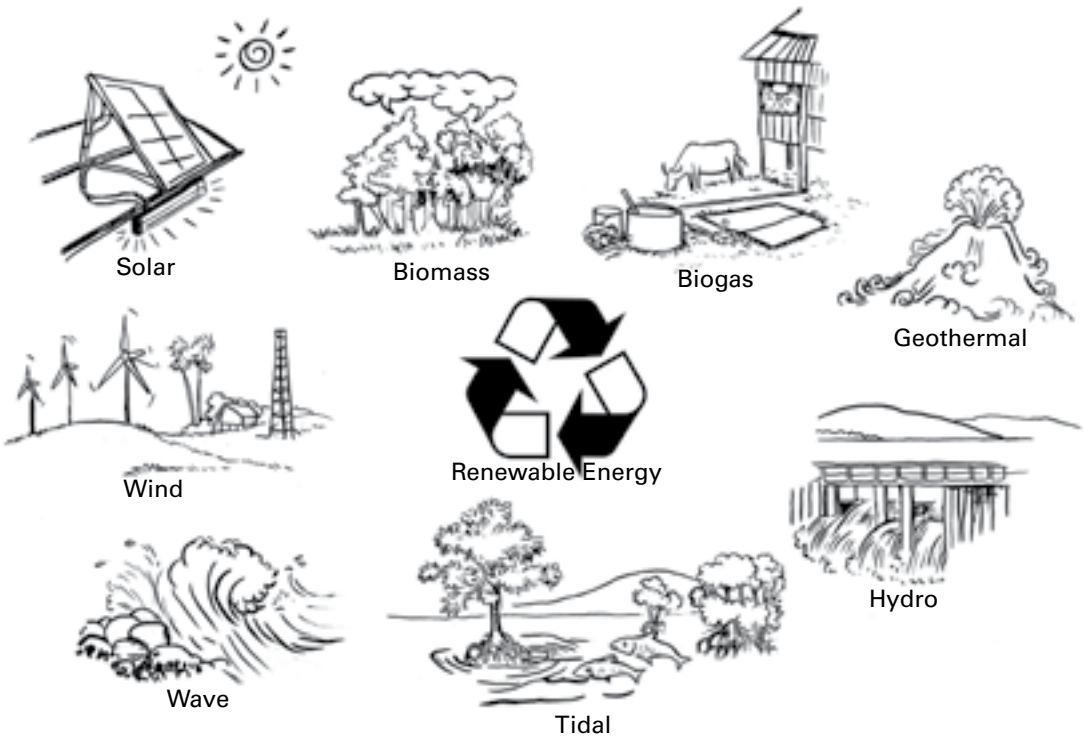
Renewable Energy

Renewable energy is energy obtained from sources that are essentially inexhaustible, unlike fossil fuels, which have a finite supply. Renewable sources of energy include wood, waste, geothermal, wind, photovoltaic, sunlight, etc.

About 16% of global energy consumption comes from renewable sources, with 10% coming from traditional biomass, which is mainly used for heating, and 3.4% from hydroelectricity. The share of renewables in electricity generation is around 19%, with 16% of global electricity coming from hydroelectricity and 3% from new renewables.

Below are some examples of using renewable energy that can mitigate Greenhouse Gases including carbon dioxide and methane.

- **Bio-digesters** can reduce the need for fuel wood. Anaerobic bio-digesters, fed with animal dung and other organic waste, produce methane gas which is used both for cooking and lighting.
- **Ceramic water filters** not only improves sanitation and the safety of drinking water, but also saves time and reduces the fuel consumed by boiling water for drinking.
- **LED lantern with a photovoltaic charger** is a sustainable solution for rural lighting needs – eliminating the need for kerosene lamps or using diesel generators for recharging car batteries to light incandescent light bulbs.



Mitigation Strategies in the Agriculture Sector

Carbon Sequestration

Many best management practices in agriculture increase carbon sequestration. Such practices include reducing the amount of bare fallow land by adopting no-till practices, restoring degraded soils, improving pastures and grazing land, adopting irrigation, and rotating crops and forage.

Another way to increase carbon sequestration is through grazing land management, which increases the cover of high-productivity grasses and overall grazing intensity. Degraded or overgrazed land can be restored to produce more biomass by selectively planting grasses, adding phosphate fertilizers, and alternating grazing with rest periods for the land.

Increasing biomass productivity on grazing lands enhances soil cover, increases moisture availability, and increases the overall amount of stable organic matter in the soil.

Bio-energy

The production of liquid fuels from dedicated energy crops, such as grains and oilseeds, is being evaluated for use as transport fuel in response to concerns over the environmental sustainability of continued fossil fuel dependence. The potential of bio-fuels to reduce carbon emissions, however, is highly dependent on the nature of the production process through which they are cultivated and manufactured.

A number of studies are challenging the net carbon benefit in comparison with traditional fossil fuels,[viii] especially when bio-fuel production requires land conversion from a cover with a high carbon sequestration value, such as forests.[ix]

On-Farm Mitigation

Improved management practices that reduce on-farm emissions include livestock and manure management, fertilizer management, and improved rice cultivation.

Manure Management

In manure management, cooling and using solid covers for storage tanks and lagoons, separating solids from slurry, and capturing the CH4 emitted are effective techniques. In developing countries, however, applying this type of manure management may be difficult because animal excretion happens in the field. Composting manure and altering feeding practices may help reduce emissions to a certain extent.

Fertilizer Management

Improving the efficiency of fertilizer application or switching to organic production can decrease the nutrient load and N_2O emissions. Overall benefits will need to be weighed, however, against potential impacts on yield. Although some studies have shown that organic agriculture offers yields competitive with conventional fertilizer applications, fertilizer reductions of 90% in rain-fed maize fields were shown to reduce yields by 10.5% over the baseline.

Rice Cultivation

Improving water management in high-emitting, irrigated rice systems through mid-season drainage or alternate wetting and drying has shown substantial reductions in CH4 emissions in Asia. These effects may be partially offset, however, by an increase in the amount of N_2O emitted.

Maladaptation

The United Nations Framework Convention on Climate Change (UNFCCC) and its Kyoto Protocol commit State parties to minimize adverse economic, social and environmental impacts resulting from the implementation of response measures taken to mitigate or adapt to climate change impacts. Agro-fuel or bio-fuel production is one example of how mitigation measures may have adverse secondary effects on human rights, especially the right to food. Whereas agro-fuel production could bring positive benefits for climate change and for farmers in developing countries, agro-fuels have also contributed to increasing the price of food commodities because of the competition between food, feed, and fuel for scarce arable land. Apart from the impact on the right to food, concerns have also been raised that the demand for bio-fuels could encroach on the rights of indigenous peoples to their traditional lands and culture.

SESSION 6

NATIONAL AND GLOBAL CLIMATE CHANGE FRAMEWORKS

Introduction

This session provides an overview of the national government structures, policies and strategies, and the international negotiations on climate change. The session also describes the United Nations policy frameworks and institutions.

International and National Institutions and Agreements on Climate Change

International level

The United Nations Framework Convention on Climate Change (UNFCCC): is an international environmental treaty that was prepared at the United Nations Conference on Environment and Development (UNCED), informally known as the Earth Summit, held in Rio de Janeiro in Brazil in 1992. The objective of the treaty is to stabilize greenhouse gas concentrations in the atmosphere. The treaty itself sets no mandatory limits on greenhouse gas emissions for individual countries, and contains no enforcement mechanisms. In that sense, the treaty is considered legally non-binding. Instead, the treaty provides for updates (called "protocols") that would set mandatory emission limits. The principal update is the Kyoto Protocol, which has become much better known than the UNFCCC itself.

Learning Objectives

At the end of the session, participants will:

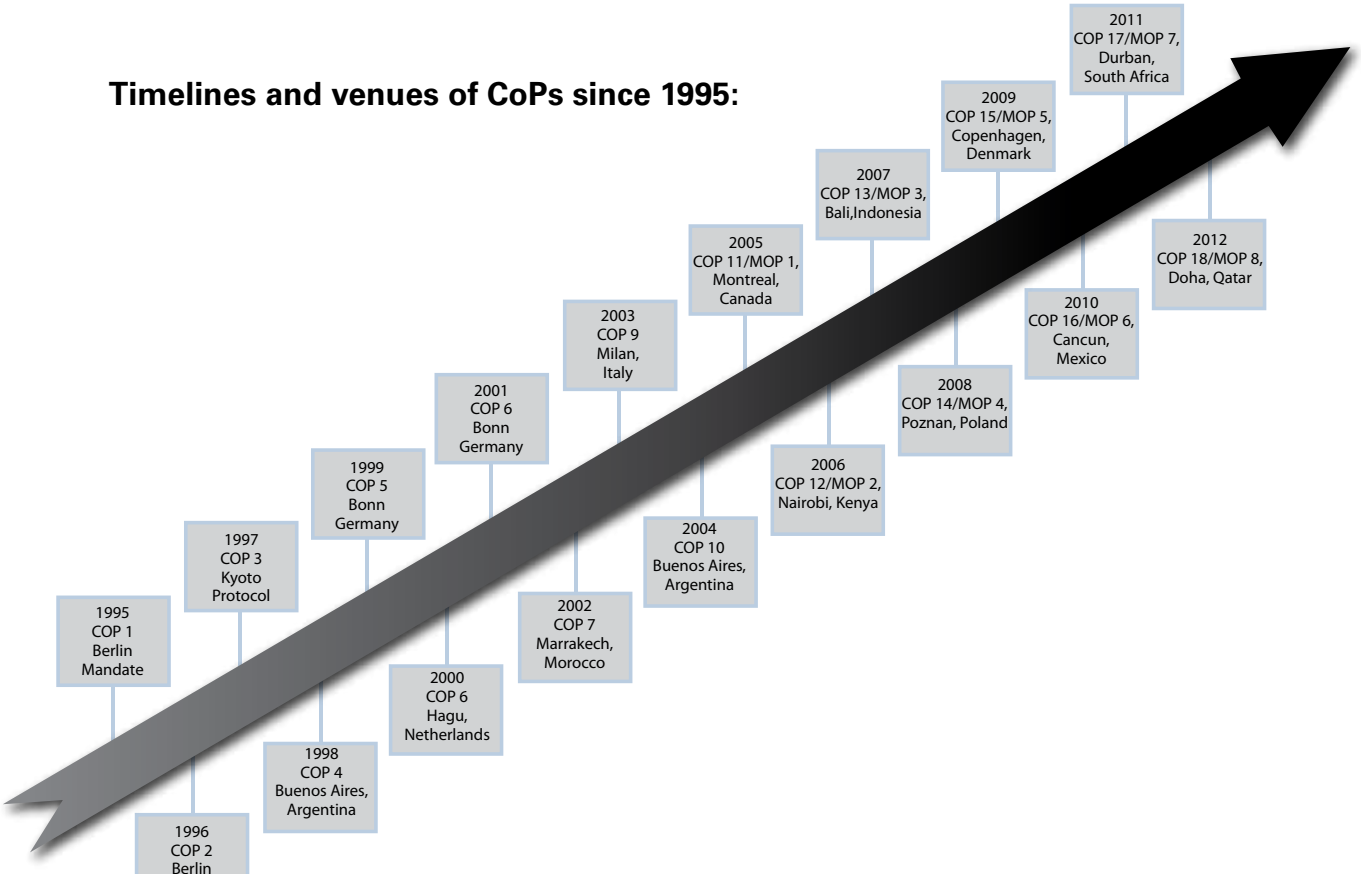
- Be aware of national and international negotiations, agreements, and mechanisms related to climate change adaptation and mitigation
- Learn about the key Cambodian institutions involved in climate change responses

Conferences of the Parties (CoPs): is a supreme body of this Convention. It shall keep under regular review the implementation of the Convention and any related legal instruments that the Conference of the Parties may adopt, and shall make, within its mandate, the decisions necessary to promote the effective implementation of the Convention. Since the UNFCCC entered into force, the parties have been meeting annually in the CoPs to assess progress in dealing with climate change, and beginning in the mid-1990s, to negotiate the Kyoto Protocol to establish legally binding obligations for developed countries to reduce their greenhouse gas emissions. At the CoPs, the parties also discussed issues such as adaptation, climate finance, mitigation, and so on.

Kyoto Protocol: in 1997 the Kyoto Protocol established legally binding emission reduction targets and paved the way for trading carbon credits generated by GHG reduction projects under the Clean Development Mechanism (CDM) and other compliance markets. For the first commitment period of 2008-2012, the developed countries were legally required to reduce their emissions by 5.2% below the 1990 baseline, by 2012.

For more detail, visit http://unfccc.int/

Timelines and venues of CoPs since 1995:



National Level

The Cambodian Royal Government's commitment to addressing the global climate change threat is reflected in its national frameworks and institutional arrangements. Cambodia ratified the United Nations Framework Convention on Climate Change (UNFCCC) on 18 December 1995, which entered into force on 16 March 1996.

On 4 July 2002, Cambodia acceded to the Kyoto Protocol, which entered into force on 22 August the same year. Cambodia submitted the Initial National Communication (INC) to the CoP-8 in New Delhi, India in 2002. The Ministry of Environment is the designate National Focal Point for the UNFCCC and the national authority for Clean Development Mechanism (CDM) under the Kyoto Protocol.

The Interim Designated National Authority (IDNA)

To ensure that issue related to climate change have been addressed properly at the national and international levels, the Royal Government of Cambodia appointed the Ministry of Environment as the Interim Designated National Authority (IDNA) for the Clean Development Mechanism (CDM) in 2002.

Clean Development Mechanism (CDM)

The CDM has two key goals: (i) to assist developing countries who host CDM projects to achieve their sustainable development objectives and (ii) to help developed countries partially meet their GHG reduction commitments by allowing them to take credits from emissions reducing projects undertaken in developing countries. Cambodia's participation in the CDM is voluntary, and the proposed projects will assist in achieving national sustainable development objectives. Some typical CDM project types that reduce, avoid, or sequester the GHG emissions are:

- Renewable energy (hydro, wind, solar, biomass)
- Energy efficiency (production and end use)
- Forestry (afforestation and reforestation for carbon sinks)
- Transport activities
- Water management

National Adaptation Program of Action (NAPA)

NAPA is a guidance document for other line ministries to seek funding to support implementation of relevant projects. This document is based on the United Nations Framework Convention on Climate Change (UNFCCC). The formulation of the NAPA follows a participatory process that involves those who are most affected by climate change: rural people and the poor. The NAPA has the following objectives:

- To understand the characteristics of climate hazards in Cambodia (flood, drought, windstorms, high tides, salt water intrusion, and malaria).

- To understand coping mechanisms to climate hazards and climate change at the grassroots level.
- To understand existing programs and institutional arrangements for addressing climate hazards and climate change.
- To improve agricultural productivity through the expansion of irrigation and the management of water resources to reduce vulnerability to natural disasters.
- To identify and prioritize adaptation activities to climate hazards and climate change.

The Cambodian NAPA is supportive of the government's development objectives as outlined in the Rectangular Strategy for Growth, Employment, Equity and Efficiency adopted in 2004, as well as in the National Strategic Development Plan 2006-2010 (NSDP) adopted in 2006. NAPA was prepared by the Ministry of Environment and has a total of 39 projects.

The Initial National Communication (INC)

In order to implement the relevant legal documents and policies to address climate change, the Royal Government of Cambodia (RGC), through the Ministry of Environment (MoE) established the Initial National Communication (INC) in 2002 to implement projects funded by UNFCCC in Cambodia. The objectives of INC are described below:

- To build capacity and facilitate the process of taking climate change-related issues increasingly into account in Cambodia and deal with climate change and its impacts.
- To contribute to the global effort to increase understanding of the sources and sinks of greenhouse gases, potential impacts of climate change, and effective response measures to achieve the ultimate objective of the UNFCCC.

The Second National Communication (SNC) and Cambodia Climate Change Strategic Plan (CCCSP) are currently in the process of being developed.

National Green Growth Roadmap (2010)

The Royal Government of Cambodia, through MoE, has developed the Green Growth Roadmap to integrate ideas and projects on green growth into national strategic development. This roadmap will create the basis for environmentally sound economic development through promotion of sustainable consumption and production, greening the market and green business, development of sustainable infrastructure, green tax and budget reform, and monitoring eco-efficiency indicators. To navigate towards a sustainable development path and adapt to climate change, the National Green Growth Roadmap will focus on addressing seven accesses:

1) Access to clean water and sanitation
2) Access to renewable energy
3) Access to information and knowledge
4) Access to means for better mobility
5) Access to finance and investment
6) Access to food security (agriculture) and non-chemical products
7) Access to sustainable land-use

National policies and arrangements that are relevant to climate change include:

- Royal Kram No. 02-94 dated 24 December 1996 promulgating the Law on Environmental Protection and Natural Resource Management
- Royal Kram No. 0196-21 dated 24 January 1996 on the Establishment of the Ministry of Environment
- Sub-Decree No. 57 dated 25 September 1997 on the Organisations and Functions of the Ministry of Environment
- Sub-Decree No. 30 dated 2002 on the Organisation and Functions of the National Committee for Disaster Management
- The Royal Government of Cambodia: The Rectangular Strategy for Growth, Employment, Equity, and Efficiency [x]

Institutional involvement

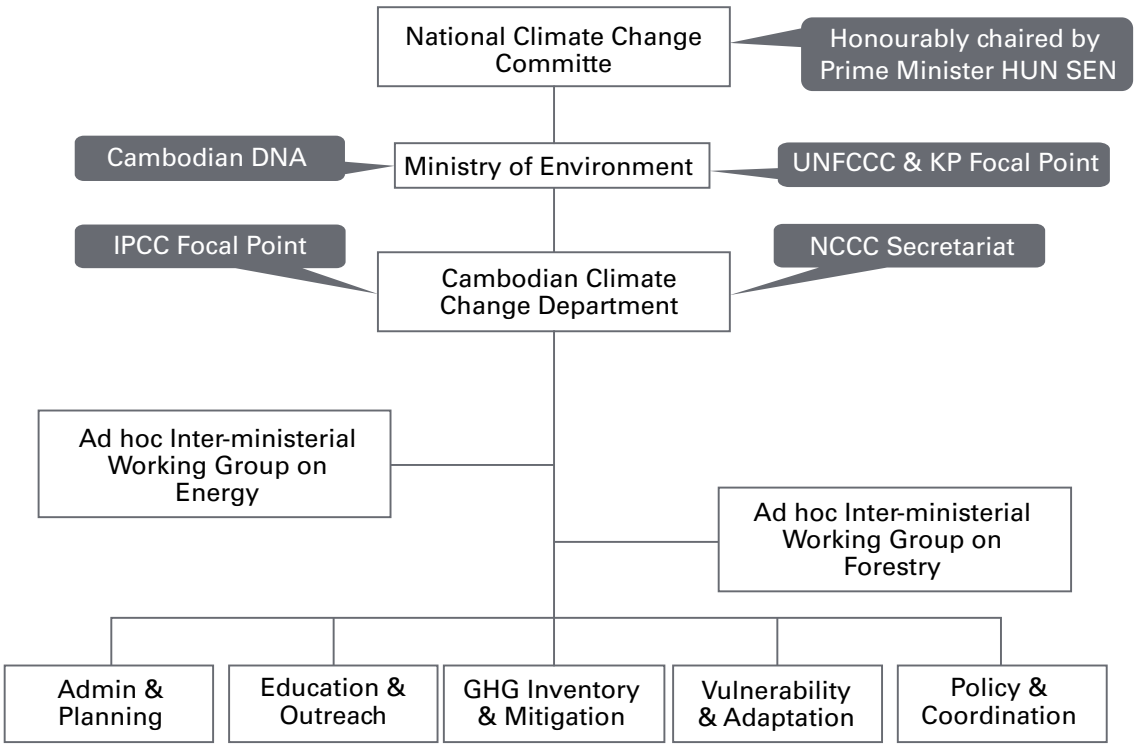
Cambodia's National Poverty Reduction Strategy (NPRS) identifies natural disasters, particularly floods and droughts, as critical factors that continue to increase socio-economic vulnerabilities of the rural poor, including placing a disproportionate burden of coping on women. Thus, climate change is not just an environmental issue, but is also a development issue. In this context, a series of collaboration and coordination mechanisms have been enacted to respond to climate change across all sectors of society.

Primary Cambodian institutions involved with climate change include:

- National Committee for Disaster Management (NCDM)
- Climate Change Department (CCD)
- Designated National Authority for the Clean Development Mechanism (DNA-CDM)
- National Climate Change Committee (NCCC)

National Climate Change Committee (NCCC)

The National Climate Change Committee is an inter-ministerial mechanism, and is cross-sectoral and multi-disciplinary in nature. It was established by a Ministerial sub-decree in 2006, with the mandate to prepare, coordinate and monitor the implementation of policies, strategies, legal instruments, plans and programs of the government to address climate change issues within the country. It also coordinates activities concerning the implementation of the UNFCCC, its protocols, and other international climate change agreements to which Cambodia is a party, such as the Clean Development Mechanism of the Kyoto Protocol in Cambodia. The NCCC is honourably chaired by the Prime Minister and presided over by the Minster of Environment. It is a policy-making body comprising representatives from 20 concerned Government ministries and agencies. The Prime Minister accepted the position of the Honourary Chair of the NCCC by a sub-decree dated 14 October 2009.



SESSION 7

UNDERSTANDING CLIMATE CHANGE, DEVELOPMENT AND HUMAN RIGHTS

Introduction

In this session we discuss the specific climate change implications for six key human rights: 1) the right to life, 2) the right to adequate food, 3) the right to water, 4) the right to health, 5) the right to self-determination, and 6) the right to access to information and participation in decision making.

It is becoming apparent that climate change has implications for the enjoyment of human rights. The United Nations Human Rights Council has recognized that climate change "poses an immediate and far-reaching threat to people and communities around the world".

Learning Objectives

By the end of the session, participants will:

- Understand human rights within the context of climate change adaptation and mitigation activities
- Understand the linkage between development and climate change

United Nations Human Rights Council Statement on Climate Change

"The unequal burden of the effects of climate change is reflected in article 3 of the Convention". It stipulates that parties should protect the climate system "on the basis of equity and in accordance with their common but differentiated responsibilities and respective capabilities"; that developed countries "should take the lead in combating climate change and the adverse effects thereof" and that full consideration should be given to the needs of developing countries, especially "those that are particularly vulnerable to the adverse effects of climate change" and "that would have to bear a disproportionate or abnormal burden under the Convention".

- Office of the United Nations High Commissioner, 2009

The Effects of climate change on specific human rights

Global warming will potentially have implications for the full range of human rights. The following subsections provide examples of rights which relate most directly to climate change-related impacts identified by the Intergovernmental Panel on Climate Change (IPCC).

#1 - The right to life: The right to life is explicitly protected under the International Covenant on Civil and Political Rights and the Convention on the Rights of the Child. Protection of the right to life, in the context of climate change is closely related to measures for the fulfilment of other rights, such as those related to food, water, health and housing. With regard to weather-related natural disasters, there is a close interconnectedness of these rights.

#2 - The right to adequate food: The right to food is explicitly mentioned under the International Covenant on Economic, Social and Cultural Rights, the Convention on the Rights of the Child and the Convention on the Rights of Persons with Disabilities. As a consequence of climate change, the potential for food production is projected initially to increase at mid to high latitudes with an increase in global average temperature in the range of 1-3° C. However, at lower latitudes crop productivity is projected to decrease, increasing the risk of hunger and food insecurity in the poorer regions of the world. Poor people living in developing countries are particularly vulnerable given their disproportionate dependency on climate-sensitive resources for their food and livelihoods.

#3 -The right to water: Defined as the right of everyone to sufficient, safe, acceptable, physically accessible and affordable water for personal and domestic uses, such as drinking, food preparation and personal and household hygiene. The Convention on the Elimination of All Forms of Discrimination against Women and

the Convention on the Rights of Persons with Disabilities refer to access to water services in provisions on an adequate standard of living, while the Convention on the Rights of the Child refers to the provision of 'clean drinking water' as part of the measures States shall take to combat disease and malnutrition.

Weather extremes, such as drought and flooding, will also impact water supplies. Climate change will thus exacerbate existing stresses on water resources and compound the problem of access to safe drinking water, currently denied to an estimated 1.1 billion people globally, and a major cause of morbidity and disease. In this regard, climate change interacts with a range of other causes of water stress, such as population growth, environmental degradation, poor water management, poverty and inequality.

#4 - The right to health: Described as the highest attainable standard of physical and mental health, the right to health is addressed in Article 12 of the International Covenant on Economic, Social and Cultural Rights and referred to in five other core international human rights treaties. This right implies the enjoyment of and equal access to appropriate health care and more broadly to goods, services and conditions which enable a person to live a healthy life – adequate food and nutrition, housing, safe drinking water, adequate sanitation, and a healthy environment.

Climate change is projected to affect the health status of millions of people due to increases in malnutrition, increased diseases and injury due to extreme weather events, and an increased burden of diarrhoeal and infectious diseases. Global warming may also affect the spread of malaria and other vector borne diseases in some parts of the world. Overall, poor health and malnutrition increase vulnerability and reduce the capacity of individuals and groups to adapt to climate change.

#5 - The right to self-determination: The right to self-determination is a fundamental principle of international law. Common Article 1, Paragraph 1, of the International Covenant on Economic, Social and Cultural Rights and the International Covenant on Civil and Political Rights establishes that "all peoples have the right of self-determination," by which "they freely determine their political status and freely pursue their economic, social and cultural development." This also includes the right of a people not to be deprived of their means of subsistence. While the right to self-determination is a collective right held by peoples rather than individuals, its realization is an essential condition for the effective enjoyment of individual human rights. Thus, states have a duty to take positive action, individually and jointly, to address and avert threats to self-determination, for example by taking action to avert climate change impacts which threaten

the cultural and social identity of indigenous peoples.

#6 - The right of access to information and participation in decision-making: Awareness-raising and access to information are critical to efforts to address climate change. For example, it is important that early-warning information be provided in a way that it is accessible to all sectors of society. Under the United Nations Framework Convention on Climate Change, the parties commit to promoting and facilitating public access to information on climate change. Under international human rights law, access to information is implied in the rights to freedom of opinion and expression. Jurisprudence of regional human rights courts has also underlined the importance of access to information in relation to environmental risks.

Participation in decision-making is of key importance in efforts to address climate change. For example, adequate and meaningful consultation with affected persons should precede decisions to relocate people away from hazardous zones. Under the UNFCCC, party States are to promote and facilitate 'public participation in addressing climate change and its effects and developing adequate responses.' The right to participation in decision making is implied in Article 25 of the International Covenant on Civil and Political Rights which guarantees the right to 'take part in the conduct of public affairs.' Equally, the United Nations Declaration on the Rights of Indigenous Peoples states that states shall consult and cooperate with indigenous peoples 'to obtain their free, prior and informed consent' before adopting measures that may affect them.[xi]

Why is human development threatened by climate change?

Climate change is worsening hunger and poverty and magnifying existing inequalities. Economic losses from climate change, estimated by some at **$125 billion a year**, already exceed the total of donor funds for aid to poor countries. Climate change impacts, unless addressed, will undo efforts to promote global health and combat poverty:

- **Food Security:** climate change may undermine food production and food security in the developing world due to extreme and unpredictable weather events (drought, flooding, and more severe storms).
- **Peace and security:** if left unchecked, climate change will intensify scarcities of water, useable and arable land and other natural resources, increasing the risk of resource wars.
- **Displacement:** perhaps 330 million people will be displaced through flooding.
- **Exposure:** millions more people will be exposed to devastating tropical cyclones.
- **Life as we know it:** vastly reducing emissions is necessary to maintain a planet similar to the one on which civilization developed, and to which life on earth is adapted.

How will climate change affect meeting the Millennium Development Goals (MDGs)?

Climate change is not only an environmental issue, but is also a development issue. Because of its negative impacts on a range of sectors that contribute to achieving development goals, it is apparent that climate change has implications for meeting the MDGs. The consequences of climate change will put additional pressure on the government's ability to achieve the country's Millennium Development Goals. The threat of climate change increases the urgency to put in place sustainable adaptation and mitigation development strategies.

MDGs	How Climate Change impedes achievement of MDGs
1. Eradicate extreme poverty and hunger	Agricultural production and food security, which underpin and support the solution to extreme poverty and hunger, are vulnerable to climate change.
2. Achieve universal primary education	Climate change stresses pose additional burdens on agricultural production and other subsistence activities which may burden families enough to remove children from school.
3. Promote gender equality and the empowerment of women	• Women, the majority of the world's poor, are highly vulnerable to climate change. • Women's rights and access to resources and information, vital to overcoming the challenges posed by climate change, are not realised or recognised.
4. Reduce child mortality	• Climate change will increase vulnerability to poor health. • Water-borne diseases associated with reduced water quality due to floods and drought will increase. • More favourable conditions for the spread of vector-borne and air-borne diseases; and the direct link between temperatures and heat stress.
5. Improve maternal health	
6. Combat HIV/ AIDs, Malaria, and other diseases	
7. Ensure environmental sustainability	• Climate change threatens environmental sustainability, as it will cause fundamental alterations in ecosystem relationships. • Climate change threatens the quality and quantity of available natural resources, and reduces ecosystem productivity.
8. Global partnership for development	• Climate change threatens to exacerbate current challenges to the achievement of the MDGs. • Funding for development and adaptation must be greatly increased to meet the needs of the poor.

Source: Climate Change Department, 2011 (for details, visit www.camclimate.org.kh)

SESSION 8

UNDERSTANDING RIGHTS-BASED APPROACHES AND CLIMATE CHANGE

Introduction

This is a session on rights-based approaches to development work. The session looks at human rights and global justice issues from an international perspective, and outlines why climate change issues are a matter of global justice, why justice is important to human development, and why climate change is considered to be a women's issue.

Learning Objectives

By the end of the session, participants will:

- Understand what constitutes a rights-based approach to development
- Have an understanding of climate change, gender and the Millennium Development Goals
- Understand why climate change impacts can be seen as a denial of international human rights
- Understand risks and challenges that surface when taking a rights-based approach to both rural development and climate change adaptation initiatives
- Understand the concept of stakeholder participation in the context of climate change and rights-based approaches to development

What is a human rights-based approach to development?

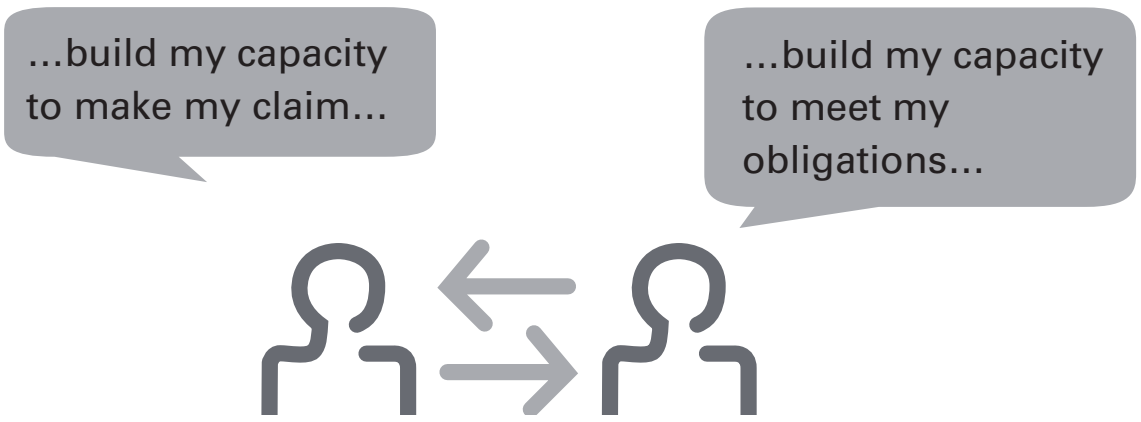
With a human rights-based approach to development, plans and programs are anchored in a system of rights and obligations established by international law. This approach helps to empower the rights-holders, especially the most marginalized, to participate in policy formulation and hold accountable those who have a duty to act (the duty-bearers). It works towards strengthening the capacities of rights-holders to make their claims, and for duty-bearers to meet their obligations. International human rights treaties should guide all climate change mitigation and adaptation actions by informing community assessments, ensuring access to information and participation, and providing access to justice.

Why is climate change an issue of global justice?

- Rich, industrialized countries are historically responsible for the larger share of carbon emissions in the atmosphere. Burning all of that fossil fuel is how they got to be rich and industrialized in the first place.
- Rich countries have greatly overused their carbon emissions quotas, and owe a carbon debt to developing countries.
- The poorest nations, who are least responsible for the crisis, are the most at risk. It is in these countries that climate change is most advanced and where people lack the resources to adapt to more intense storms, water and food shortages, and other impacts of climate change.
- People who are poor need resources for coping now. Access to these resources is their human right – and governments are obligated under international law to provide it.

Stakeholder participation: rights-holders and duty-bearers

It is important to have stakeholder participation in the planning, designing, implementing and



monitoring process. Through analyses we find out who needs what, who will take action to address the needs, and how. We will also learn who has a vested interest in the present situation, and thus might oppose changes, as well as which members of civil society should be empowered in the process. Understand that rights-based programs are holistic and often require new and unusual partnering alliances of stakeholders.

The stakeholder analysis in rights-based approach programs identifies who is responsible for addressing a given problem regarding rights and obligations. Once something has been identified as a human rights issue there is usually a corresponding moral or legal obligation from the duty-bearers. Rights always correspond to specific obligations. It is necessary to identify all the rights-holders and the corresponding moral or legal duty-bearers.

It is important to assess whether rights-holders can claim their rights through the courts or through more informal means at the community level. It is also important to remember that rights-holders have specific responsibilities. Rights-holders have an obligation to respect the rights of others and to take responsibility for their own lives and actions. Thus, a stakeholder analysis will also clarify what should be expected from the vulnerable themselves. Are they able to influence their own situation? What are their capacities? How can they use or strengthen these capacities in order to obtain maximum empowerment and improve their lives?

What is participation in the context of climate change and rights-based approaches?

Participation is the key to good outcomes from climate change responses. The ultimate goal of 'participation' is to move stakeholders involved in climate change response from a passive role to an active joint learning experience.

Different levels of participation in addressing climate change

The word participation covers a wide range of levels of involvement. It is important to understand the context of climate change issues at the national, sub-national, and community levels as each requires a different approach to addressing them. It will not always be feasible or necessary to aim for joint learning, planning and responding to climate change. Which level of participation one will aim for will depend on the following factors:

- Purpose of the climate change response
- Timeframe of the response
- Supporting environment within an institution to deliver the response
- Political environment, national policies and legislation in support of climate change responses
- Available human and financial resources

Levels of participation

- **Collective mobilisation:** Stakeholders participate in climate change initiatives independent of external agents.
- **Interactive participation:** Stakeholders participate in joint analysis, leading to action, formation of new cooperative groups, or strengthening of existing ones. Local stakeholders take control over local decisions, giving them an incentive to maintain structures or practises.
- **Functional participation:** Various stakeholders participate by forming groups to meet predetermined objectives of a programme, driven by external stakeholders. Such involvement does not tend to be at the planning stage but after major decisions have been made.
- **Participation by consultation:** Communities participate by being consulted, and external stakeholders consider their knowledge and interests. Outsiders define both problems and solutions but may modify these based on local people's responses. The process does not concede any share in decision making, and outsiders are under no obligation to take on people's views.
- **Participation by information giving:** Communities participate by answering questions posed by external stakeholders related to their situation – often about climate change coping and adaptation strategies and or needs. Often communities do not have the opportunity to engage in or influence decision-making as findings are not shared.

- **Passive participation:** Decisions are made by powerful 'external' stakeholders only. Local communities participate by being told what is going to happen or has already happened.

Characteristics of participation

- **Full participation:** During participatory processes, all stakeholders are encouraged to be actively involved and say what is on their minds. This strengthens people in several ways. Stakeholders become more courageous in raising difficult issues. They learn how to share their needs and opinions, and in the process they learn to discover and acknowledge the diversity of opinions and backgrounds of all stakeholders involved.
- **Mutual understanding:** In order for a group of stakeholders to reach a decision, the members need to understand and accept the reasoning behind one another's needs and goals. The basic sense of acceptance and understanding allows people to develop innovative ideas that incorporate everyone's point of view.
- **Inclusive solutions:** Inclusive solutions are wise solutions. Their wisdom emerges from integration of everybody's perspectives and needs. These are solutions whose range and vision is expanded to take advantage of the truth held not only by the powerful and influential people, but also of the truth held by the marginalized and the weak.
- **Shared responsibility:** During participatory processes, stakeholders feel a strong sense of responsibility for creating and developing sustainable agreements. They recognise that they must be willing and able to implement the proposals they develop, so they make every effort to give and receive input before final decisions are made. This contrasts sharply with the conventional assumption that everyone will be held accountable for the consequences of decisions made by a few key people.

Climate change is a global issue but should be addressed in local and specific contexts. In Cambodia, during 2010 and 2012 the Joint Climate Change Initiative (JCCI) project introduced a participatory planning process to its partners who worked directly with the communities to address negative impacts of climate change.The process involved communities and local authorities in responding to the negative impacts of climate change in a collaborative manner. Other local actors like civil society organizations (CSOs) were also part of the process.

Challenges of promoting local participation in a climate change initiative:

- The concepts of participation and taking a learning approach to development initiatives may be alien to some cultures or groups.
- Currently, there is substantial support and interest in climate change issues among donors,

but the funds to ensure local participation and benefit sharing are still limited. In order to address this issue, the government needs to increase budgets for commune councils to respond to climate change at the local level.

- National and local governments and even more powerful stakeholders may not support local participation or empowerment, especially if they regard it as a threat to their own authority.
- Participatory processes require investments of time and resources. Participants in climate change projects often expect immediate results as one drought season passes and the next one pends. The potential lack of immediate results may cause participation to drop.
- Some compromises in objectives from different stakeholders may need to be made as climate change affects different sectors of people differently depending on their own ability to cope, e.g. women, the marginalized, farmers, or those with alternatives and financial means.
- Be aware that the emphasis on the process of participation may take attention and resources away from the required technical aspects of climate change responses, such as carbon sequestration validation, water resource distribution and vulnerability forecasting studies, and agricultural adaptation research.

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