

Partner Report Series No 14

Building Climate Resilience: A Training Manual for Community Based Climate Change Adaptation!

Robert W. Solar



REGIONAL CLIMATE CHANGE
ADAPTATION KNOWLEDGE PLATFORM for Asia

The *Partner Report Series* highlights the insights and outcomes of studies, assessments and other field activities that our national implementing partners have undertaken in their countries to mainstream adaptation into plans, policies and programmes. The intention of the series is to disseminate their findings and achievements to partners and relevant professionals in Asia.

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About the author

Mr. Robert W. Solar is the principle trainer and a senior consultant for Sustainable Oceans and Forests through Equitable Development (SOFEDev). Mr. Solar brings to SOFEDev over twenty years of global experience in rural development, natural resource management, and his expertise in creating innovative approaches to climate change adaptation and resilience building. SOFEDev utilizes the backdrop of climate change to further focus its attention on broader issues of poverty and disempowerment via its ecosystem-based approach towards adaptation. SOFEDev works strategically with many United Nations agencies and international NGOs in Southeast Asia and the Pacific on efforts to link stakeholders to grounded capacity development approaches that bind ecology, sociology, economics and governance thematically to address key climate change and development challenges faced by communities, institutions, and governance agencies.

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Edited by Minette Marie Arzadon

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Preface and acknowledgements

For more than three years, the **Regional Climate Change Adaptation Knowledge Platform (AKP)** has worked towards building bridges between existing knowledge on adaptation to climate change and the governments, agencies and communities that need this knowledge to inform their adaptation to the impacts of climate change, while working toward poverty reduction and environmental sustainability. The AKP's work has been carried out following three key objectives:

1. Promoting dialogue and improving the exchange of knowledge, information and methods within and between countries on climate change adaptation, and linking existing and emerging networks and initiatives.
2. Generating new climate change adaptation knowledge, promoting understanding and providing guidance relevant to the development and implementation of national and regional climate change adaptation policy, plans and processes focused on reducing vulnerability and strengthening the resilience of the poor and women: the most vulnerable segments of society in most Asian countries.
3. Synthesizing existing and new climate change adaptation knowledge and facilitating its application in sustainable development and poverty reduction practices at the local, national and regional levels.

This publication is a result of these objectives. The AKP has supported thirteen countries in the Asian region to strengthen their capabilities to mainstream adaptation, introduce effective adaptation measures and assess their needs and priorities for adaptation.

The AKP is implemented by the Stockholm Environment Institute (SEI), the Asian Institute for Technology's (AIT) Regional Resource Centre for Asia and the Pacific (AIT RRC.AP), and the United Nations Environment Program Regional Office for Asia and the Pacific (UNEP ROAP) with funding provided by the Swedish Government through the Royal Swedish Embassy in Bangkok and the Swedish International Development Agency (Sida). The former Swedish Environmental Secretariat for Asia (SENSA) was also instrumental in setting up and supporting the AKP.

The AKP's publications provide insights on adaptation in the region. A consolidated initiative, known as the Asia Pacific Adaptation Network (APAN), has been established and implementation started in 2013. Its ultimate objective is to assist the region to build the climate resilience of human systems, ecosystems and economies through the mobilization of knowledge and best practices, enhanced institutional capacity, informed decision making processes, and facilitated access to finance and technologies.

The outcomes of the AKP have been made possible by the active participation of partners and various stakeholders; RRC.AP sincerely acknowledges their contributions.

The writing of “Building Climate Resilience: A Training Manual for Community Based Climate Change Adaptation” was inspired a few years ago during a climate change adaptation symposium in Thailand, where much of the discussion behind the stage was over a lack of a clear adaptation mindset in rural development initiatives. Many institutions were posing actions that, seemingly, only held the tag climate change adaptation, and lack a clear focus on adapting to climate related hazards. Rather, actions were addressing poor development, governance, and land use management practices. Understanding the urgency and need to address the aforementioned, and a need to bring a more integrated development approach to climate change adaption, in 2009, **SOFEDev** was approach by the Adaptation Knowledge Platform to develop a focus approach to assessing climate change impacts, adaptive capacities, and enabling environments for adaptation within rural poor communities, and amongst their development services providers.



From the onset, clear was that many participatory assessment tools and planning processes were still usable and applicable, yet, struggled with separating the causes of asset losses from a variety of hazards and disempowering conditions. Climate change adaptation does not live in a box, nor is it a singular concept. There is a need to follow through with proven development and vulnerability reduction processes, as there is a need to bring rural communities back to a pre climate change baseline through adaptation as soon as possible. To do so, adapting to climate related hazards must be the focus. Through three-years of development, testing, refining, and testing again countless times in training rooms and field based situations across Southeast Asia and the Pacific, the materials in this manual were developed.

SOFEDev, and myself would like to acknowledge the Regional Climate Change Adaptation Knowledge Platform (or Adaptation Knowledge Platform) for Asia, the Swedish International Development Cooperation Agency, the Stockholm Environment Institute, the United Nations Environment Programme, the Asian Institute of Technology, the Learning Institute, and the Regional Resource Centre for Asia and the Pacific. The valued support given towards the generation of climate change adaptation and resilience building knowledge has made this manual possible. Additionally, special thanks also goes to Ms. Minette Marie Arzadon, who worked through the materials countless times as a learning participant and principle editor. And lastly, a special thanks to all the communities, rural development practitioner, and development services providers for their faith, trust and feedback. This manual is a shared success.

Please feel free to contact SOFEDev at anytime for advice and or assistant in delivering this comprehensive knowledge building effort.

Sincerely,

Robert W. Solar

Senior Consultant, SOFEDev



The **LEARNING INSTITUTE** is a non-profit, non-political Cambodian organization working with a wide range of civil society, public and private sector organizations so that they can contribute more effectively to the sustainable management of natural resources for the benefit of rural people. The institute was founded in 2005 and has since worked towards enhancing sustainability and equity in natural resource use, management and governance. We work with key actors not just to enrich natural resources, but also to ensure that these contribute more effectively to the well-being of local people. We aim for this aspiration to be reflected in policies, programs and strategies that support the involvement of local people in equitable governance and sustainable management of natural resources. In pursuing its primary goal, mission and strategic objectives, the Learning Institute focuses on three thematic areas: 1) livelihoods, equity and food security, 2) adaptive management and climate change, and 3) local planning, local governance and decentralization.



Focusing on adaptive management and climate change, in November 2010, the institute initiated a partnership with SOFEDev (Sustainable Oceans and Forests through Equitable Development) and AIT-UNEP (Asian Institute of Technology – United Nations Environment Programme) regional resource center to conduct research entitled ‘an approach to climate change adaptation research: events, strategies and drivers’. Engaging in the research process with local stakeholders, institutions and organizations contributed to the development of guidelines for capacity development and institutional support for climate change adaptation as well as an exchange in, and the building of adaptation knowledge with local stakeholders, institutions and organizations in Cambodia.

The aforementioned happen through the technical advices and guidance from SOFEDev, specifically Mr. Robert Solar, in building a conceptual framework and understanding of climate change resilience in context of development, designing a field-based research approach and tools. This effective support has led to strengthen the human resources capacities of the Learning Institute’s research team to further develop and facilitate knowledge building around climate change adaptation and resilience strategies.

The Learning Institute would like to give special thanks to SOFEDev and the Adaptation Knowledge Platform for their effective partnership. The institute is also very thankful to the local stakeholders, institutions and organizations that have engaged and active participated in sharing information, ideas, and experiences.

Sincerely,

Marona Srey

Executive Director, The Learning Institute



The **JOINT CLIMATE CHANGE INITIATIVE** is a collaborative effort by three international organizations, Forum Syd, Cord Cambodia, and Dan Church Aid/ Christian Aid, with an aim to raise the capacity of Cambodia-based Non-Governmental Organizations on climate change mitigation, adaptation and resilience building. JCCI has been initiated by Forum Syd, a Swedish based non-governmental organization that envisions a just and sustainable world where all people have the power to effect change. Its work focuses on issues of democracy, equality and the sustainable use of natural resources. Partner organization Cord Cambodia envisions a world where peace, dignity and human rights are fully realized and advances this vision by working in societies affected by violent conflict. Partner Dan Church Aid/ Christian Aid is guided by the belief that all people have the right to a sustainable livelihood, basic services, to be safe from conflict and disaster, and have an effective voice in decision-making and equal rights. Hence, JCCI puts forth a rights-based perspective to mitigating and adapting to climate change.



The JCCI program was initiated in 2010 via the generous support of the Swedish International Development Agency. From its inception, JCCI engaged SOFEDev (and its principal trainer, Mr. Robert W. Solar) to build the capacity of JCCI's facilitators, coaches, mentors and support staff on climate change mitigation, adaptation and disaster risk reduction, and to develop learning materials to be used in the building of 22 local NGOs' capacity to design and deliver a climate change lens within their programmatic work. In 2012, the JCCI team began to operate independently, using the lessons, skills, and capacity gained through SOFEDev's contributions.

The JCCI is very pleased that SOFEDev continued to grow and advance the learning materials, and has brought our experiences and learnings into this comprehensive knowledge-building product on climate change adaptation and resilience building. Through SOFEDev's help, and the hard work of the JCCI team and program participants, JCCI has built a strong reputation in Cambodia as a leading innovator in the field of climate change. In this regard, the JCCI truly thanks Mr. Solar for the building of a conceptual framework and understanding of climate change resilience in the context of rural development, and the designing of a truly participatory approach to building climate resilience.

Forum Syd and the JCCI would also like to take this opportunity to thank the Cambodian Ministry of Environment, its local partners and community stakeholders that have shared their ideas and experiences openly so that they could be captured and shared through this training manual with others.

Sincerely,

Delphine Vann

Country Manager, Forum Syd, and JCCI Representative



User's guide

Building Resilient Communities: A Training Manual for Community Based Climate Change Adaptation provides climate change adaptation trainers and learners with a wealth of practice-based adaptation knowledge, and a process to assess, analyze, and plan for focused climate change adaptation initiatives within their work profiles. The manual is sectioned into four training modules, setting a common understanding around climate change concepts, vocabulary and sectorial adaptation frameworks, then moving to more integrated knowledge regarding enabling environments for community adaptation and resilience building. The last module, 'Assessing Climate Change Vulnerability, Capacity; Planning for Adaptation Planning' is very comprehensive, as it provides a focused process that leads towards the development of climate change impact responses.

Each module is comprised of several learning sessions, complete with handouts, participatory exercises, worksheets and learning aids. Importantly, each session has a detailed step-by-step facilitation guide noting important concepts and knowledge to stress, and key information and advice on how to deliver the session. In Module 4, a wealth of participatory assessment, planning, and partnership building tools are provided. These also come with a detailed guide on how to deliver the tools in the field. Note that many sessions have suggested reading materials. It is an advantage to the trainer and participants that these be reviewed, as this would provide further context and knowledge to enhance the learning experience.

SOFEDev encourages all trainers and learners to follow the module process, particularly ensuring that vocabulary is learned as a starting point, and appropriate focus and time be given to competing exercises. However, note that each module, each session, is written in a way that can be used individually. SOFEDev also sees great value in climate change adaptation practitioners, rural development workers, and or natural resource managers adapting and innovating with the tools and processes put forth to fit differing climate change contexts, culture, levels of facilitation skills, and needs.

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Main acronyms used

AI	Appreciative Inquiry
AKP	Adaptation Knowledge Platform
APPC	Assessing Potential for Change
ARHM	Area Resource and Hazard Flow Spot Map
CAF	Cancun Adaptation Framework
CBA	Community Based Adaptation
CBO	Community Based Organization
CDM	Clean Development Mechanism
CF	Change Focus
CSG	Climate Smart Intensive Gardening
CVCA	Climate Vulnerability and Capacity Analysis
DI	Dependency and Influence
DRR	Disaster Risk Reduction
DSP	Development Services Provider
EbA	Ecosystem-based Adaptation
EPL	Extended Livelihood Profile
ESC	Ecosystem Services Change Matrix
GDL	Gender Division of Labor
GEF	Global Environment Facility
GHG	Green House Gas
GRS	Gender Role Support Analysis
I-CVCA	Integrated Climate Vulnerability and Capacity Analysis
HVAP	Hazard, Vulnerability, and Action Profile
IPCC	Intergovernmental Panel on Climate Change
LDCs	Least Developed Countries
MDGs	Millennium Development Goals
NAMAs	Nationally Appropriate Mitigation Actions
NAPA	National Adaptation Programmes of Action
NGO	Non Government Organization
NTFP	Non Timber Forest Product
RADS	Roles, Assets, and Development Services
RBA	Rights Based Approach
RPCs	Root Problem Causes
RRDSP	Risk Reduction Development Services Profiles
SEI	Stockholm Environment Institute
SLA	Sustainable Livelihood Approach
UNDP	United Nations Development Programme
UNFCCC	United Nations Framework Convention on Climate Change
WASH	Water, Sanitation and Hygiene
WHO	World Health Organization

Overview of the manual

MODULE 1 Climate Change, Impacts, Vulnerability and Adaptation

Module 1 is an introduction process to basic vocabulary and concepts used in climate change discussions. The design of the module takes the participant through a process of awareness building as to why climate change exists, and why different sectors of society are vulnerable to climate change. The module briefly touches on climate change adaptation, what are the driving forces behind adaptation, and controversy amongst the development community on how adaptation should be framed and supported.

MODULE 2 Community Based Climate Change Adaptation and Resilience

Module 2 is designed to give 'lift-off' to learning about Community Based Adaptation (CBA) to climate change. Covered is a CBA framework, its components, and how these components integrated to create an enabling environment for adaptation. Basics of 'why to adapt' are reviewed, and a wealth of practical, sector-based adaptations are also covered, e.g. natural resource management, agriculture, water, and health sectors. Some very specific and simple adaptations are illustrated and referenced so the 'learner' can access further information at will. The module also gives participants' space to 'jump in' to adaptation planning via applying basic CBA principles covered and their own experience. Also within the module, resilience is connected to, and explained in the context of adaptation strategies.

MODULE 3 Enabling Environments for Climate Change Adaptation

Module 3 is an intensive knowledge building process focused on helping participants to understand adaptation enabling environment from two perspectives, 1) human rights, and 2) rural livelihoods. Within, considerable time is spent on further describing vulnerability, and how this differs among people, groups, and society. This is followed with a breakdown of the CBA enabling environment by component. The later half of Module 3 brings together session lessons from all modules into a 'big' picture of how CBA is being driven and shaped by the enabling environment, and how such determines options and opportunities for adaptation. The module ends with a review of guidelines and tools to assessing the enabling environment using a rights-base approach.

MODULE 4 Assessing Climate Change Vulnerability and Capacity; Planning for Adaptation

Module 4 provides learners with a wealth of participatory climate changed adaptation and rural appraisal tools. Each tool comes with detailed delivery instructions and context information regarding their application and use. Tools are grouped into processes, starting with the very basic of scoping tools commonly used in participatory rural assessments, those used in the context of disaster risk reduction, and climate vulnerability and capacity analysis. Central to the module is the Integrated Climate Vulnerability and Capacity Analysis (I-CVCA) process. The I-CVCA is an investigative process that aims to separate 'impact' caused by poor sustainable development practices, and that of climate change impacts. The I-CVCA process also investigates the enabling environment for climate change adaptation, including assessing the capacities of development services providers, and aspects of gender, dependency and influence. The module ends by putting forth a participatory adaptation planning process backstopped by the I-CVCA.

Suggested training schedule

WEEK 1

	Day 1	Day 2	Day3	Day 4	Day 5	Day 6
AM	Participant welcoming and introduction	MODULE 1 Session 4	MODULE 2 Session 7	MODULE 3 Module Overview Session 9	MODULE 4 Module Overview Session 12	MODULE 4 Session 14
	Course Introduction – Module Overviews	↓	↓	↓	↓	↓
	MODULE 1 Module Overview Session 1	Module 1 Recap	↓	↓	↓	↓
PM	Session 2	MODULE 2 Module Overview Session 5	Session 8	Session 10	Session 13	↓
	Session 3	Session 6	Module 2 Recap	Session 11 Module 3 Recap	Participant Reading – Session 14	↓

WEEK 2

	Day 7	Day 8	Day 9	Day 10	Day 11	Day 12
AM	Module 4 (session 12-13-14) Recap	Travel to Site	I-CVCA Field Assessment	I-CVCA Field Assessment	I-CVCA Field Assessment	MODULE 4 Session 15
	I-CVCA Field Preparations	↓	↓	↓	↓	↓
PM	↓	I-CVCA Field Preparations	↓	↓	↓	↓
	↓	↓	↓	↓	I-CVCA Field Assessment Reflection	Module 4 Recap

Training Option: Field application of Session 15 requires three (3) days to complete.

Module 1

Climate Change, Impacts, Vulnerability and Adaptation

1

Module Overview

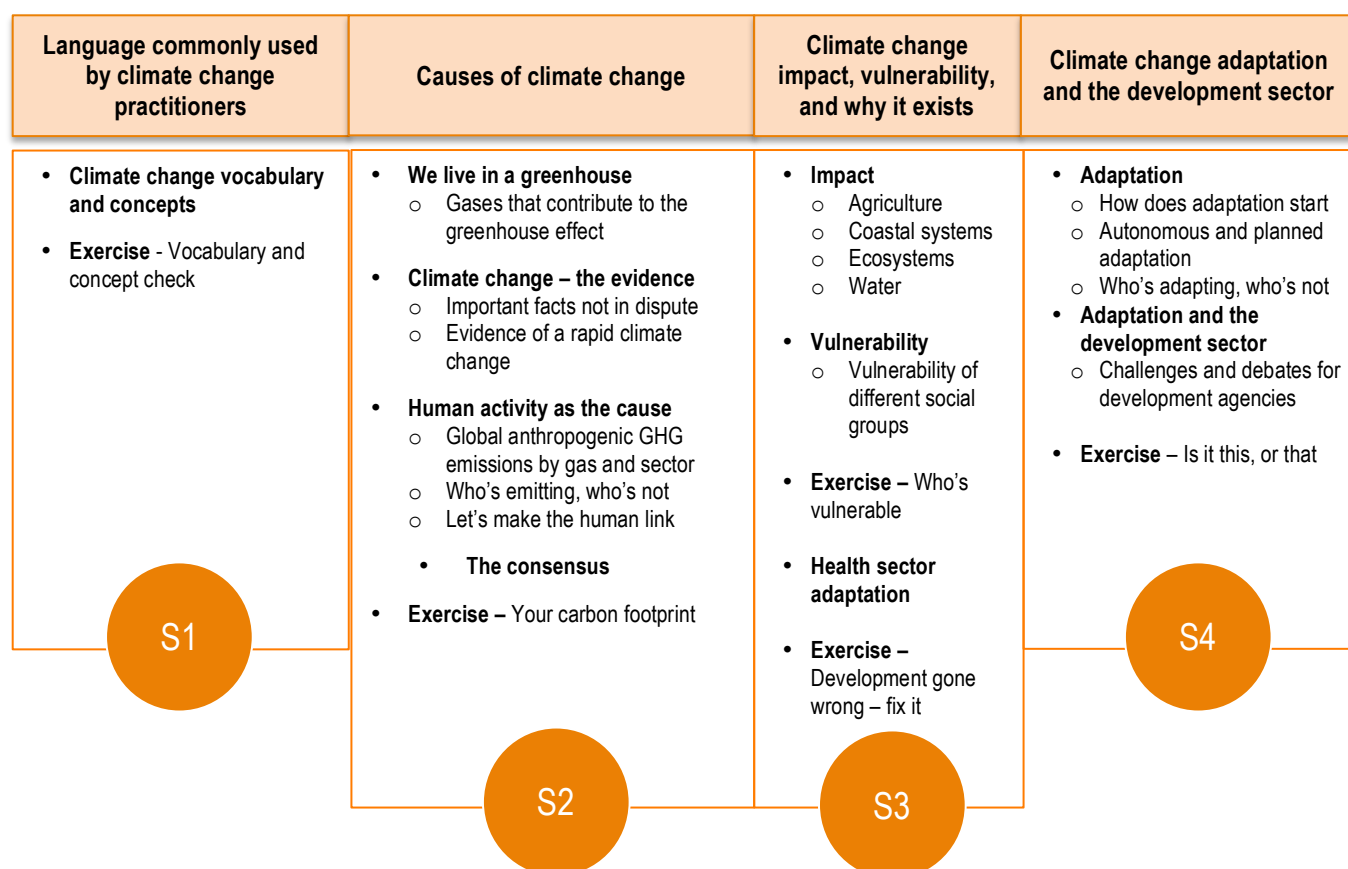
Module 1 is an introduction process to basic vocabulary and concepts used in climate change discussions. The design of the module takes the participant through a process of awareness building as to why climate change exists, and why different sectors of society are vulnerable to climate change. The module briefly touches on climate change adaptation, what are the driving forces behind adaptation, and controversy amongst the development community on how adaptation should be framed and supported.

All concepts presented will be re-addressed in other modules to provide a deeper understanding of the content, and how this content relates to practical actions vis-à-vis institutional and field base practices.

Objective

- ✓ Establish a common understanding of what 'climate change' is and what it means in the context of 'rural development'.

Module process



Module resources

4 Learning sessions 4 Handouts 2 Worksheets 3 Participatory exercises 4 Learning aids

Session 1

Language commonly use by climate change practitioners

S1

Objective

- ✓ Understand key concepts and vocabulary most commonly used by climate change practitioners.

Facilitation

Step 1

Introduce handout S1.1 through an organized PowerPoint presentation, including visual aids provided in the learning aids SLa1.1 and SLa1.2. This would include the objectives of the session, and the process the facilitator will take to deliver the session. Emphasize the importance of all participants having a common understanding of basic 'climate change' language to be used within this modular learning process.

Step 2

Review the vocabulary in groups as indicated, and then follow with a brief discussion related to each 'learning point'. Suggested questions for discussion are:

- LP1: What are localized examples of 'weather' and 'climate'?
- LP2: What can you do to lower your greenhouse gas emissions?
- LP3: Can 'sustainable development' practices be considered as a climate change adaptation and or mitigation action? Why, why not?
- LP4: What are climate related hazards, and what are social related hazards? (Give examples and state their difference.)
- LP5: What are some specific capacities that relate to creating development potential?

Step 3

As a review/ check-up process to gauge participant understanding of the reviewed vocabulary, group participants into small groups to conduct exercise SE1.1. Afterwards, conduct a brief review of 'vocabulary' where participants had made common matching mistakes in the exercise.

Comments

- ✓ Emphasize that vocabulary reviewed in Session 1 will be further explained and added to as they move from one module/ one session to the next.
- ✓ Follow facilitation and or explanations tips given in the relevant handouts, exercise and worksheets, and supplemental learning aids.
- ✓ Use learning aids and information stated within to further explain concepts/ vocabulary put forward as indicated in handouts and exercise sheets.

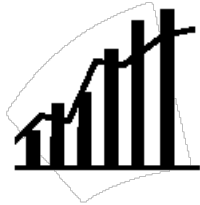
Materials

- ✓ PowerPoint presentation covering selected vocabularies listed in Handout S1.1 and learning aids SLa1.1 and SLa1.2
- ✓ A set of matching index cards (as shown in Worksheet SW1.1) for each participant group (recommended groups size is five participants)

Time

1.0 – 1.5hrs

CLIMATE CHANGE¹



Climate change refers to a significant variation in either the average state of climate or in its variability, persisting for an extended period (typically decades or longer). Natural processes may cause climate change or be caused by external – human related - events that cause long term changes in the composition of the atmosphere or in land use. Note that the United Nations Framework Convention on Climate Change (UNFCCC), in its Article 1, defines “climate change” as: “a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods.” The UNFCCC thus makes a distinction between “climate change” attributable to human activities natural causes.

WEATHER and CLIMATE



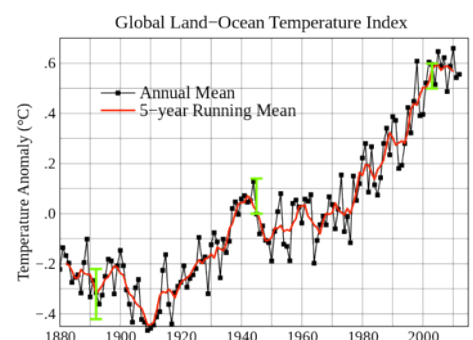
Weather events are short-term (minutes to months) changes in the atmosphere, e.g. temperature, rain, cloudiness, to wind etc. Climate is the average of weather over time and space, i.e. climate is what you expect, weather is what you get.

Learning Point

When thinking about ‘climate change’, this should be thought of as a long-term change in weather patterns occurring over long periods of time, e.g. decades to millions of years. It may be a change in average weather conditions or the distribution of weather related events, e.g. more or fewer extreme weather events. Climate change may also be limited to a specific region or may occur across the planet. Important to know is that climate change reflects a change in the balance of the earth’s climate system.

GLOBAL WARMING²

Global warming is a term that describes the rise in the average temperature of Earth’s atmosphere and oceans since the late 19th century. Since the early 20th century, Earth’s average surface temperature has increased by about 0.8 °C, with about two-thirds of the increase occurring since 1980. Scientists are more than 90% certain that global warming is caused by increasing concentrations of greenhouse gases produced by human activities such as the burning of fossil fuels and deforestation.



GREENHOUSE EFFECT and GASSES

The Earth gets energy from the sun in the form of sunlight. As a result, the Earth’s surface absorbs some of this energy and heats up. The Earth cools down by giving off a different form of energy, called infrared radiation. But before all this radiation can escape to outer space, greenhouse gases in the atmosphere absorb and reflect some of this infrared radiation energy back to earth, making the atmosphere and the Earth warmer. This process is called the greenhouse effect. Water vapor (H₂O), carbon dioxide (CO₂), nitrous oxide (N₂O), methane (CH₄), and ozone (O₃) are the primary greenhouse gases in the Earth’s atmosphere. (See Attachment SLa1.1 for learning aid)

¹ <http://www.ipcc.ch/pdf/glossary/tar-ipcc-terms-en.pdf>

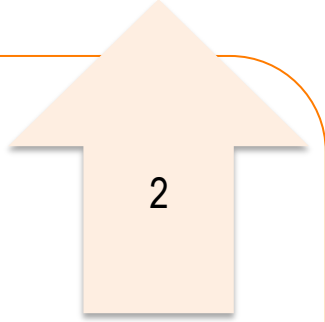
² http://en.wikipedia.org/wiki/Global_warming

CARBON and CARBON DIOXIDE

Carbon is an element that's found all over the world and in every living thing. Oxygen is another element that is in the air we breathe. When carbon and oxygen bond together, they form a gas called carbon dioxide, which is a heat-trapping greenhouse gas. Whenever we burn fossil fuels such as coal, oil, and natural gas—whether it is to drive a car, use electricity, or make products, we are producing carbon dioxide. Forests are also very important because they keep CO₂ in a solid form, thus helping mitigate global warming. But, when they are cut down and burned, they add CO₂ to the atmosphere. As a common reference in climate talks, the term 'carbon dioxide equivalent' is used to reflect how much global warming a type and amount of greenhouse gas may cause. (See Attachment SLa1.2 for learning aid)

Learning Point

The atmosphere is not the only part of the Earth that has carbon. The oceans store large amounts of carbon, and so do plants, soil, and deposits of coal, oil, and natural gas deep underground. Carbon naturally moves from one part of the Earth to another through the carbon cycle. But right now, by burning fossil fuels, people are adding carbon to the atmosphere (in the form of carbon dioxide) faster than natural processes can remove it. That is why the amount of carbon dioxide in the atmosphere is increasing, in turn, causing global climate change.



2

CLIMATE CHANGE IMPACT³

Climate change impact is the resulting effect of global warming related to change. Assessing this impact/ change includes the use of climate data such as temperature, rainfall and the frequency of extreme events, and non-climatic data, e.g. the current situation on the ground for different sectors including water resources, agriculture and food security, human health, terrestrial ecosystems and biodiversity, and coastal zones as a result of change.

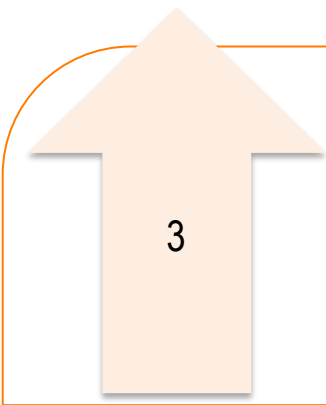
CLIMATE CHANGE MITIGATION

Climate change mitigation should be thought of as human actions to reduce the intensity or severity of climate change. Actions are to result in the decrease of radiative forcing via decreasing the amount of greenhouse gasses in the atmosphere to reduce the effects of global warming. Most often this is done by reducing sources of greenhouse gas emissions, or by increasing sinks – a natural or artificial reservoir that accumulates and stores 'carbon' for an indefinite period. Examples of reducing a 'source' would include using fossil fuels more efficiently for industrial processes or electricity generation, or switching to renewable energy such as solar energy or wind power. Replanting forest or creating new ones is a good example of increasing carbon sinks, i.e. sequester greater amounts of carbon dioxide (CO₂). (See Attachment SLa1.2 for learning aid)

CLIMATE CHANGE ADAPTATION

Climate change adaptation is understood as the things we do, planned or not planned (autonomous), that result in adjustments to climate induced hazards. Adaptations are considered as adjustment in natural or human systems in response to actual or expected effects of climate change. These adjustments are intended either to reduce the harm caused by these effects or to take advantage of opportunities that climate change may present, e.g. adaptation funding. Adaptation activities can be proactive (before the effects of climate change are felt) or reactive (after the effects). They can also be planned and implemented, by public and private actors, or happen autonomously.

³ 2007 UNFCCC. United Nations Framework Convention on Climate Change, Climate Change Secretariat (UNFCCC), Bonn, Germany



3

Learning Point

Both climate change mitigation and adaptation are focused on lessening the impact of climate change; just from different points of view. Climate change mitigation focuses on addressing the root problem cause of global warming, i.e. decreasing the amount of green house gases in the atmosphere. Climate change adaptation has a focus on actions to lessen the impact of global warming on human and natural systems despite climatic conditions and or atmosphere greenhouse gas concentrations. Addressing global warming via mitigation in reality has been slow and complicated by political and economic positioning. Inevitable, while mitigation solutions evolve, the earth's climate will change and impact the vulnerable. Thus, adaptation efforts are needed to aid in making adjustments to inevitably new climatic conditions.

HAZARD EVENTS

In terms of 'climate change', a hazard event is a potential event caused by a climate condition that causes the loss of life, and or damage to property, environment, livelihood, and or human dignity. Most common climate related hazards include changes in rainfall patterns resulting in drought and flood events, severe weather related storms resulting in property and or crop losses, to changes in biodiversity within an ecosystem, e.g. loss of species and or pest infestations resulting in the loss of ecosystem services.

CLIMATE VULNERABILITY

Vulnerability is considered as the degree to which physical structures, people, or natural and economic assets are exposed to loss, injury or damage caused by the impact of a hazard. This is similar to 'climate vulnerability', but is broken down into three constituents in direct relation to climate hazards, 1) the degree of exposure to climate related hazards, 2) the degree of capacity available to deal with climate related hazards, and 3) the degree of sensitivity to the given climate related hazard.

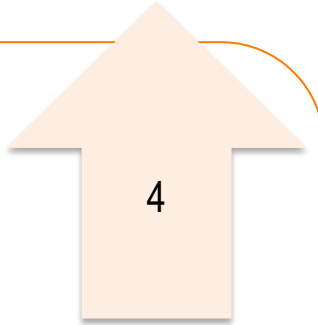
DISASTER RISK REDUCTION⁴

Risk = Hazard X Vulnerability
Capacity

Disaster risk reduction is the concept and practice of reducing disaster risks through systematic efforts to analyze and reduce the causal factors of disasters. Reducing exposure to hazards, lessening vulnerability of people and property, wise management of land and the environment, and improving preparedness for adverse events are all examples of disaster risk reduction. Disaster risk reduction as a conceptual framework of elements considers the possibilities to minimize vulnerabilities and disaster risks throughout a society, e.g. to avoid (prevention) or to limit (mitigation and preparedness) the adverse impacts of hazards within the broader context of sustainable development.

Learning Point

Climate change adaptation and disaster risk reduction are closely linked. Adapting to the impacts of climate change and reducing risk to disasters are priorities that are best addressed in an integrated manner. Both build resilience and reduce the vulnerability of communities. To differentiate between the two, disaster risk reduction has an encompassing focus on hazardous events or conditions, e.g. earthquakes, tsunamis, to drought. Climate change adaptation has a focus on climate change related hazards only. Note that climate change adaptation and disaster risk reduction are part of the sustainable development agenda as outlined in the Rio+20 outcome document 'The Future We Want'.



4

⁴ UNISDR 2004. Living with risk: a global review of disaster reduction initiatives. United Nations Office for Disaster Risk Reduction, Geneva, Switzerland

ADAPTIVE CAPACITY

Adaptive capacity refers to individual and or collective strength and resources that can be accessed to allow individuals and communities to reduce their vulnerability to the impact of hazards. These capacities can either prevent or mitigate the impact of a given hazard, or prepare the community to respond to the impact better (readiness).

RESILIENCE⁵

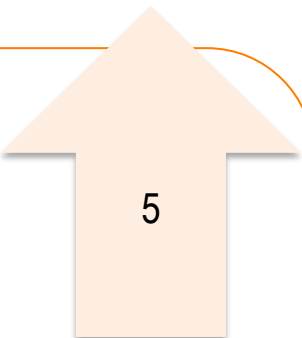
Resilience refers to the capacity of a system, community or society potentially exposed to hazards to adapt via either resisting or changing in order to reach and maintain an acceptable level of function and structure. This is often determined by the degree to which the social system is capable of organizing itself to increase its capacity for learning from past disasters to improve risk reduction measures.

ADAPTATION and RESILIENCE BUILDING

The simplest way to understand the difference between adaptation and resilience building is to look at 'adaptation' as the 'what to do' to lower vulnerability to climate change, e.g. increasing household water storage capacity. Resilience building can be looked at as the 'how to' design and or deliver the adaptation to bring forward development value in the context of systems, community, and or society, e.g. establishing a community managed emergency water storage facility. There are six (6) key characteristic to the 'how to' to consider: 1) scale, 2) robustness, 3) rapidity, 4) redundancy, 5) flexibility, and 6) self organization. (see *handout S8.1 for more information*)

Learning Point

Capacity types are often divided into three (3) groups, e.g. those that provide a function, those that imply a capability, and those that indicate some form of competency. When brought together, the three (3) capacity groups enable a human system to create development value, e.g. effectiveness and sustainability. Thus, development value must be included as an outcome of adaptation initiatives via design. Adaptation designs must consider how skills, knowledge, and abilities are to be enhanced, organized, and or applied to 1) create identity and empowerment – *to be*, 2) bring together collective abilities – *to do*, 3) create system efficiency – *to manage*, and 4) to create future potentials – *to relate*.



5

Recommended Reading

- ✓ Strengthening Disaster Risk Reduction in Climate Change Adaptation Related Agendas at COP18, Doha, Qatar (<http://www.preventionweb.net/english/professional/publications/v.php?id=29798>)

⁵ UN/ISDR (Inter-Agency Secretariat of the International Strategy for Disaster Reduction), 2004: Living with Risk – A global review of disaster reduction initiatives. UN/ISDR.

Vocabulary and concept check

Exercise SE1.1

Objectives

- ✓ To review/ check on participant understanding of the covered concepts and vocabulary in Session 1.
- ✓ Provide an evaluation process to gauge participant learning.

Facilitation

Step 1

Introduce the exercise and process, and again emphasize the importance of all participants having a common understanding of basic 'climate change' language to be used within this modular learning process.

Step 2

Divide participants into groups of 4 or 5; give each group an exercise sheet and have the indicated squares cut into individual pieces (squares are not in any specific order). Allow 15 minutes.

Step 3

Ask participants to match the 'vocabulary' reviewed in Session 1 with a corresponding statement. At this time the facilitator/ trainer should review group work as it progresses to ensure that participants have a clear understanding of the given 'vocabulary' and or concepts. Clarify when needed but do not give the answers. Keep in mind where participants are having common misunderstandings.

Step 4

After the given time (15 minutes), the facilitator/ trainer should ask participants to STOP, and display their answers to the exercise; ask groups for their scores (optional). After, review 'vocabulary' and or concepts that have presented a common challenge to participants, i.e. most common mistakes.

Materials

- ✓ Exercise sheet – 1 for each group (4 to 5 participants)
- ✓ Scissors – 1 pair for each group

Time
15 – 20
minutes

Exercise Answers:

1&8, 2&25, 3&17, 4&12, 5&7, 6&13, 9&15, 10&21, 11&19, 14&18, 16&23, 20&26, 22&27, 24&28

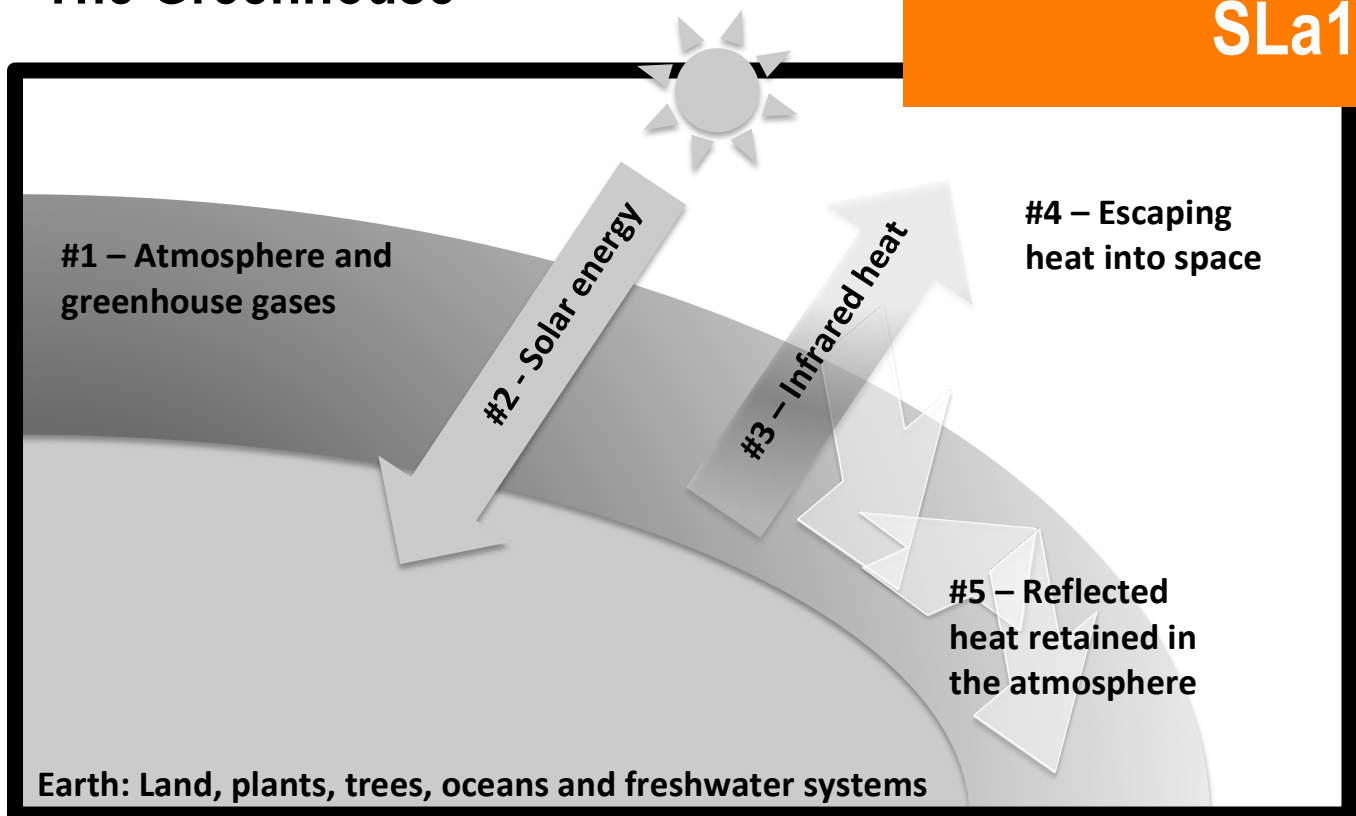
Worksheet

SW1.1

Adaptation and Resilience Building	We need to build awareness in our communities, and make sure we are prepared for the dry season	
The rainy season seems to be coming later and later every year, and when it does rain, storms are getting stronger	Greenhouse Effect and Gasses	
Climate Change Impact	Adaptive Capacity	Positive and negative changes in water resources, agriculture and food security, terrestrial ecosystems and biodiversity
We installed household water-harvesting units, now we need to organize the community to collective manage them	Resilience	Carbon and Carbon Dioxide
Climate Vulnerability	A process and product that keeps the earth's temperature in balance	Communities often know how to solve their problems, what they lack are the needed materials
The average temperature of the earth's surface in China has risen by 1.1 degrees Celsius	Farmers have found it good to organize themselves into learning groups to share technical knowledge	Hazard Events
Climate Change	Global Warming	Poor lowland rice farmers in Thailand again lost much of their crops to annual monsoon rains
Weather and Climate	Trees and plants act as sinks, but also emissions generators	Farmers have started to use nets to protect their crops, and bamboo to protect their soil during the rainy season
Because of this year's drought, forests fires destroyed four houses in a neighboring village	Climate Change Mitigation	Disaster Risk Reduction
To day was the coldest day on record for Vietnam; yet, temperatures across Asia have not been that cold	Climate Change Adaptation	The UNFCCC has been negotiating with world leaders to take action on lowering their greenhouse gas emissions

The Greenhouse

Learning aid SLa1.1



#1 Atmosphere and greenhouse gases

- The atmosphere is a layer of gases surrounding the planet that is kept in place by Earth's gravity. The atmosphere protects life on Earth by absorbing ultraviolet solar radiation, warming the surface of the planet and reducing temperature extremes between day and night. Dry air contains 78.09% nitrogen, 20.95% oxygen, 0.93% argon, 0.039% carbon dioxide, 1.0% water vapor, and small amounts of other gases such as methane, nitrous oxide and ozone.
- Greenhouse gases are those that can absorb and emit infrared radiation. In order, the most abundant greenhouse gases in Earth's atmosphere are: 1) water vapor (H_2O), 2) carbon dioxide (CO_2), 3) methane (CH_4), 4) nitrous oxide (N_2O), and ozone (O_3).

#2 Solar energy

- Solar energy comes in different forms, e.g. radiant light and heat. The Earth absorbs some of the solar energy received from the sun, and reflects some of it as light and some in the form of infrared heat.

#3 Infrared heat

- Infrared heat has a longer wavelength than much of the incoming solar energy, thus some of this energy escapes, some reflects back.

#4 Escaping heat

- The Earth's surface and atmosphere temperature depends on a balance between incoming and outgoing energy. If this balance is shifted, the Earth's surface becomes warmer or cooler and leads to climate change.

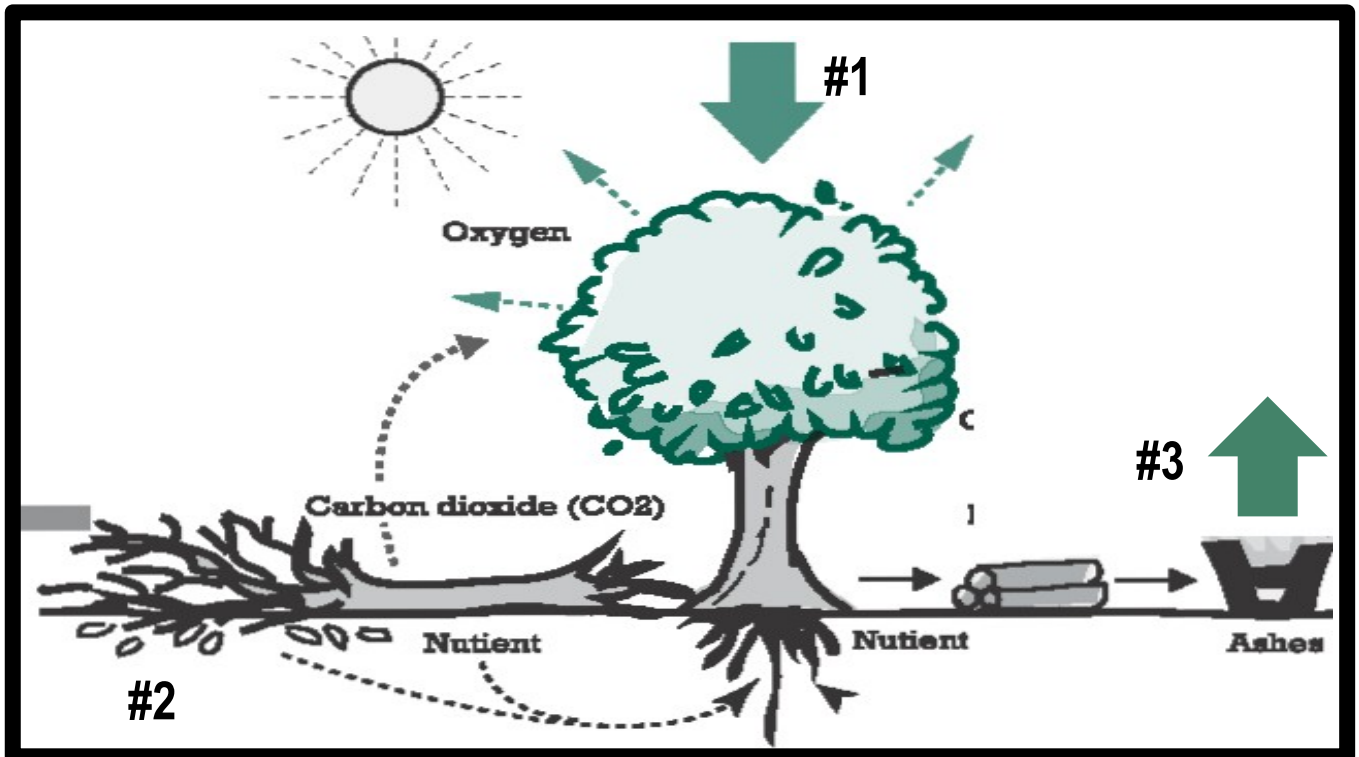
#5 Reflected heat

- If gases are added to the atmosphere, e.g. CO_2 , methane, nitrous oxide and chlorofluorocarbons (CFCs), i.e. greenhouse gases, these have the ability to block infrared emissions from leaving the Earth. Thus, the earth and atmosphere warms.

How do forests store and release carbon?

Learning aid SLa1.2

Trees absorb carbon dioxide (CO₂) from the atmosphere during photosynthesis and store carbon in their stems, branches and roots, which can also transfer carbon to the soil. By removing CO₂ from the atmosphere in this way, forests help to reduce (or mitigate) the severity of climate change. The different places in which carbon is stored in a forest are known as carbon pools.⁶



#1 Carbon uptake

- Trees absorb carbon dioxide from the atmosphere and release oxygen.

#2 Vegetation decomposition

- Some stored carbon is released back into the atmosphere. Some carbon is stored in the soil.

#3 Fuel burning

- Trees that are cut for firewood and burned as fuel will release stored carbon back into the atmosphere.

⁶ FAO 2012. Community guidelines for accessing forestry voluntary carbon markets. Food and Agriculture Organization of the United Nations - Regional Office for Asia and the Pacific. Bangkok, Thailand.

Session 2

Evidence, causes, effects, and consensus on climate change

S2

Objectives

- ✓ Understand the evidence base for climate change vis-à-vis the greenhouse effect and human interactions.
- ✓ Learn of the 'who's who' of greenhouse gas emitters, and of the data countries presented to the public.
- ✓ **Optional:** Understand how personal carbon footprints are calculated, and discover ways where life styles can be change to lower the footprint.
- ✓ **Optional:** gain knowledge on the various ways the UNFCCC addresses both climate change mitigation and adaptation needs globally.

Facilitation

Step 1

Introduce handout S2.1 through an organized PowerPoint presentation. This would include the objectives of the session and the process the facilitator will take to deliver the session.

Step 2

Cover key points reviewed in the handout under 'We live in a greenhouse', e.g. the importance of sunlight energy and the Earth's atmosphere as a balancing mechanism to sustain life. The information given is a review of some vocabulary covered in Session 1.0. Thus, place more focus on the detailed information given under 'Gases that contribute to the greenhouse effect'.

Step 3

Cover key points reviewed in handout S2.1, 'Climate change – the evidence'. The facilitator should emphasize, using Figure 2, jumps in greenhouse gases and the short time periods these occur in. Then, draw attention to the current time period and the sharp increase in atmospheric CO₂. The main point to be made is the % increase of greenhouse gases, the time this increase has taken since the 1900s, and the climate change facts accepted worldwide.

Step 4

Cover key points reviewed in handout S2.1 under 'Evidence of a rapid climate change'. Recommended is to focus only on a brief review of 1) events, and 2) the facts. Participants should be encouraged to go to the informational sources given to learn more at a later time.

Step 5

Cover key content reviewed in the handout under 'Human activity as the cause'. The presentation should focus on the type and sources of greenhouse gases. For the sub-section 'Who's emitting, who's not', the facilitator should present an analysis of areas colored/ highlighted in Tables 1, 2 and 3 (handout S2.1). Important analyses to be made are given as learning points stated in the section. 'The Consensus' sub-section can be briefly reviewed to strengthen the main point to Session 2.0, i.e. global warming and climate change is happening, humans are the major cause, and should be the solution to the problem.

Comments

- ✓ Exercise SE2.1 is optional, but highly recommended. Recommended is that the exercise be conducted over a lunch break.
- ✓ Learning aid SLA2.1 has been provided. This is supplemental reading for participants that wish to have a brief overview of global and collective actions taken to support climate change mitigation and adaptation through the UNFCCC. Links are provided for more in depth learning.

Materials

- ✓ PowerPoint presentation covering handout S2.1, Exercise SE2.1, Learning aid SLA2.1
- ✓ See exercise SE2.1 for further needs

Time

45 minutes -
1.0hrs

We live in a greenhouse

Is the greenhouse effect a good thing, or bad thing? Life on Earth depends on energy coming from the sun. About half the light reaching Earth's atmosphere passes through the air and clouds to the surface, where it is absorbed and then radiated upward in the form of infrared heat. About 90 percent of this heat is then absorbed by the greenhouse gases and radiated back toward the surface, which is warmed to a life-supporting average of 15 to 17 degrees Celsius.

The greenhouse effect is a good thing. But, too big of a greenhouse effect can cause the temperature of the earth to increase and affect life as we know it. For example, on the planet Venus, greenhouse gases are abundant, and the average temperature at the surface is more than 457 °C.

People often talk about the greenhouse effect as if it is a bad thing. This is because people are concerned that the Earth is warming up very rapidly. This is happening because 'we' are currently adding more and more greenhouse gases to the atmosphere, e.g. water - H₂O, Carbon Dioxide - CO₂, Nitrous Oxide - N₂O, and Methane - CH₄. This increases the 'greenhouse effect' and causes unwanted changes to our planet and our lives.

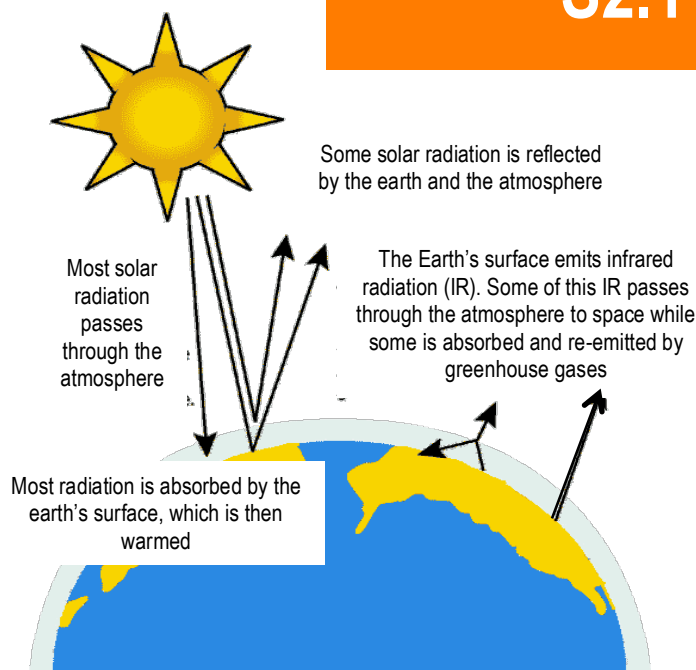


Figure 1 Visual aid showing the movement of solar radiation and infrared radiation.

Gases that contribute to the greenhouse effect

Water vapor (H₂O)

Water vapor is the most abundant greenhouse gas. Water vapor increases as the Earth's atmosphere warms, but so does the possibility of clouds and precipitation, making this one of the most important feedback mechanisms to balance the greenhouse effect.

Carbon dioxide (CO₂)

A minor but very important component of the atmosphere, carbon dioxide is released through natural processes such as respiration, volcanic eruptions, and through human activities such as deforestation, land use changes, and the burning of fossil fuels. Humans have increased atmospheric CO₂ concentration by a third since the industrial revolution began.

Methane (CH₄)

A hydrocarbon gas produced both through natural sources and human activities, including the decomposition of wastes in landfills, all forms of agriculture – especially rice cultivation, and livestock. On a molecule-for-molecule basis, methane is a far more active greenhouse gas than carbon dioxide, but also one that is much less abundant in the atmosphere.

Nitrous oxide (N₂O)

A powerful greenhouse gas produced by soil cultivation practices, especially the use of commercial and organic fertilizers, fossil fuel combustion, nitric acid production, and biomass burning.

Chlorofluorocarbons (CFCs)

CFCs are human made compounds used in a number of applications. On a good note, these compounds are regulated from their production phase to their release into the atmosphere by international agreements because they have the ability to contribute to the destruction of the Earth's ozone layer. They are also greenhouse gases.

Climate change - the evidence

The Earth's climate has changed throughout history. In the last 650,000 years there have been seven cycles of glacial advance and retreat, with the abrupt end of the last ice age about 7,000 years ago. Most of these climate events are caused by very small variations in Earth's orbit that changed the amount of solar energy our planet receives. However, the current warming trend is of particular significance because most of this is very likely to be human-induced and moving at a rate never experienced in the last 1,300 years.⁷

Technological advances have enabled scientists to see the big picture, collecting many different types of information about our planet and its climate on a global scale. Studying climate data collected over many years reveal the signals of a changing climate (see Figure 2).

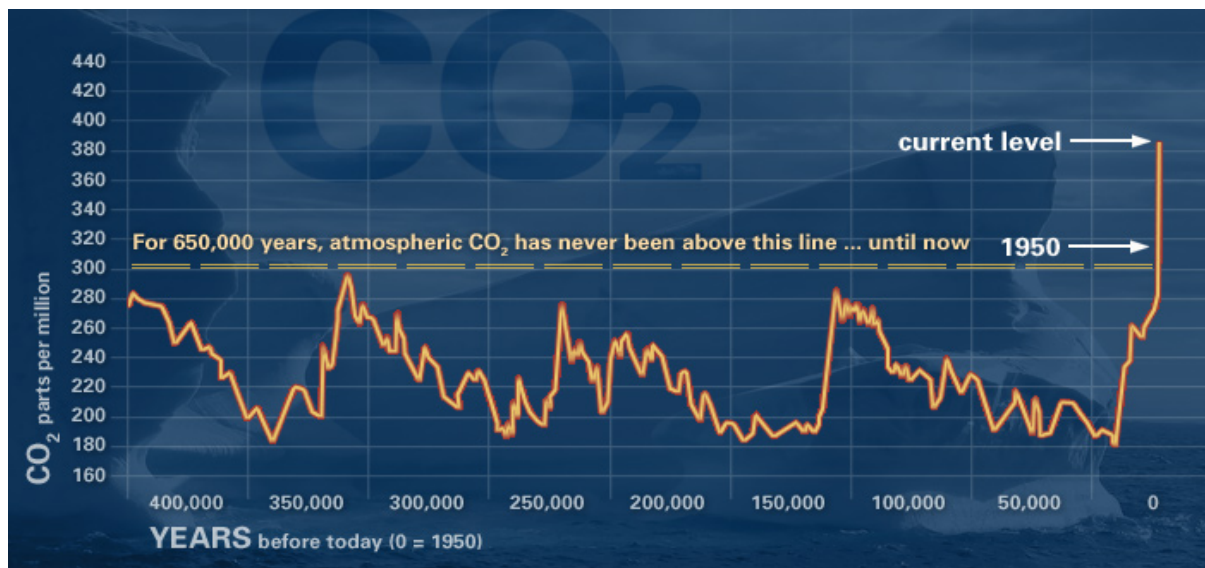


Figure 2 Comparison of atmospheric samples contained in ice cores and more recent direct measurements.⁸

Important facts not in dispute

- The heat-trapping ability of carbon dioxide and other greenhouse gases was demonstrated in the mid-19th century. Their ability to affect the transfer of infrared energy through the atmosphere is the scientific basis of increased levels of greenhouse gases causing the Earth to warm.
- Ice cores drawn from Greenland, Antarctica, and tropical mountain glaciers show that the Earth's climate responds to changes in solar energy, the Earth's orbit, and to greenhouse gas levels. They also show that in the past, large changes in climate have happened very quickly, in tens of years, not in millions or even thousands (see Figure 2).⁹
- In some ways, a change in the sun's energy could cause global warming. Since 1750, the average amount of energy coming from the Sun either remained constant or increased slightly. If global warming was caused by a more active sun, scientist would then expect to record warmer temperatures in all layers of the atmosphere. Instead, observed is a cooling in the upper atmosphere, and a warming in the lower parts of the atmosphere and the Earth's surface.

Learning point

The Earth has experienced climate variations through its past, and it is today. Variations happen over short periods of time. What is unique this time is that the change is human induced. This change is commonly known as global warming, explained through the concept of the greenhouse effect.

⁷ B.D. Santer et al., 1996. A search for human influences on the thermal structure of the atmosphere. Nature Vol. 382, 4 July 1996, 39-46

⁸ <http://www.ncdc.noaa.gov/paleo/icecore/>

⁹ National Research Council (NRC), 2006. Surface Temperature Reconstructions For the Last 2,000 Years. National Academy Press, Washington, DC.

Evidence of a rapid climate change

THE EVENT	THE FACTS	THE SOURCE
Global Temperature Rise	All three major global surface temperature reconstructions show that the Earth has warmed since 1880. Most of this warming has occurred since the 1970s, with the 20 warmest years having occurred since 1981 and with all 10 of the warmest years occurring in the past 12 years. Even though the 2000s witnessed a solar output decline, surface temperatures continue to increase.	• http://www.ncdc.noaa.gov/oa/climate/research/anomalies/index.html, & http://www.cru.uea.ac.uk/cru/data/temperature http://data.giss.nasa.gov/gistemp • Peterson et.al., 2009. State of the Climate in 2008. Special Supplement to the Bulletin of the American Meteorological Society, v. 90, no. 8, August 2009, pp. S17-S18. • C. Allison et.al., 2009. The Copenhagen Diagnosis: Updating the World on the Latest Climate Science, UNSW Climate Change Research Center, Sydney, Australia, 2009, p. 11 & http://www.giss.nasa.gov/research/news/20100121/ http://science.nasa.gov/headlines/y2009/01apr_deepsolarminimum.htm
Warming Oceans	The oceans have absorbed much of the increased heat within the top 700 meters (about 2,300 feet) of ocean, showing a warming of 0.302 degrees Fahrenheit since 1969.	• Levitus, et al, 2009. Global ocean heat content 1955–2008 in light of recently revealed instrumentation problems. Geophys. Res. Lett. 36, L07608.
Sea Level Rise	Global sea level rose about 17 centimeters (6.7 inches) in the last century. The rate in the last decade is nearly double that of the last century.	• Church, J. A. and N.J. White, 2006. A 20th century acceleration in global sea level rise, Geophysical Research Letters, 33, L01602, doi:10.1029/2005GL024826.
Ocean Acidification	Since the beginning of the Industrial Revolution, the acidity of surface ocean waters has increased by about 30%. This increase is the result of humans emitting more carbon dioxide into the atmosphere and more being absorbed into the oceans. The amount of carbon dioxide absorbed by the upper layer of the oceans is increasing by about 2 billion tons per year.	• http://www.pmel.noaa.gov/co2/story/What+is+Ocean+Acidification%3F & http://www.pmel.noaa.gov/co2/story/Ocean+Acidification • Sabine et.al., 2004. The Oceanic Sink for Anthropogenic CO₂. Science vol. 305 (16 July 2004), 367-371.
Shrinking Ice Sheets	The Greenland and Antarctic ice sheets have decreased in mass. Data from NASA's Gravity Recovery and Climate Experiment show Greenland lost 150 to 250 cubic kilometers (36 to 60 cubic miles) of ice per year between 2002 and 2006, while Antarctica lost about 152 cubic kilometers (36 cubic miles) of ice between 2002 and 2005.	• http://climate.nasa.gov/evidence
Declining Arctic Sea Ice	Both the extent and thickness of Arctic sea ice has declined rapidly over the last several decades.	• Polyak, et.al., 2009. History of Sea Ice in the Arctic - in Past Climate Variability and Change in the Arctic and at High Latitudes, U.S. Geological Survey, Climate Change Science Program Synthesis and Assessment Product 1.2, January 2009, chapter 7. • Kwok, R., and D. A. Rothrock, 2008. Decline in Arctic sea ice thickness from submarine and ICESAT records: 1958-2008. Geophysical Research Letters, v. 36, paper no. L15501, 2009
Glacial Retreat	Glaciers are retreating almost everywhere around the world — including the Alps, Himalayas, Andes, Rockies, Alaska and Africa.	• http://www.geo.uzh.ch/microsite/wgms/ (World Glacier Monitoring Service) & http://nsidc.org/cryosphere/sotc/glacier_balance.html (National Snow and Ice Data Center)
Extreme Events	The number of record high temperature events in the United States have been increasing, while the number of record low temperature events have been decreasing, since 1950. The U.S. has also witnessed increasing numbers of intense rainfall events.	• http://lwf.ncdc.noaa.gov/extremes/cei.html

Human activity as the cause

The Fourth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC), a group of 1,300 independent scientific experts working through the support of the United Nations, concluded there's a 90%+ probability that human activities over the past 250 years have warmed our planet. Industrial activities that our modern civilization depends upon have raised atmospheric CO₂ levels from 280 parts per million to 379 parts per million in the last 150 years. The panel also concluded there's a better than 90% probability that human-produced greenhouse gases such as CO₂, CH₄ and N₂O have caused much of the observed increase in Earth's temperatures over the past 50 years.¹⁰

Global anthropogenic GHG emissions by gas and sector

Globally, the primary sources of greenhouse gas emissions are electricity and heat (28%), agriculture (14%), transportation (12%), forestry (12%) and manufacturing (12%). Energy production of all types accounts for 65 % of all emissions (Figure 3).

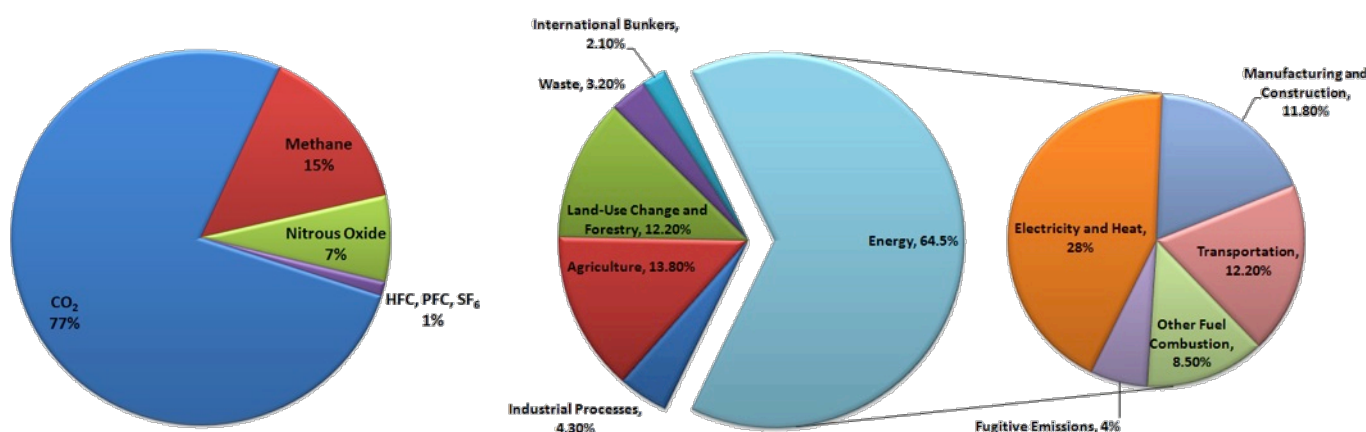


Figure 3 Global anthropogenic greenhouse gas emissions depicted by type of gas and sector emissions.¹¹

Who's emitting, who's not

Table 1 Top five (5) greenhouse gas emitting countries – 2005.¹² 2011¹³

Rank	Country	CO ₂ e Megatons	Global %
1	China	7,225.4	16.38%
2	United States of America	6,933.8	15.72%
3	European Union	5,331.5	12.09%
4	Brazil	2,854.8	6.47%
5	Indonesia	2,038.9	4.62%

Table 2 Top five (5) greenhouse gas emitting countries –

Rank	Country	CO ₂ e Megatons	CO ₂ e Tons/year /person
1	China	9,7000.0	7.2
2	United States of America	5,420.0	17.3
3	India	1,970.0	1.6
4	Russia	1,830.0	12.8
5	Japan	1,240.0	9.8

¹⁰ http://www.ipcc.ch/pdf/assessment-report/ar4/syr/ar4_syr_spm.pdf.

¹¹ <http://www.wri.org/chart/world-greenhouse-gas-emissions-2005>

¹² http://en.wikipedia.org/wiki/List_of_countries_by_greenhouse_gas_emissions

¹³ http://en.wikipedia.org/wiki/List_of_countries_by_carbon_dioxide_emissions#List_of_countries_by_2011_emissions_estimates

Table 3 Top five (5) Southeast Asian greenhouse gas emitting countries (2005), and per person emission in 2009.¹⁴

Rank	Country	CO ₂ e Megatons	Global %	CO ₂ e Tons/year/person
1	Indonesia	2.036.9	4.62	1.8
2	Thailand	366.4	0.83	4.1
3	Philippines	211.4	0.48	0.8
4	Singapore	124.2	0.28	7.0
5	Cambodia	106.8	0.24	0.3

Learning point

As a general description, the more 'developed' a country is, the higher greenhouse gas emissions per person are. This presents significant challenges to lower global emissions given emerging economies such as India.

Let's make the human link



Agriculture

- A large source of methane and nitrous oxide responsible for 15% of the worldwide greenhouse gas emissions.
- Climate friendly agricultural management, e.g. organic farming, could reduce emissions significantly.



Deforestation

- Nearly a quarter of CO₂ emissions worldwide result from deforestation.
- Net forest loss since 2000: 7.3 million hectares/ year – similar to the size of the country Panama.
- Emissions reductions in this sector include afforestation, reforestation and avoided deforestation initiatives.



Transportation

- One quarter of all human made CO₂ emissions is transportation related.
- 750 million cars worldwide emit approximately 2.25 billion tons of CO₂ each year.



Industrialization

- Industrial production is responsible for more than 1/2 of all CO₂ emissions.
- Largest quantities of CO₂ are emitted by energy producers and energy intensive industries.
- New filtration technologies could reduce CO₂ emissions by 30 to 50%.

Learning point

Today's need for energy, to drive economies, greatly contributes to global CO₂ emissions. Land use change and current agricultural practices are also major contributors of greenhouse gases, e.g. N₂O and CH₄.

¹⁴ http://en.wikipedia.org/wiki/List_of_countries_by_carbon_dioxide_emissions_per_capita

The consensus

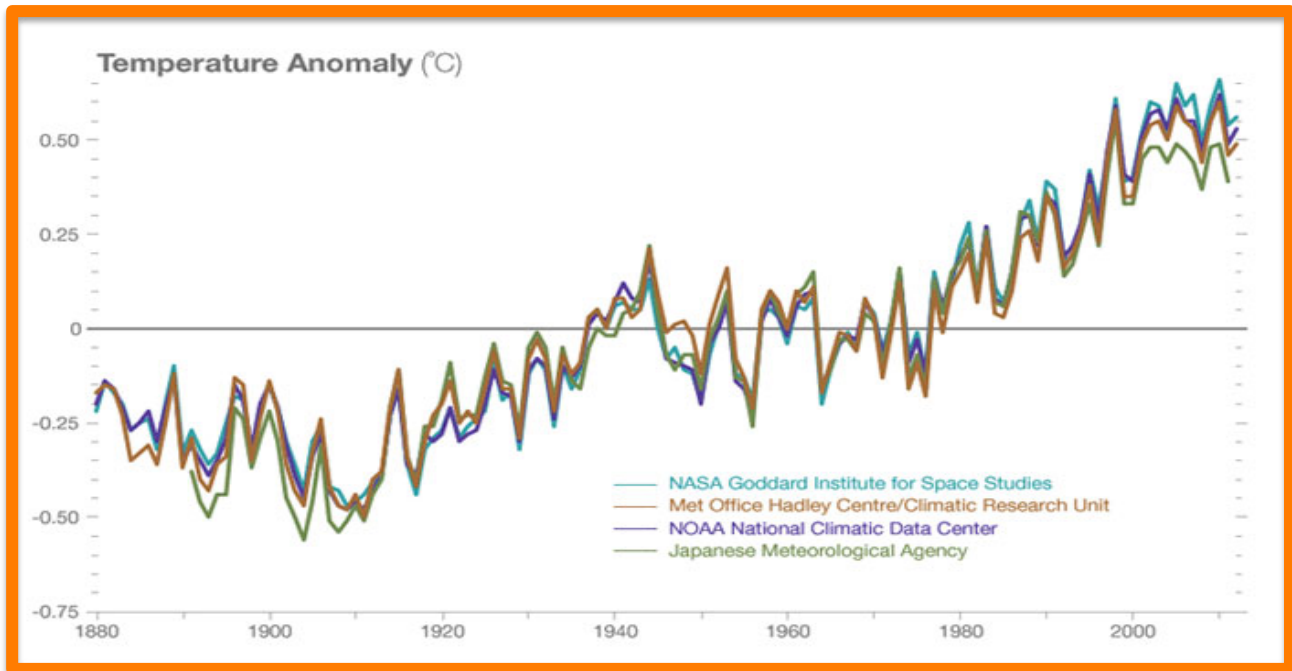


Figure 4 Temperature data from four international science institutions showing rapid warming of the Earth's climate, the last decade being the warmest on record.

97% of climate scientists agree

Climate-warming trends over the past century (Figure 4) are very likely due to human activities.¹⁵ Most of the leading scientific organizations worldwide have issued public statements endorsing this position.

Intergovernmental Panel on Climate Change

Warming of the climate system is unequivocal, as is now evident from observations of increases in global average air and ocean temperatures, widespread melting of snow and ice, and rising global average sea level.¹⁶ "Most of the observed increase in global average temperatures since the mid-20th century is very likely* due to the observed increase in anthropogenic greenhouse gas concentrations."¹⁷

**IPCC defines 'very likely' as greater than 90 percent probability of occurrence*

International academies - joint statement

Climate change is real. There will always be uncertainty in understanding a system as complex as the world's climate. However, there is now strong evidence that significant global warming is occurring. The evidence comes from direct measurements of rising surface air temperatures, subsurface ocean temperatures, and from phenomena such as increases in average global sea levels, retreating glaciers, and changes to many physical and biological systems. It is likely that most of the warming in recent decades can be attributed to human activities.¹⁸

¹⁵ Anderegg, W. R. L., 2010. Expert Credibility in Climate Change. *Proceedings of the National Academy of Sciences* Vol. 107 No. 27, 12107-12109; DOI: 10.1073/pnas.1003187107.

¹⁶ 2007 IPCC Fourth Assessment Report, Summary for Policymakers. http://www.ipcc.ch/publications_and_data/ar4/wg1/en/spmssp-direct-observations.html

¹⁷ 2007 IPCC Fourth Assessment Report, Summary for Policymakers. http://www.ipcc.ch/publications_and_data/ar4/wg1/en/spmssp-understanding-and.html

¹⁸ 2005 Joint science academies' statement: Global response to climate change. <http://nationalacademies.org/onpi/06072005.pdf>

Your carbon footprint

Exercise SE2.1

Objectives

- ✓ To become familiar with how personal carbon footprints are calculated, and the life components involved in this calculation.
- ✓ Provide space to reflect on personal carbon footprints, and through the use of a 'carbon calculator' think of specific areas of life style changes that can be made to lower a persons carbon footprint.

Background - What is carbon offsetting?

Our everyday actions consume energy and produce carbon emissions, such as driving, flying and heating buildings. Carbon offsetting is used to compensate for greenhouse gas emissions by funding an equivalent carbon dioxide saving action elsewhere. Although, offsetting provides a mechanism to reduce GHG emissions in the most cost-effective manner, if done in isolation it is not the solution. Climate change will only be addressed if individuals, businesses, and government organizations take responsible steps to reduce CO₂ emissions, and then offset the remaining unavoidable emissions.

Facilitation

Step 1

Introduce the exercise and the web based carbon calculator of choice. Recommended is to use Carbon Footprint Ltd. at <http://www.carbonfootprint.com>. Allow time for participants to view the web site, then direct them to the 'Calculate' function and proceed accordingly. Participants can choose specific time periods to calculate, e.g. one year, one month, or the carbon footprint associated with this course. It is best that an agreed upon time frame is chosen for comparisons later, e.g. one year or an average month.

Step 2

Ask participants to record the calculated carbon footprint for each component, e.g. house, flights, and secondary actions. Additionally, participants should be reminded to think about the questions being asked to help in making adjustment choices later in the exercise.

Step 3

Once the participants have their first set of carbon footprint values, ask them to think what they could realistically change in their life style to lower their carbon footprint. Participants should reflect on the information, and on the learning points of Session 2.

Step 4

Now, participants should recalculate their new and improved carbon footprint using the same timeframe. This can easily be done by selecting different answers in the drop down tags of the component questions.

Step 5

Finally, ask each participant to chart/ display his or her carbon foot calculations on the training venue wall. This should generate interesting and reflective conversations throughout the modular training process.

Materials

- ✓ Computers with an internet connection and web based explorer – 1 for each group of 4 to 5 participants is recommended
- ✓ Paper, markers, and tape for recording and displaying carbon footprints

Time

**30 - 45
minutes**

UNFCCC and climate change

Learning aid SLa2.1

UNFCCC and mitigation¹⁹

We can respond to climate change by reducing GHG emissions and enhancing CO₂ storage. The capacity to do so depends on socio-economic and environmental circumstances, and the availability of information and technology.

There are a variety of policies and instruments available to governments to create incentives for mitigation actions. To meet the United Nations Framework Convention on Climate Change (UNFCCC) objective of stabilizing GHG concentrations, the Convention requires countries to take account of their responsibilities and capabilities, and to formulate and implement programmes containing measures to mitigate climate change by 1) periodically updating national inventories of GHG emissions, 2) cooperate in the development, application and diffusion of climate friendly technologies, and 3) adopt national policies and measures to limit GHG emissions and improve CO₂ storage. Key areas for action and responsibility are (Figure 1):

- **Action on mitigation:** Reducing emissions and enhancing CO₂ storage. This can be achieved by changes in lifestyle, behavior patterns, and management practices across all sectors.
- **Reporting on national implementation and measurement, reporting and verification (MRV):** Parties to the Convention have agreed to submit to the Conference of the Parties (COP) national reports on the implementation of the Convention that includes commitments and activities relating to mitigation.
- **Making use of resources:** A data base has been developed to allow Parties to the Convention to access information reported by developed countries in relation to the Kyoto Protocol, for stakeholders to share information and experiences relating to REDD+, and access training materials aimed to build relevant measuring and reporting capacities.
- **Cooperation and support:** The Convention has put in place several mechanisms to assist developing countries with implementing mitigation action related to finance, technology and capacity building. International institutions like the Global Environment Facility, the Green Climate Fund and the National Communication Support Program play an important role in supporting developing countries.

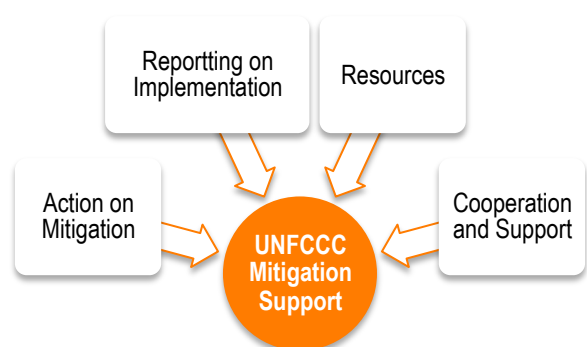


Figure 1 Simplified illustration of the UNFCCC framework for climate change mitigation action and support.

Developing country Parties have been contributing to global mitigation efforts in several ways. The Clean Development Mechanism (CDM) has been an important avenue of action for these countries to implement project activities that reduce emissions and enhance CO₂ storage. More recently, developing countries have agreed to implement Nationally Appropriate Mitigation Actions, or NAMAs, with support from developed countries.

Under the Bali Action Plan, agreed at COP 13, Parties discussed how to enhance national/international mitigation actions in the context of sustainable development, and how the sharing of technology, finances, and capacity building efforts could support this. At COP 16 an operational agreement was finally reached. Established was a registry to record information on NAMAs, and to facilitate the matching of NAMAs with support available.

UNFCCC and adaptation²⁰

At COP 16, adopted was the Cancun Adaptation Framework (CAF) as part of the Cancun Agreements at the 2010 Climate Change Conference. In the Agreements, Parties affirmed that adaptation must be addressed with the same level of priority as mitigation. The CAF is the result of three years of negotiations on adaptation under the Ad Hoc Working Group on Long-

¹⁹ <http://unfccc.int/focus/mitigation/items/7169.php>

²⁰ <http://unfccc.int/focus/adaptation/items/6999.php>

term Cooperative Action (AWG-LCA) that followed the adoption of the Bali Action Plan at the 2007 Climate Change Conference in Bali, Indonesia, i.e. COP 13. The CAF agreement was also supported by the development of 1) a Green Climate Fund to house the international management, deployment and accountability of long-term funds for developing country support, 2) a Technology Mechanism to get clean technologies to the right place, at the right time and to the best effect, and 3), an Adaptation Framework to boost international cooperation to help developing countries protect themselves from the impacts of climate change (see Figure 2).

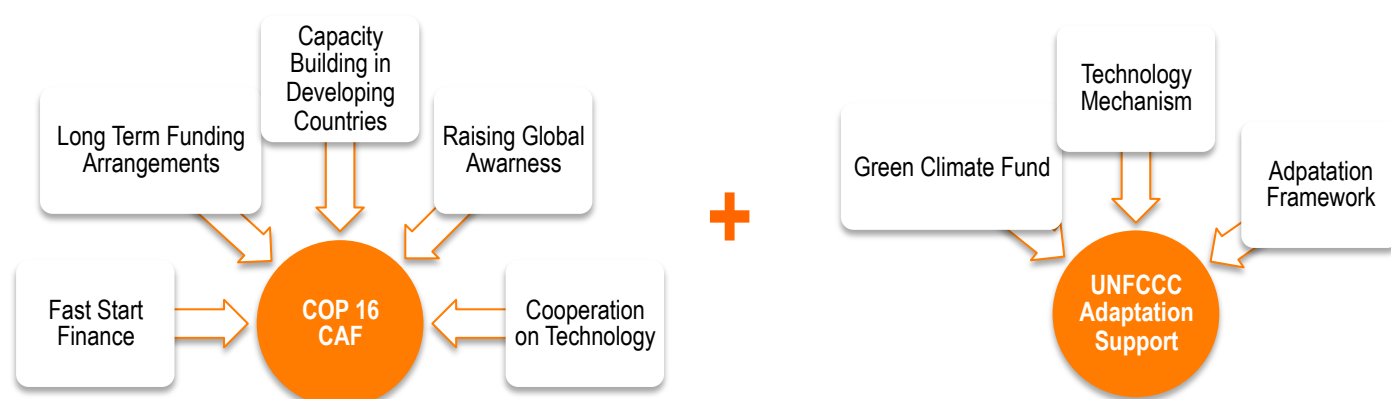


Figure 2 Simplified illustration of the COP 16 Cancun Adaptation Framework (CAF) components and support system agreed upon and mobilized in support of climate change adaptation in developing countries.

Under the UNFCCC, processes have been established to support countries in their adaptation planning efforts. At the country level, National Adaptation Programmes of Action, often called NAPAs are produced to enable Least Developed Countries (LDCs) to identify and prioritize urgent and immediate needs with regard to adapting to the negative impacts of climate change. The Cancun Adaptation Framework supports LDCs in the development of their NAPAs, and a work programme that considers how they will go about addressing losses and damage associated with climate change.

UNFCCC and climate finance

In accordance with the principle of common but differentiated responsibilities and capabilities set out in the Convention, developed country Parties (Annex II Parties) are to provide financial resources to assist developing country Parties in implementing the objectives of the UNFCCC. Hence, it is important for developed countries to understand and know the financial needs of developing countries to undertake activities related to climate change mitigation and or adaptation actions.

Developing countries need to know that financial resources are predictable, sustainable, and that they can utilize the resources directly without difficulty. For developed countries, it is important that developing countries are able to demonstrate their ability to effectively receive and utilize the resources, at the same time meeting transparency requirements and effective measurement, reporting and verification procedures.

The UNFCCC has developed a 'Finance Portal'. The Finance Portal²¹ is comprised of three modules, each of which includes information made available by Parties to the Convention and the operating entities of the financial mechanism of the Convention:

Module 1: National Communications - presents information communicated by contributing countries on the provision of financial resources.

Module 2: Fast-start Finance - includes information on resources provided by developed countries in the context of their commitment to provide approximately USD 30 billion over the period 2010 – 2012.

Module 3: Funds Managed by the Global Environment Facility (GEF) - contains information on climate finance flows of GEF in its role as one of the operators of the Convention's financial mechanism. Additionally, information on projects and programmes of the Adaptation Fund (2013 financing onward) can be found in the Finance Portal. This fund was established under the Kyoto Protocol of the Convention.

²¹ For more information, see <http://www3.unfccc.int/pls/apex/f?p=116:1:186762879111231>

Session 3

Climate change impact, vulnerability, and why it exists

S3

Objectives

- ✓ To briefly describe potential climate change impacts on sectors that the rural poor depend upon.
- ✓ To introduce key components of vulnerability, and to allow participants with a starting point to building a fuller picture of vulnerability as they move through the modular learning process.
- ✓ To initiate thinking and discussion about how climate change impact links to climate change vulnerability amongst sectors and various socio-economic groups.

Facilitation

Step 1

Introduce handout S3.1 through an organized PowerPoint presentation. This would include the objectives of the session and the process the facilitator will take to deliver the session.

Step 2

Cover key points reviewed in the handout under 'The impact' in brief. See Learning Point 1 for guidance. End the sub-section with a brief discussion related to the 'learning point'. Suggested question for discussion is:

- How do climate change impacts differ for those that live in rural areas, and for those that live in urban areas? Are there any cause and effect connections between the two (2) contexts?

Step 3

Cover key points reviewed in the handout under 'Vulnerability' in brief. See Learning Point 2 for guidance. Of importance is to ensure that participants have time to discuss climate change vulnerability in terms of, 1) exposure to hazards, 2) sensitivity to hazards, 3) one's adaptive capacity to deal with hazards, and 4) in terms of differential impact on different sectors of society. End the sub-section with a brief discussion related to the 'learning point'. Suggested question for discussion is:

- To lessen the impact of climate change, how would the needs of a rural farmer differ from that of an indigenous group, and how would the needs of a woman and or child differ from the needs of a man? Participants should answer/ discuss by first setting the context of their comments.

Step 4

End the session with exercise SE3.1. Follow the guide sheet accordingly. The associated worksheet SW3.1 should be updated and adjusted as needed, e.g. adding countries akin to participant profiles.

Comments

- ✓ Session information given is done to introduce concepts that have been developed around the subject of climate change, rather than giving out impact numbers in terms of quantities of losses and or gains. This information is widely available under country profiles and reports submitted to the IPCC.
- ✓ Suggested time does include time required to complete exercise SE3.1.

Materials

- ✓ PowerPoint presentation covering Handout S3.1
- ✓ See SE3.1 for additional material requirements

Time

1.5 – 2.0hrs

Impact

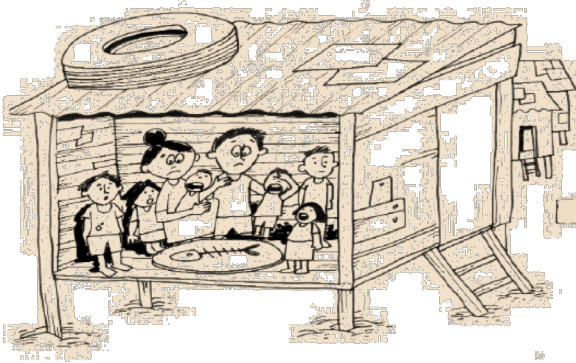
Climate change has many impacts; some are felt on regional and national scales, some specific to an economic or development sector, some at the community level, and others amongst different members of a family. In general, climate change impact is described by the IPCC as the effects of climate change on natural and human systems. For example, loss in biodiversity or ecosystem function, to losses incurred to peoples livelihoods or to their health. Thus, often climate change impacts are described as 'losses', and in some cases 'gains'.

Agriculture

Climate change is expected to affect the agricultural output in Southeast Asia in several ways. For example, irrigation systems will be affected by changes in rainfall and runoff, and subsequently, water quality and supply. Yet the region already faces water stresses, and future climate change effects on regional rainfall will therefore have both direct and indirect effects on agriculture.

Faced with a 2-4°C increase in global climate, studies suggest there is potential for both gains and losses. For example, for less than 2 °C, agricultural losses will occur in the Philippines, while rice yields in Indonesia and Malaysia are projected to increase. However, overall changes in the net effect around the region is uncertain because of local differences in growing season, crop management, and other factors.

Climate studies generally indicate increasing rainfall throughout much of the region. But even with rainfall increases, temperature increase may threaten agricultural productivity, stressing crops and reducing yields. For example, major cereal and tree crops are very sensitive to projected changes in temperature, moisture, and carbon dioxide concentrations for the region. For example, projected impacts on rice and wheat yields suggest that any increases in production associated with CO₂ fertilization will be offset more by losses due to temperature and or moisture changes. Such agricultural impacts particularly affect low-income rural populations that depend on traditional agricultural systems or on marginal lands.



Coastal systems

The coastlines of Southeast Asia are highly vulnerable to the effects of climate change due to the geology and geography of the region's coastal areas, and the growing density in population and infrastructure in the coastal zone. Large tidal variations, tropical cyclones, coupled with the potential increase in regional rainfall, suggests the potential for increased coastal hazards to occur in frequency and in magnitude.

Sea-level rise and increases in sea-surface temperatures are the most probable climate change-related stresses on coastal ecosystems. Densely settled and intensively used low-lying coastal plains, islands, and deltas are especially vulnerable to coastal erosion and land loss, sea water inundation and sea flooding, upstream movement of the saline water into freshwater sources, to the intrusion of seawater into freshwater sources. Especially at risk are the large delta regions of Bangladesh, Myanmar, Thailand, and Viet Nam, and the low-lying areas of Indonesia, Malaysia, and the Philippines.

Ecosystems

Ecosystems in the Southeast Asia region represent a key asset contributing to the regional economy by providing food and water that sustain human life and natural resources that support commercial enterprises, e.g. fisheries and forestry. Additionally, the loss of ecosystems can threaten the economic, social and cultural stability of the region.

Land-use change and degradation, overexploitation of water resources and biodiversity, and contamination of inland and coastal waters may threaten many species. Coral reef communities, mangrove wetlands, tropical and temperate forest are being affected. Coral reefs may be able to keep up with the rate of sea-level rise but may suffer bleaching from higher temperatures. Mangrove communities are also being affected by sea-level rise, and by changing rainfall patterns and runoff that change the flow of freshwater to the coastal zone. A change in the distribution of saline habitat may hamper the function and survivability of the mangrove habitat. Further inland, forests and vegetation may experience some positive effects from climate change, e.g. advancement into new areas. In Thailand, the area of tropical forest could increase from 45% to 80% of total forest cover.

Water

Maintaining the security of water resources is a key priority for Southeast Asia's rural poor. The region already faces water stresses, and many areas are often dependent upon limited groundwater and rainfall collection. Climate change will further aggravate water shortage by extreme events such as droughts that undermine food security, or extreme rainfall events that increase the risk of flooding. Challenges to water resource management will therefore be exacerbated by sea-level rise that would contribute to salt-water intrusion into available freshwater resources.

Scientific assessments project changing patterns of runoff and river flows in the region in the next decades, as well as increases in water management costs and increases in the number of rural poor affected by water stress. Runoff from rain-fed rivers may change in the future. A reduction in snowmelt water would result in a decrease in dry-season flow of these rivers. Larger populations and increasing demands in the agricultural, industrial, and hydropower sectors will put additional stress on water resources. Pressure will be most evident on drier river basins and those subject to low seasonal flows. However, national studies suggest both gains and losses as a result of increased runoff in some river basins in response to increasing rainfall. For example, water stress in the Mekong Delta will rise, and water shortages in the Philippines may rise or fall depending on the location.

Learning point

For some, climate change may result in new gains and opportunities, and losses for others. Most likely, losses lay with the poor, especially those directly dependent on natural resources for their well-being. Note that climate change impact does not start with peoples' livelihoods being affected, rather the impact starts with the destabilization of ecosystem functions. Climate change will have serious impacts on the balance of ecosystem and their ability to supply the needs of these people. Climate change brings change, e.g. changes in the availability of water, changes to inputs required to maintain the status quo. Finally, climate change impacts can be regional in scale or local, for a community, an individual or a culture.

1

Vulnerability

Climate change impacts are often described in the context of vulnerability to natural hazards such as floods, droughts, cyclones, and seasonal variations and land slides, to extreme weather events vis-à-vis those being affected. Vulnerability to these natural hazards is not new, and for the most part, the hazard has remained the same. Thus, when considering climate change impact, the intent should be to understand impact in terms of 'projections to future changes' due to climate change. And if climate change adaptation is considered, then climate change impacts should be distinguish in two ways:

- Potential impacts: All impacts that may occur given a projected change in climate, without considering adaptation.
- Residual impacts: The impacts of climate change that would occur after adaptation.

In general terms, the level of climate change impact felt on a system and or community, etc. is linked to the three (3) constituents of climate change vulnerability, 1) exposure to hazards, 2) sensitivity to hazards, and 3) one's adaptive capacity to deal with hazards (Figure 1).

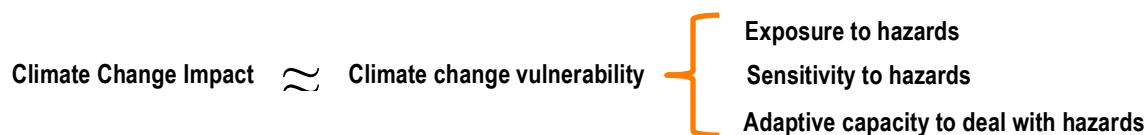


Figure 1 Constituents of climate change vulnerability.²²

When a community, or even a forest, is unable to cope with the adverse effects of climate change, e.g. climate variability and or extremes, then it is considered to have a high degree of climate change vulnerability. However, as noted in Figure 1, this inability is made up of other factors. For 'exposure', this can be thought of in two different ways. For example: 1) am I exposed to the full force of the hazard, or just some of it, and 2) how often am I exposed to this hazard. Sensitivity to hazards has a lot to do with the surrounding conditions within and around the location of the hazard. For example, if an area is highly populated and natural resources are scarce, communities would be very sensitive to small climate change stressors, e.g. the dry season being prolonged by 2 weeks. Conversely, the same area but with a much lower population would not result in a similar outcome. Adaptive capacity carries a similar meaning as to when development practitioners refer to 'capacity'. With this shared understanding, note that the level of capacities that can be mobilized to adapt to climate change stressors changes the outcome of the impact.

By Definition

- **Climate Change Vulnerability:** Defined as the degree to which a system is susceptible to, and unable to cope with, adverse effects of climate change, including climate variability and extremes. Vulnerability is a function of the character, magnitude, and rate of climate change and variation to which a system is exposed, its sensitivity, and its adaptive capacity;²³
- **Exposure:** Defined as "the nature and degree to which a system is exposed to significant climatic variations";
- **Sensitivity:** Defined as "the degree to which a system is affected, either adversely or beneficially, by climate-related stimuli"; and
- **Adaptive Capacity:** Defined as "the ability of a system to adjust to climate change (including climate variability and extremes), to moderate the potential damage from it, to take advantage of its opportunities, or to cope with its consequences".²⁴

Vulnerability of different social groups

It is widely said that the poor will be hardest hit by the impacts of climate change, especially those whose livelihoods are most heavily dependent on natural resources. The vulnerability of the poor is generally seen as resulting from limited access to assets combined with physical exposure to predicted climate-related hazards. From a different perspective, many development practitioners are asking for more of a multi-dimensional analysis of vulnerability in relation to poverty at the micro-level. This puts focus on existing vulnerabilities of different groups of poor people to natural variations in the climate and the coping capacity they already possess.

Women

As the majority of the world's poor, women are likely to be disproportionately affected by the impacts of climate change. Girls and elderly women especially are often the most vulnerable in times of stress. Particular vulnerabilities are identified with regards to 1) access to health services, 2) dependence on agriculture as a subsistence and or livelihood source, 3) access to water, 4) access to formal and informal labor in times of climate-related disasters, and 5) displacement and conflict. However, the thought of women solely as victims of climate change is being challenged. There are calls for a more thorough gendered analysis of climate change impacts so that responses can be better tailored to the specific needs of both men and women, and women's ideas for adaptation are included in decision-making processes.

²² Adapted from Anshory, A., and Francisco, H., 2009. *Climate Change Vulnerability Mapping for Southeast Asia*. Economy and Environment Program for Southeast Asia (EEPSEA) of the International Development Research Centre (IDRC), Singapore.

²³ IPCC Climate change 2007: Impacts, adaptation and vulnerability, Working Group II Contribution to the Intergovernmental Panel on Climate Change Fourth Assessment Report. Cambridge: Cambridge University Press.

²⁴ Adapted from Anshory, A., and Francisco, H., 2009. *Climate Change Vulnerability Mapping for Southeast Asia*. Economy and Environment Program for Southeast Asia (EEPSEA) of the International Development Research Centre (IDRC), Singapore.

Children

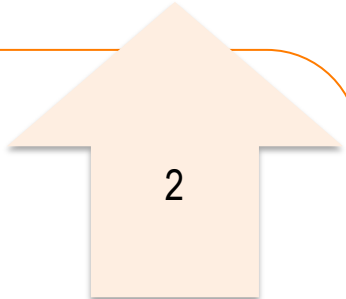
Children are particularly susceptible to disaster-related and health impacts of climate change including an increased occurrence of malaria, diarrhea and under-nutrition. As with other social groupings, the idea that children should be seen solely as victims of climate change is contested. Instead, children are increasingly portrayed as active agents of change who have an important stake in the future. Hence, a rights based view of this situation requires that greater attention be paid to children's issues in adaptation policies and that they play a role in decisions that affect them.

Minorities and indigenous peoples

'Minorities', defined as those groups that are numerically smaller within a population, and who share a common religious, ethnic, or linguistic identity. 'Indigenous peoples' refers to groups who are seen as the 'first people' to inhabit a territory, and who have a special connection with the natural environment. For both groups, the impacts of climate change are rarely mentioned. What is clear is that Indigenous peoples and some minorities often have a close relationship with their natural environments be it for food security, livelihood, and or spiritual fulfillment. This makes them especially sensitive to climate change on many levels. Also, these groups tend to live in poverty, that of which heightens their degree of vulnerability. Social exclusion and discrimination is also part of their vulnerability profile, with the aforementioned making it harder for them to cope with the impacts of climate change, or to exert influence over governments regarding support for adaptation.

Learning point

Men, women, children, minorities and indigenous people are not impacted by climate change equally. This is because each has a different degree of vulnerability given their adaptive capacity. This capacity is, among others, a combination of their socio-economic status, access they have to natural resources and technology, to infrastructure. Thus, it is important to know as much about individual and group vulnerabilities in order to plan and support adaptation needs, and who best to support their integration into decision-making processes.



2

Recommended reading

- ✓ BRIDGE, 2011, 'Cutting Edge Pack on Gender and Climate Change', BRIDGE, Institute of Development Studies, Brighton
- ✓ Save the Children, 2008, 'In the Face of Disaster: Children and Climate Change', International Save the Children Alliance, London
- ✓ Minority Rights, 2008, 'The Impact of Climate Change on Minorities and Indigenous Peoples' Briefing paper, Minority Rights Group, London

Exercise

SE3.1

Who's vulnerable?

Objectives

- ✓ To allow participants to think, discuss, and explain in practical terms, their view to how climate change impact links to climate change vulnerability.
- ✓ To provide space for participants to reflect on the complexities of climate change vulnerability, and how this complexity is translated into mainstream thinking.
- ✓ To help facilitators gauge individual participants' depth of knowledge and experience vis-à-vis climate change vulnerability from multiple perspectives.

Facilitation

Step 1

Introduce the exercise and its purpose. Highlight that getting the right answers is not the quest of the exercise; rather it is a fun process to stimulate thinking around two (2) linked, but complicated concepts.

Step 2

Prepare several bags filled with a complete set of the cutouts shown in worksheet SW3.1. Note that the 'country tag' is to be cut away from the adjacent 'information tag'. Prepare one (1) bag of tags for each participant grouping. Recommended is that participants work in groups of four (4) or five (5).

Step 3

Explain to the groups what the symbols mean, and that the numbers indicated range from one (1) to eight (8), with eight (8) meaning the highest state of climate change impact.

Step 4

Ask participants to match a 'country tag' with an 'information tag'. Participants should think in multiple ways, e.g. geography and the state of environment, common natural hazards, dependencies and food security issues, to the level of country development, e.g. governmental services, population, and economic factors etc.

Step 5

After groups have had time to discuss their matching tags, each group should present the top four (4) matches that they are most confident with, and explain why they think these matches are correct. Other groups should be encouraged to challenge the answers of each group in constructive dialog.

Step 6

After all groups have presented, the facilitator can show the answers. At this time, a recap of key connections between climate change impact and vulnerability should be made. As an advantage, the facilitator should research specific country impact and vulnerability profiles that demonstrate the range of concepts put forth in Session 3. The following are suggested for review:

- Climate change impact on ecosystem functions and human food systems
- Climate change impact on natural resource dependent rural communities
- Vulnerability of minorities and indigenous people vis-à-vis natural resource dependent economies
- Vulnerability of women and children vis-à-vis climate hazards and their access to development services

Comment

- ✓ Information given in the worksheets is made from a grouping of 22 climate change impact and vulnerability indicators. For more information see <http://daraint.org/climate-vulnerability-monitor/climate-vulnerability-monitor-2012/indicators/>. Update and or add to worksheets accordingly.

Materials

- ✓ Several sets of precut worksheets - 1 for each group of 4-5 participants is recommended
- ✓ 1 bag for each group to hold the recut worksheet tags
- ✓ Presentation board, tape, and markers etc.
- ✓ Optional: Computer setup to allow participants to browse the Data website where information for the exercise has been taken from

Time
60 – 75
minutes

Worksheet

SW3.1

Data set compiled from direct impacts of climate change as measured by 22 different indicators in 4 main categories:

- ✓ Disasters: Drought, Floods & Landslides, Storms, Wildfires
- ✓ Habitats: Biodiversity, Desertification, Temperature, Productivity, Permafrost, Sea Level Rise, Water
- ✓ Health: Diarrheal, Heat & Cold, Hunger, Malaria, Meningitis
- ✓ Industry economy: Agriculture, Fisheries, Forestry, Hydro Energy, Tourism, Transportation

Australia	Sea Level	Storms	Floods	Wildfires	Drought	Biodiversity	Health	Mortality	Economy
	2	2	3	8	5	3	2	2	2
Bangladesh	Sea Level	Storms	Floods	Wildfires	Drought	Biodiversity	Health	Mortality	Economy
	3	8	8	1	5	2	5	6	6
Cambodia	Sea Level	Storms	Floods	Wildfires	Drought	Biodiversity	Health	Mortality	Economy
	3	1	8	1	8	4	3	3	8
China	Sea Level	Storms	Floods	Wildfires	Drought	Biodiversity	Health	Mortality	Economy
	2	3	8	1	7	2	1	1	2
India	Sea Level	Storms	Floods	Wildfires	Drought	Biodiversity	Health	Mortality	Economy
	2	2	8	1	6	2	8	8	4
Indonesia	Sea Level	Storms	Floods	Wildfires	Drought	Biodiversity	Health	Mortality	Economy
	2	1	3	1	3	3	3	3	6

India	 Sea Level	 Storms	 Floods	 Wildfires	 Drought	 Biodiversity	 Health	 Mortality	 Economy
	2	2	8	1	6	2	8	8	4
Laos	 Sea Level	 Storms	 Floods	 Wildfires	 Drought	 Biodiversity	 Health	 Mortality	 Economy
	1	1	7	1	5	5	3	3	6
Malaysia	 Sea Level	 Storms	 Floods	 Wildfires	 Drought	 Biodiversity	 Health	 Mortality	 Economy
	2	1	3	1	4	3	2	2	6
Myanmar	 Sea Level	 Storms	 Floods	 Wildfires	 Drought	 Biodiversity	 Health	 Mortality	 Economy
	5	8	5	1	3	3	8	8	8
Philippines	 Sea Level	 Storms	 Floods	 Wildfires	 Drought	 Biodiversity	 Health	 Mortality	 Economy
	2	2	4	2	4	2	2	2	6
Thailand	 Sea Level	 Storms	 Floods	 Wildfires	 Drought	 Biodiversity	 Health	 Mortality	 Economy
	2	1	6	1	5	3	2	2	6
Vietnam	 Sea Level	 Storms	 Floods	 Wildfires	 Drought	 Biodiversity	 Health	 Mortality	 Economy
	4	2	8	1	8	2	2	2	8

Session 4

S4

Climate change adaptation and the development sector

Objectives

- ✓ To further introduce participants to the concept of climate change adaptation and some of the driving forces that shape adaptation outcomes.
- ✓ To initiate thinking and discussion on the impacts of climate change vis-à-vis attaining the Millennium Development Goals, and by which means, e.g. adaptation, disaster risk reduction and or sustainable development approaches.

Facilitation

Step 1

Introduce handout S4.1 through an organized PowerPoint presentation. This would include the objectives of the session and the process the facilitator will take to deliver the session.

Step 2

Cover key points reviewed in the handout under 'Adaptation'. Emphasize Figure 1 (handout S4.1) as a linear process with external influences shaping the outcome of an adaptation attempt. It is also very important that participants understand the differences between autonomous adaptation and planned adaptation (Table 1). This should be review with giving comparative examples. Suggested:

- Borrowing money from a moneylender to purchase water (autonomous adaptation), borrowing money from an accredited financial institution to install a deep well (planned adaptation).
- Exploiting another form of natural resource (autonomous adaptation), installing fire breaks to protect natural resources from increased incidences of fire (planned adaptation)
- Replanting a vegetable garden after it was washed a way in a storm (autonomous adaptation), building a protective barrier around the garden plots to prevent washout.

Step 3

Continue with the section. Main points to be covered are:

- Influencing factors to autonomous adaptation
- Adaptation is not a random event and is limited at both the community level and individual level by a number of factors (see Figure 2, handout S4.1)
- Access to natural resources, development services, and the opportunity to participate in one development are hallmarks to good adaptation.

Step 4

Cover key points reviewed in the handout under 'Adaptation and the development sector'. Suggested is to briefly review Table 2 (handout S4.1), and focus more on differing views towards adaptation, e.g. science and technology, and or the removal of social barriers as a limiting factor to successful adaptation.

End the session with exercise SE4.1. Follow the guide sheet accordingly.

Comments

- ✓ Suggested session time does include time required to complete exercise SE4.1.

Materials

- ✓ PowerPoint presentation covering Handout S4.1
- ✓ See SE4.1 for additional material requirements

Time
1.5hrs

Adaptation

Adaptation simply put is something that we do as a reaction to some form of stimuli, e.g. new conditions, stresses, and or natural hazards. Sometimes the reaction is planned and sometime not. Together, if done right, they enhance people's resilience to climate change. The main objective to climate change adaptation is to achieve **RESILIENCE**. Resilience is the ability of a community to resist, absorb, and recover from the effects of hazards in a timely and efficient manner, preserving or restoring its essential basic structures, functions and identity.

How does adaptation start?

Adaptation most often will begin when a 'hazardous' condition is felt, or expected, i.e. the climate change impact. For communities, the impact is shaped by factors of exposure, sensitivity, and their adaptive capacity. Important to note is that factors related to exposure and sensitivity are greatly influenced by the condition of the surrounding ecosystems, peoples livelihood types, and the level of infrastructure within a given area. This is part of the 'enabling environment' for adaptation. How communities respond to climate change impacts within this enabling environment is dependent on the availability of assets (financial, human, natural, physical, and political), and how these can be mobilized to respond to a given impact (Figure 1).²⁵

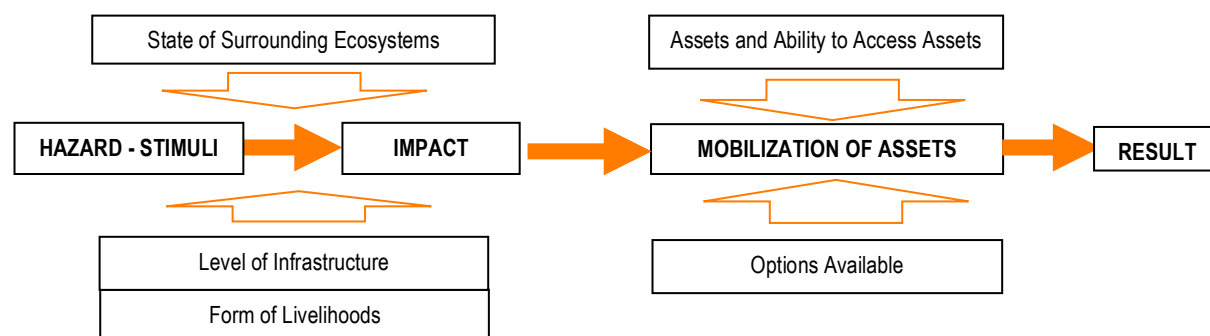


Figure 1 Basic climate change adaptation framework outlining drivers and influences that shape adaptation strategies and outcomes.

Autonomous and planned adaptation

There are two forms of adaptation 1) what is referred to as Autonomous Adaptation or coping strategies, and 2) Planned Adaptation. The main differences between the two is that Autonomous Adaptation/ coping strategies are not well planned, and more of a short term reaction that ends when the stimuli ends. Planned Adaptation is just that, planned, and sustained for the long term. Table 1 gives a break down of the differences between the two (2) forms of adaptation.

Table 1 Generalization of the differences between autonomous adaptation and planned adaptation responses to stimuli.

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

²⁵ AIT-UNEP (2011). Climate Change Adaptation - Factors of choice, effectiveness, and supporting systems. Copyright ©AIT-UNEP RRCAP 2011, Bangkok, Thailand.

For the individual, household, village and beyond, adapting to climate change means adapting to losses, losses in areas of livelihood production, food security, human safety and general health, and ecosystem services. The driving forces behind adaption constitute a range of climate related cause and effect stimuli on ecosystems, combined to a range of socio-economic and political influences. These influences often shape if an adaptation attempt will be successful or not, and for whom. Often autonomous adaptation actions result in negative consequences. This is influenced by a number of factors:

- The ability of information, goods, and services to flow into and out of affected areas
- Existing patterns of vulnerability created by gender, income and social position
- The nature of livelihoods within a given area
- The ability of people to migrate or access non-farming sources of income
- Access to education, self-help groups, government departments, banks, NGOs and social networks
- The nature of physical infrastructure (communication and early warning systems, roads, houses, water supply systems, dikes etc.)
- The ability of a household to obtain secure sources of water for domestic use
- The quality of the natural resource base.

Planned adaptation at the local level begins with the mobilization of assets; how this is done, supported, and or influenced determines the result. Conceptually, local level adaptation strategies and their outcomes operate in a cyclic process of influences, those operating at the level of the individual and or household, and those at the community level. Each has a set of component factors that influence one another. For example, the opportunity for a person or household to adapt often depends upon their state of poverty, social status, and knowledge. Whereas, options for adaptation are more so influenced by community social structure, land tenure security, and an ability to access assets (Figure 2).

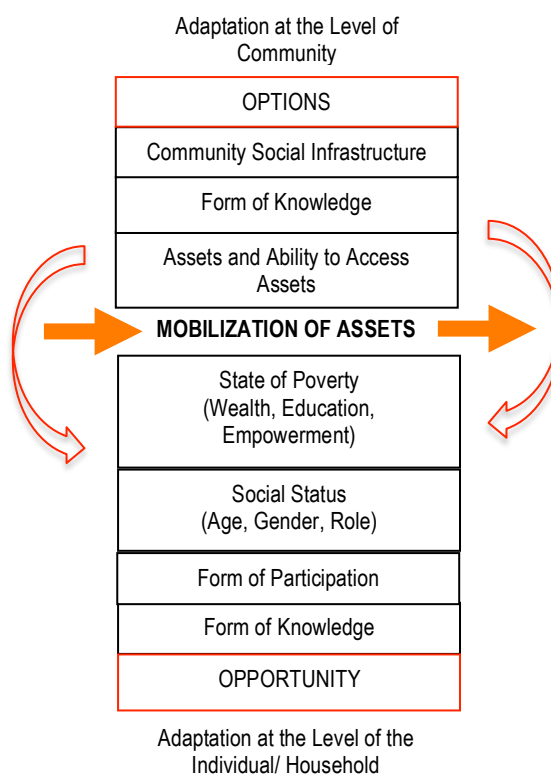


Figure 2 Basic elements of 'options' and 'opportunity' for influencing adaptation efforts.

Who's adapting, who's not

Who's adapting, who's not is not as difficult to answer as one may think. Research conducted in Cambodia was able to draw out several general observations as to if a community is coping with climate change or adapting and building resilience. Seen is that the ability for a rural community to cope with climate change largely depends on the condition and diversity of the natural resource base they live within. If living in a degraded area, sustained access to relief services is needed. Living within a diverse ecosystem, and or having appropriate access to development services, communities cope. Ultimately, it was found that villagers participating well in their development and natural resource management efforts, they are adapting to climatic change and building resilience (Figure 3).

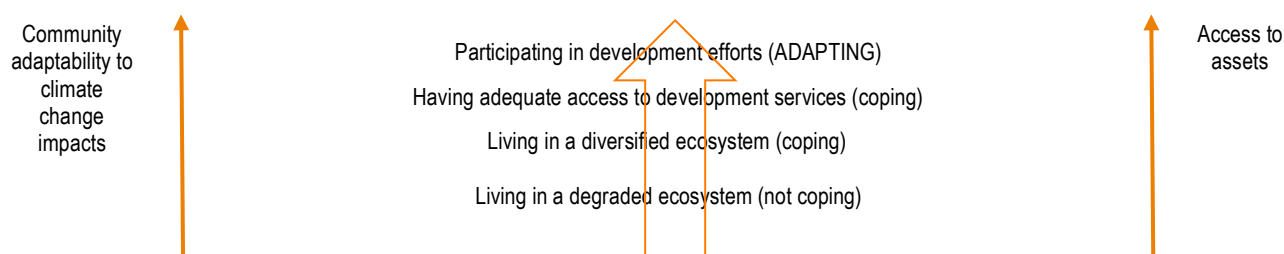


Figure 3 General linkages between community, and the degree and form to which they can access assets, natural and development services, to gain resilience to the impacts of climate change.²⁶

²⁶ AIT-UNEP (2011). Climate Change Adaptation - Factors of choice, effectiveness, and supporting systems. Copyright ©AIT-UNEP RRCAP 2011, Bangkok, Thailand

Adaptation and the development sector

Understanding what is meant by vulnerability in the context of climate change is crucial for developing effective adaptation responses. Vulnerability is generally defined as either a biophysical or social condition, depending on whether climate change is seen as a scientific or a social concern. A related distinction is made between vulnerability as a result of pre-existing political, institutional, economic and social context within which the impacts of climate change are experienced. From a scientific view, focus tends to be on developing technical responses/ adaptations at the sectoral level based on future climate change scenarios, whereas the social approach focuses on building the capacity of social groups and institutions to cope with a range of potential stresses and changes, including but not limited to, climatic changes (see Table 2 for more information).

For many development agencies, climate change takes a social perspective to vulnerability, emphasizing the importance of social and institutional context in shaping the vulnerability of the poor - desegregated into gender, age, culture, education and ethnicity to determine vulnerability. Increasingly, attention is also being given to the role of these social groups to develop effective adaptation responses to climate change, and at the same time trying to realize the Millennium Development Goals (MGDs). This is a key challenge for development agencies given the linkages between climate change, poverty, social marginalization and the MGDs.

Table 2 Climate change implications for the Millennium Development Goals and development agencies.²⁷

Millennium Development Goal	Climate Change Implications for Development Agencies
1 Eradicate extreme poverty and hunger	• Economic security given increase in weather extremes • Diminishing biodiversity and access to natural resources • Diminished crop yields • Reduced fisheries due to coral bleaching and increased calcification of coral • Increasing soil salinity
2 Achieve universal primary education	• Lifestyle demands of increased time seeking food, water and cash income reduces time for education • Increased environmental refugees and ill-health impacts as barriers to attending classes
3 Promote gender equity and empower women	• Impacts on women are already 2/3 of the world's poor • Women's greater reliance on subsistence and natural resources for income
4 Reduce child mortality	• Health impacts on children as they are particularly vulnerable to flood-related, vector-borne and hunger related diseases
5 Improve maternal health	• Health impacts on mothers, particularly given maternal vulnerability to malaria
6 Combat HIV/AIDS, malaria and other diseases	• Malaria and other vector-borne diseases predicted to dramatically increase with extreme weather events, increased flooding and temperature rises • Extension of malaria zones
7 Ensure Environmental Sustainability	• Continued financing of fossil fuel based technology/development at the expense of local communities and the global atmosphere • Increased water shortages as a result of changes in rainfall patterns, greater periods of drought and salt water incursion into fresh water reserves • Sea-level rise for urban dwelling poor, for the vast majority of the world's poor living in flood prone areas (particularly Asia) • Loss of arable land, particularly in coastal areas
8 Develop a global partnership for development	• Dealing with the costs of weather related disasters could affect the Gross Domestic Product, level of indebtedness, state of public finances, and investment in development in poor countries.

Challenges and debates for development agencies

- Development agencies need to raise awareness among partners and make their programmes more resilient to climate change impacts. They also need to advocate for action by others on climate change and adaptation.
- Development NGOs will need to plan their adaptation activities carefully to ensure that they are consistent with poverty reduction policies, plans and programmes of resident countries. This may require a strategic assessment of the role of adaptation in their programmes.

²⁷ <http://www.cana.net.au/socialimpacts/global/millennium-development-goals.html>

- The focus of international negotiations in the UNFCCC on climate change, rather than current climate variability, may not be helpful to development agencies. NGOs may need to engage with the debate so they can emphasize that the separation is not helpful in practical terms on the ground for poor and vulnerable groups.
- Vulnerable groups must work on climate change adaptation from the starting point of current variability. Integrating the impacts of future changes into vulnerability reduction remains a significant challenge at policy and strategic levels, as well as in communities and households.

Is it this, or that?

Exercise SE4.1

Objectives

- ✓ To allow participants to think, discuss, and explain in practical terms, their view on barriers to climate change adaptation.
- ✓ To spark debate on the context of climate change adaptation in development practice.

Facilitation

Step 1

Introduce the exercise process (a focus group discussion) and its purpose. Highlight that getting the discussion right is not the quest of the exercise, i.e. Module 1 sessions are only introductory session to relevant concepts and experiences to be further learned in subsequent modules.

Step 2

Present three (3) statements to the participants to stimulate thinking around key learning areas put forth in the session materials. Inform the participants that the statements are neither correct nor incorrect. They are as follows:

- A concerted effort is needed to increase education and awareness in order to overcome social barriers, address institutional restrictions, and alter restrictive cultural norms and cultural constraints. Initiatives to foster adaptation will ultimately fail if they do not empower and inform individuals who remain confined in their adaptive behavior and have limited access to key resources.
- Planned adaptation interventions need to recognize the obstacles that social barriers present to limiting the success of their interventions.
- Climate change adaptation deals with similar underlying drivers of vulnerability akin to that of disaster risk reduction, sustainable development, and social protection.

Step 3

Begin a three (3) part focus group discussion (FGD) by stimulating conversations with the following questions:

- What challenges may occur when trying to link one development approach (or vulnerability reduction approach) with another?
- Do we develop specific adaptation projects or do we mainstream such into business as usual approaches?
- Do we take a 'climate perspective' or 'development perspective' to lowering vulnerabilities to climate change?

Step 4

Follow the discussion, and write down on chart paper key statement made by the participants. Review these statements to wrap up the session.

Materials

- ✓ Chart paper with the statements given in step 2 written upon it
- ✓ Index card with the FGD questions (for the facilitator only)
- ✓ Char paper, markers, and tape

Time
45 minutes

Module 2

Community Based Climate Change Adaptation and Resilience

2

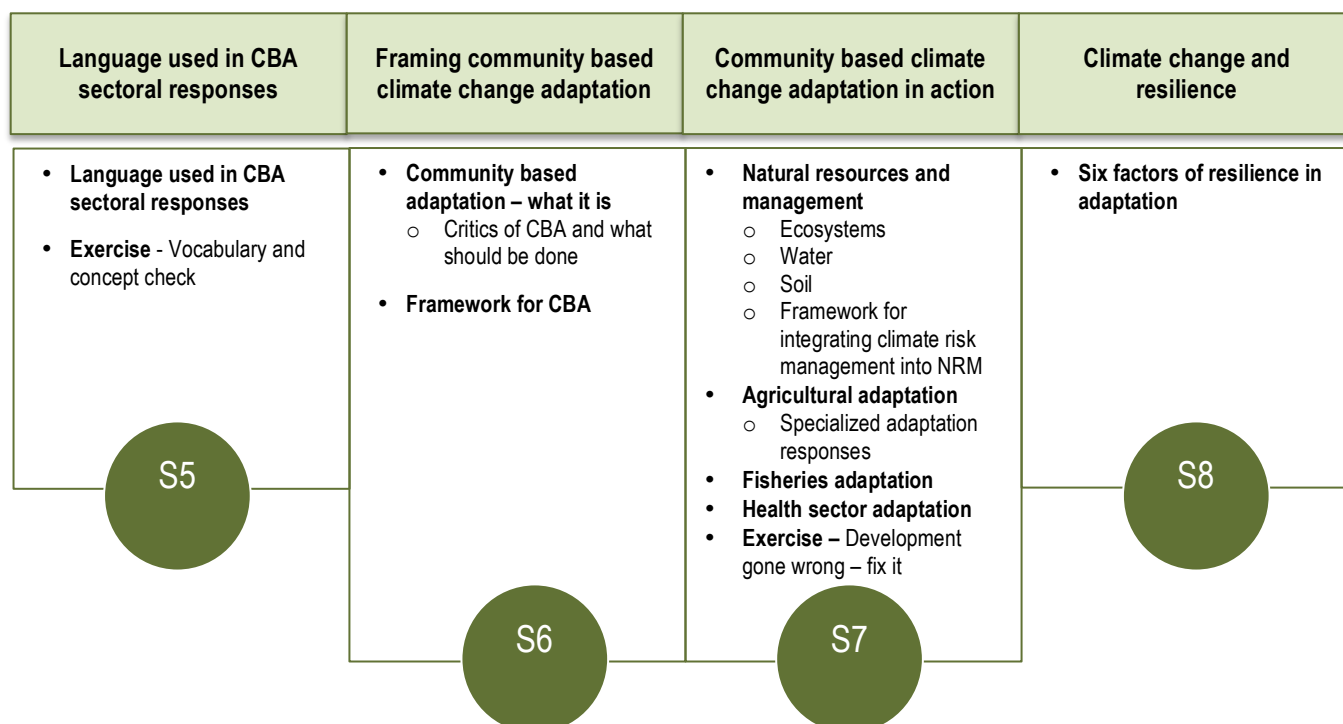
Module Overview

Module 2 is designed to give 'lift-off' to learning about Community Based Adaptation (CBA) to climate change. Covered is a CBA framework, its components, and how these components integrated to create an enabling environment for adaptation. Basics of 'why to adapt' are reviewed, and a wealth of practical, sector-based adaptations are also covered, e.g. natural resource management, agriculture, water, and health sectors. Some very specific and simple adaptations are illustrated and referenced so the 'learner' can access further information at will. The module also gives participants' space to 'jump in' to adaptation planning via applying basic CBA principles covered and their own experience. Also within the module, resilience is connected to, and explained in the context of adaptation strategies.

Objective

- ✓ Gain a solid understanding of what community based adaptation is and how this applies to adaptation planning and implementation efforts in the context of sustainable environmental management and rural development.

Module process



Module resources

4 Learning sessions 6 Handouts 2 Worksheets 2 Participatory exercises

Session 5

Language used in CBA sectoral responses

S5

Objective

- ✓ Understand basic concepts and vocabulary used in community based adaptation response planning.

Facilitation

Step 1

Introduce handout S5.1 through an organized PowerPoint presentation. This would include the objectives of the session, and the process the facilitator will take to deliver the session. Emphasize the importance of all participants having a common understanding of basic 'climate change' language to be used within this modular learning process.

Step 2

Review the vocabulary in groups as indicated, and then follow with a brief discussion related to each 'learning point'. Suggested questions for discussion are:

- LP1: Solutions to sustainable natural resource management (NRM) have been around for a considerable time. Knowing this, would NRM be a valid climate change adaptation response? Why, why not?
- LP2: Can ecosystem services be equated to climate change adaptation assets? Why, why not?
- LP3: Many of the participants may have heard or read some form of climate change assessment. For those of you that have, what did you find useful, or not and why?
- LP4: Ask participants to make a flow diagram of a type of 'knowledge' moving through to a 'systems', then on to a 'structure' and 'policy'. (Note: The learning point gives an example of this)

Step 3

As a review/ check-up process to gauge participant understanding of the reviewed vocabulary, group participants into small groups to conduct exercise SE5.1. Afterwards, conduct a brief review of 'vocabulary' where participants had made common matching mistakes in the exercise.

Comment

- ✓ Emphasize that vocabulary reviewed in Session 5 will be further explained and added to as they move through this module and following modules.

Materials

- ✓ PowerPoint presentation covering selected vocabularies listed in handout S5.1
- ✓ A set of matching index cards (as shown in worksheet SW5.1) for each participant group (recommended groups size is five participants)

Time

**60 – 90
minutes**

ECOSYSTEMS and HABITATS

An ecosystem is a community of living organisms (plants, animals and microbes) in combination with nonliving components, e.g. air, water, and soil, interacting as a system. These living and nonliving components are linked together through nutrient cycles and energy flows. As ecosystems are defined by the network of interactions among organisms, and between organisms and their environment they can come in any size but usually encompass specific, limited spaces, e.g. a combination of forests, lakes, grasslands, and rivers, or separate, i.e. habitats. In simple terms, combined habitats make up an ecosystem.

PROTECTION and CONSERVATION

Environmental protection is a practice of protecting the environment, on individual, organizational or governmental levels for the benefit of the natural environment and (or) humans. In most cases this means to protect an ecosystem to enable it to function on its own. Conservation carries a similar meaning, but it also means to use the environment in a sustainable way. The difference meaning that conservation approaches tend to alter the state of the natural environment to benefit humans, where as protection most often means trying to keep the natural environment in its natural state.



HABITAT RESTORATION

Restoration is broadly defined as the act, process, or result of returning a degraded or converted habitat to a healthy, self-sustaining condition that resembles as closely as possible its pre-disturbed state. Examples of restoration include reforestation of a degraded forest with its natural composition of tree, grass and shrub species. This differs from reforestation, which in practice means creating a multi-species forest plantation at best. Other examples of restoration work include removing material from a filled wetland, re-establishing natural river flow, cleaning up contaminated habitats, to managing invasive species. Habitat restoration efforts employ many types of restoration activities and focus on improving the health of whole ecosystems.

Learning Point

Ecosystems and their habitats hold the supporting elements to human well-being. When they are altered or disturbed from their natural state, they stop functioning. In many cases, the mismanagement of these natural systems and their resources is why the rural poor are so vulnerable to climate change. Protection, conservation, and restoration of these areas are key to ensuring that the rural poor have the needed assets to cope and adapt to climate change. Overall, the tools to restore and manage the natural environment are available; the block to progress seems to be with the differing interests of those who have a stake in their existence, how they should be used, and who should benefit.

A large green arrow pointing upwards with the number 1 inside.

ECOSYSTEM SERVICES – SUPPORTING

Supporting Services: These services are necessary for the production of all other ecosystem services. For example, the production of biomass (photosynthesis), soil formation, decomposition, nutrient and water cycling.

ECOSYSTEM SERVICES – PROVIDING

Providing Services: The products obtained from ecosystems, including food, fiber, fuel, genetic resources, bio-chemicals, natural medicines, pharmaceuticals, ornamental resources and fresh water.

ECOSYSTEM SERVICES – REGULATING

Regulating Services: The benefits obtained from the regulation of ecosystem processes, including air quality regulation, climate regulation, water storage and flow regulation, erosion regulation, water purification, disease regulation, pest regulation, pollination, to natural hazard regulation.

ECOSYSTEM SERVICES – CULTURAL

Cultural services: The non-material benefits people obtain from ecosystems through spiritual enrichment, cognitive development, reflection, recreation and aesthetic experiences – thereby taking account of landscape values.

Learning Point

Humankind benefits from a multitude of resources and processes that are supplied by ecosystems. Collectively, these benefits are known as ecosystem services. Ecosystem services range from the obvious, e.g. crops, fish, fresh water, to those that are harder to see, e.g. erosion regulation, carbon sequestration, decomposition, and pest control. The concept of ecosystem services has been developed to aid our understanding of the human use and management of natural resources.

2



Climate risk means a risk resulting from climate change and affecting natural and human systems and regions. Founded by the United Nations Environment Programme (UNEP) and the World Meteorological Organization (WMO), the Intergovernmental Panel on Climate Change's (IPCC) main aim is to evaluate climate risks and explore strategies for the prevention of these risks.

CLIMATE RISK

CLIMATE RISK ASSESSMENT

A climate risk assessment is a methodology to determine the nature and extent of risk by analyzing potential climate related threats and evaluating existing conditions of vulnerability that could pose a potential threat to property, livelihoods and the environment on which people depend. The assessment evaluates the likelihood and consequence of climate related impacts on a variety of sectors. The assessment also provides policymakers with guidance based on a quantitative analysis of the level of risk associated with changing climate conditions.

CLIMATE VULNERABILITY CAPACITY ANALYSIS

A Climate Vulnerability and Capacity Analysis (CVCA) is a methodology employed to help understand the implications of climate change on ecosystems and the lives and livelihoods of people who depend upon them. The process combines local knowledge with scientific data to build people's understanding about climate risks, vulnerabilities, capacities and possible adaptation strategies. It provides a framework for dialogue within communities, as well as between communities and other stakeholders. The results provide a solid foundation for the identification of practical strategies to facilitate community based adaptation to climate change.

Learning Point

Climate change presents many problems to both humankind and the natural existence of its ecosystems. To know what should be done to address these problems requires an in depth understanding of the risks climate change presents to human interest. This understanding is developed from a climate risk assessment processes, wherein human interests and well-being are considered from many views, e.g. livelihoods, food security, and human safety etc., and where priorities for action are decided upon. The CVCA process also creates a knowledge base, and takes steps to build awareness amongst stakeholders around the problems they face, the capacities they have (and those they will need) to solve their problems through the creation of an enabling environment for adaptation and resilience building.

3

KNOWLEDGE

Knowledge is understood as a familiarity with someone or something, which can include facts, information, or skills acquired through experience or education. It can refer to theoretical knowledge or a practical understanding of a subject.

SYSTEMS

A system, often referred to as a process, is a set of interacting or interdependent components forming an integrated whole. Some systems share common characteristics, including 1) a structure or framework, 2) a set of processes to transform inputs into outputs, and 3) interconnectivity of its components. For example, the community based adaptation framework has four (4) components working together to form an enabling environment for adaptation and resilience building. The term 'system' may also refer to a set of rules and policies that governs behavior in the context of social systems.



STRUCTURES

Structures can be tangible, like a dam or water reserve (also referred to as infrastructure), or intangible like a Ministry or local governance setups, i.e. they can not be physically touched or held in your hand. What is important about 'structures' is that they are recognized, they can be observed, and they often have permanence. For the purpose of this module, structures are to be seen as attributes of government, community and or society.

POLICIES

Policies are a set of principles that guide decisions and achieve rational outcomes. They are sometimes thought of as rules or laws. Important to note is that they are statements of intent and are implemented as a procedure or protocol. For example the Kyoto Protocol. In the context of this module, of concern are the implementation processes of policies, e.g. how they support climate change adaptation, how they ensure the sharing of benefits, use, and equitable governance over key climate change adaptation and resilience building resources, e.g. human, financial, physical, natural, and social assets.

Learning Point

When knowledge is gained or created, to take better advantage of this, it is often put into a system to share, expand, and make better use of for the greater good. To bring efficiency and consistency to this, structures are created. Yet, this does not ensure that all will have access to the given 'knowledge', nor will it be used in the way it was intended. This requires policies blended into a governance system. The aforementioned is a simplified example of how knowledge, systems, structures, and policies are purposefully linked. The same is required of community based adaptation and resilience building efforts.

4

Recommended reading

- ✓ Colls, N. Ash, and N. Ikkala (2009). *Ecosystem-based Adaptation: a natural response to climate change*. Gland, Switzerland: IUCN. 16pp.
- ✓ FES 2008. A source book for ecological restoration. <http://www.fes.org.in/source-book/ecological-restoration-source-book.pdf>

Exercise

SE5.1

Vocabulary and concept check

Objectives

- ✓ To review/ check on participant understanding of the covered concepts and vocabulary in Session 5.
- ✓ Provide an evaluation process to gauge participant learning.

Facilitation

Step 1

Introduce the given exercise and process, and again emphasize the importance of all participants having a common understanding of language used in community based sectoral responses to climate change adaptation.

Step 2

Divide participants into groups of 4 or 5; give each group an exercise sheet and have the indicated squares cut into individual pieces (squares are not in any specific order). Allow 15 minutes.

Step 3

Ask participants to match the 'vocabulary' reviewed in Session 5 with a corresponding statement. At this time the facilitator/ trainer should review group work as it progresses to ensure that participants have a clear understanding of the 'vocabulary' and concepts. Clarify when needed but do not give the answers. Keep in mind where participants are having common misunderstandings.

Step 4

After the given time (15 minutes), the facilitator/ trainer should ask participants to STOP, and display the answers to the exercise; ask groups for their scores (optional). After, review 'vocabulary' and or concepts that have presented a common challenged to participants, i.e. most common mistakes.

Materials

- ✓ Worksheet SW5.1 – 1 for each group (4 to 5 participants)
- ✓ Scissors – 1 pair for each group

Time
15 – 20
minutes

Exercise Answers:

1&23, 2&5, 3&17, 4&13, 6&22, 7&25, 8&16, 9&21, 10&15, 11&26, 12&18, 14&20, 19&24, 27&28

Worksheet

SW5.1

Protection and Conservation	We have an idea of what to do, but we need to know what capacities the local stakeholders have to help out	
Each year it take more and more inputs to grow my vegetables, the soil is no longer fertile	Ecosystem Services - Regulating	
Climate Vulnerability Capacity Analysis	Policies	There is a need to replant the mangrove forest, but let's do it in a way that supports fishers and the environment
It is best that farmers teach each other, to advance their learning about adaptation	Ecosystems and Habitats	Knowledge
Climate Risk Assessment	Before we start to organize people to implement the CBA project, we will need to formalize the group	Since people have been farming on the hill slopes, the village streams have been drying up
My village has always identified itself with its natural surroundings	NGOs have been giving technical training to farmers; their farming practices are improving now	Systems
Ecosystem Services - Supporting	Structures	Timber, water, and food
Ecosystem Services - Cultural	Trees don't make a forest and water does not make a river	The Ministry changed land use patterns as an adaptation strategy, yet this has upset some stakeholders
Let's not to allow any extraction activities in our forests, and regulate our fishing activities better	Ecosystem Services - Providing	Habitat Restoration
We need extensive information on how the agricultural sector could be impacted before we start making decisions	Climate Risk	The IPCC has been informing countries on future climate change impacts and sharing ideas on how to prevent these

Objectives

- ✓ Understand the concept of 'community based' and 'community' within a community based adaptation (CBA) framework.
- ✓ Be introduced to the four (4) interlocking components of a CBA framework that together create an enabling environment for climate change adaptation and resilience building to occur.

Facilitation

Step 1

Introduce handout S6.1 through an organized PowerPoint presentation. This would include the objective of the session, and the key topics to be covered, and the process the facilitator will take to deliver the session.

Step 2

Begin the session by making very clear as to how community based should be thought of, and the meaning of 'community' in community based adaptation (CBA). Figure 1 (handout S6.1) can be a useful visual aid to this process. A 'Learning Point' is given. After presenting this, conduct a short discussion with participants. Use the following question/s to spur thinking:

- What are the various definitions of 'community'? This can be according to your own perceptions.
- Noting your definition, what would be the consequence of such to a community based project?

Step 3

Present the simplified CBA framework. It should be made very clear to all participants that CBA focuses on a climate related 'hazardous condition' and the lowering of peoples' vulnerability to this condition through CBA interventions. Use Figure 2 (handout S6.1) as a visual aid to underline the aforementioned. Follow with a brief presentation of the CBA component features listed.

Comment

- ✓ Participants should understand that Session 6 is formal introduction to community based adaptation (CBA). In subsequent modules, CBA, its components and how they create an enabling environment for adaptation and resilience building will be built upon.

Materials

- ✓ PowerPoint presentation covering Handouts S6.1

Time

**30 – 45
minutes**

Community Based Adaptation (CBA)

– what it is

The term community-based has a wide range of meanings. As a consensus for this module, community based refers to actions that have strong ties to a community by virtue of the community's participation in the action. With adaptation referring to responses by individuals, groups and governments to actual or expected changes, community based adaptation now takes on the meaning of 'actions' that aim to reduce vulnerability to negative impacts of climate change at local levels in response to hazardous conditions. In some cases, responses are aimed to realize opportunities linked with climate change.

Community based climate change adaptation (CBA) can be as simple as switching from one crop variety to another, or diversifying a farmer's livelihood. And CBA can be as complex as diversifying livelihood patterns against climate risks on a regional scale, or the incorporation of institutional reforms to create incentives for better localized natural resource management. The aforementioned should give the impression that CBA actions are not isolated to the local level/ the community. To get it right, community based adaptation should be thought of as 'actions' that 1) place adaptation technologies and practices in the community – the setting, 2) targets the community, 3) uses the community as a key resource for adaptation, and 4) builds the capacity of the community to be agents of change (Figure 1).



Figure 1 Context of 'community' in community based adaptation (CBA).

Critics of CBA and what should be done

Critics of community based actions say 'community based' projects and programs are centralized, driven by an external agency, isolated to functional participation²⁸, and that, which puts technology first. In many cases this is true given the nature of what villagers have to adapt to and the nature of capacities they have. Adaptation is costly and does require old and new knowledge to come together. It also requires an enabling environment. How can these happen in rural poor areas without external assistance? Perhaps the critics of CBA have the wrong definition of what 'community' means. In the simplest context, 'community' in CBA constitutes a collection of people, and a collection of contexts within a specific location. For people, most are local villagers, some may be representatives of civil society organizations, and others may be government representatives. For 'context', this would include the natural environment, to local policies and culture. Hence, 'Community' in CBA is a multi-stakeholder, multi dimensional context.

CBA, like sustainable development, does not happen in a box. In practical terms, adaptation should be community driven, but strategically aligned with country programme strategies on climate change adaptation to gain support. CBA should also integrate livelihoods and natural resource management perspectives, i.e. taking care of the natural resource base, while enhancing the resilience of natural resource based livelihoods, and contributing to global environmental benefits. CBA should also leverage lessons learned from community actions to inform national policy dialogues.

Learning Point

Good community based adaptation practices deal with location specific hazards, and a community's contextual situation through location specific processes. This places the context of adaptation within the setting of the community and the community as the key target for intervention. External agents are to be seen as facilitators and supporters of a locally driven process; co-learning about climate risks, options, and conditions needed to enable adaptation. The 'community' as agents of change and as people accountable for localized development, are to become a practical resource to drive and implement adaptation, revising their choices with new learning.

²⁸ **Functional Participation:** Various stakeholders participate by forming groups to meet pre-determined objectives of a program driven by external stakeholders. Such involvement does not tend to be at the planning stage but after major decisions have been made.

Framework for CBA

The Community-Based Adaptation (CBA) framework is centered on addressing different points of vulnerability. The framework incorporates four inter-related components that together make up an enabling environment for adaptation (Figure 2). Important to note is that the CBA approach recognizes the complexities and interdependencies of any adaption intervention and thus promotes the integration of all its components.

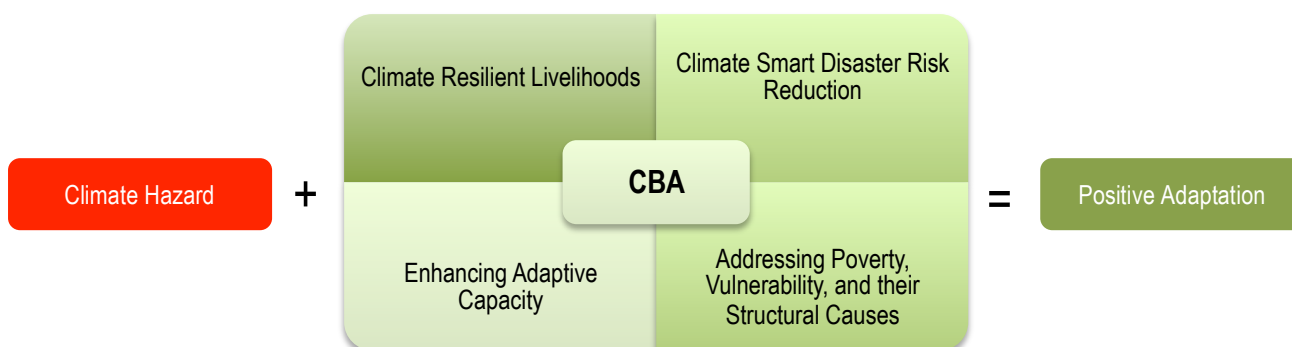


Figure 2 Community based adaptation (CBA) framework indicating process, key components, and outcome.²⁹

CBA component features

1 Climate resilient livelihoods

In rural poor communities, livelihoods are based on the resources available to the community, e.g. human, social, physical, natural and financial resources. Understanding people's existing livelihood strategies, and addressing their limitations is key to mitigating current and future climate change impacts. Actions taken in this area take into consideration that different people within the community are impacted by climate change differently. Often this is based on their roles and responsibilities within the family and their community, and the degree of access they have to resources.

2 Climate smart disaster risk reduction

Climate change adaptation is focused directly at a climate induced related hazard. These hazards include changing conditions such as temperatures and rainfall patterns, as well as hazard events such as droughts and floods that represent disaster risks. However, in a human system, risks can come from many places, e.g. within a livelihood and or socio-political system. These risks often increase the level of climate change impact on communities.

3 Enhancing adaptive capacity

An individual, community, or systems ability to cope with or adapt to hazardous conditions depends greatly on existing capacities and those built through a CBA process. How people are currently managing climate hazards is a key indicator of their capacity to adapt to future climate change. In most cases, autonomous adaptation (coping strategies) result in maladaptation (negative consequences) and planned adaptation strategies are unsupported. Thus, local capacity development plays a key role in harnessing existing capacities, and building on these in a way that promotes effective planning and implementation of adaptation strategies. Institutions and networks must learn to use knowledge and experience, and create flexibility in problem solving to make this happen, i.e. by promoting diversity, creating flexible and effective local institutions, and by not accepting business as usual scenarios.

4 Addressing poverty, vulnerability, and their structural causes

Socio-economic and political issues have an influence on people's vulnerability to climate change. In many ways, this is where CBA overlaps with the principles of sustainable development. For communities, climate change impacts are seen as losses in personal well-being, losses in physical assets, and losses to their economic security. However, these losses are often a result of poor land use and management patterns, poor development patterns, and powerful expressions of interest and influence. If unaddressed, CBA fails to meet expectations.

²⁹ Understanding Vulnerability to Climate Change: Insights from Application of CARE's Climate Vulnerability and Capacity Analysis (CVCA) Methodology. ©CARE International Poverty, Environment and Climate Change Network (PECCN), 2011. Used with permission.

Objective

- ✓ Build awareness on sectoral climate change impacts and CBA adaptation measures to respond to climate related hazardous conditions.

Facilitation

Step 1

Introduce handouts S7.1, S7.2 and S7.3 through an organized PowerPoint presentation. This would include the objective of the session and the process the facilitator will take to deliver the session. Suggested is to present the impact/ hazard context first, followed by a review of adaptation options given in each handout.

Step 2

Handout S7.1 focuses on natural resource management (NRM). Stress in the presentation that NRM initiatives center on maintaining ecosystem services. Use Figure 1 to connect the aforementioned to the well-being/ resilience of communities, e.g. importance of supporting, regulating, provisional and cultural services to community life. Information given under 'Ecosystems' should be presented in short form. The main understanding to transfer is that NRM and Ecosystem-based Adaptation (EbA) approaches are akin to sustainable environmental management approaches, and that the conservation and restoration of ecosystems is very important to the adaptation needs of the poor.

Step 3

Review adaptation examples under 'water' and 'soil', and connect these back to specific elements noted under EbA options and principles. As an option, participants can be challenged to make specific connections.

Step 4

Handout S7.2 covers CBA responses in the agriculture and fisheries sector. As with handout S7.1, present the context of climate change impacts and hazards, then specific adaptation responses. Important to stress along side adaptation responses is that in many cases there are biological limitations to adaptation.

Step 5

Handout S7.3 covers adaptation responses in the health sector. As with previous handouts, present the context of climate change impacts and hazards first. Figure 2 (handout S7.2) is most helpful in this regard. Stress that adaptation in the formal health sector centers on surveillance and reacting to immediate needs. Present the remaining information in the handout. End the sub-session by asking participants if they can share any related experiences to the 'common adaptation responses' noted.

Step 6

Conduct exercise SE7.1 as noted in the guide sheet.

Comment

- ✓ An in depth review of Figure 2 (handout S7.1) is optional. What can be learned from the framework are the areas for investigation, and areas where multi-level stakeholder cooperation is needed to plan responsive adaptation measures.

Materials

- ✓ PowerPoint presentation covering Handouts S7.1, S7.2 and S7.3.
- ✓ Chart paper, markers and tap, including other materials noted under exercise SE7.1

Time

3.0 hours

Natural resources and management

Recent rapid changes in climate have altered ecological systems around the globe. Projected future climate changes will result in even more dramatic shifts in the condition of many ecosystems. Managing natural resources and ecosystems in the face of uncertain climate does require new approaches, yet most will still remain true to general principles many natural resource managers are already using. What is new is a turning toward a more flexible management perspective and the scaling down of interventions, e.g. more localized. To address climate change, natural resource managers will need to act over different geographic and time scales. Focus on ecosystem restoration will need to shift from historic ecosystem compositions to new ones to safeguarded key ecosystem services. To successfully manage for climate change, a better understanding will be needed of which species and ecosystems will likely be most affected by climate change, how to implement effective adaptive management in these 'new' systems, and perhaps most importantly, in which situations adaptation strategies can be applied to work effectively. This starts with understanding the importance of ecosystems to communities (Figure 1) as a way to identify and prioritize adaptive management interventions.

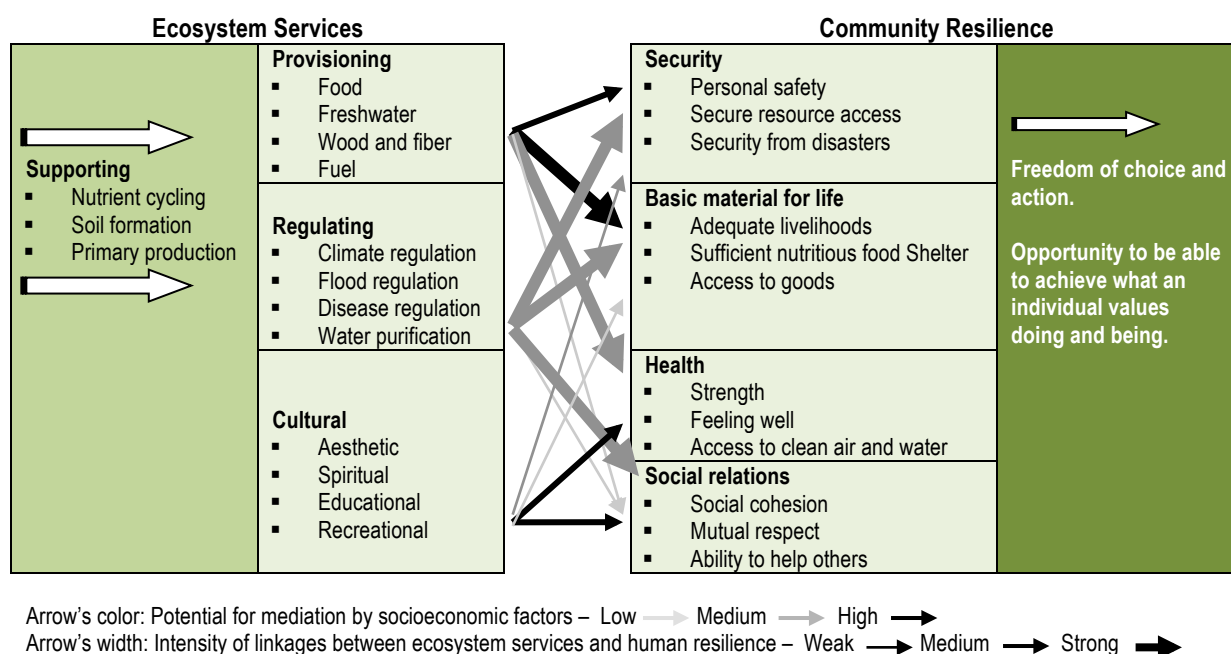


Figure 1 Relationships between ecosystem services and constituents of community resilience (adopted from The Millennium Ecosystem Assessment (MA) framework, MEA, 2005).³⁰

It is important to reflect on why ecosystems are necessary for sustainable living. Facilitating this need, Figure 1 outlines a conceptual framework that describes the interconnections between the services derived from ecosystems that are important to sustain the rural poor, and how these services relate to elements of rural resilience under any conditions. In this regard, there are several 'general adaptation strategies' that aim to address climate change impacts on ecosystems:

- Increasing the connectivity between ecosystem components either through protection and or rehabilitation.
- Continue to remove additional threats to ecosystem well-being, e.g. illegal logging, poaching, human encroachment.
- In extreme cases, the translocation of species to more favorable habitats.

³⁰ Millennium Ecosystem Assessment (2005). Ecosystems and Well-being Synthesis report. Washington DC: Island Press. v+86 pp.

Ecosystems

Ecosystem-based Adaptation (EbA) is an approach to climate change that integrates biodiversity and ecosystem services into an overall strategy, i.e. sustainable management and the conservation and restoration of ecosystems in order to provide services that help people to adapt. As an approach, technological solutions are combined with community based natural resource management practices either to maintain and or re-establish ecosystem health. Healthy ecosystems can provide drinking water, habitat, shelter, food, raw materials, a barrier against natural hazards, a source of natural resources, and many other services on which people depend for their livelihoods. As natural buffers, ecosystems are also often cheaper to maintain and more effective than physical engineering structures such as dykes or concrete walls.

Options for ecosystem based adaptation (EbA)³¹

- Sustainable water management, where river basins, aquifers, flood plains, and their associated vegetation are managed in a way that provides for water storage and flood regulation.
- Disaster risk reduction (DRR) where the restoration of coastal habitats, such as mangroves, can be a particularly effective measure against storm surges, saline intrusion, and coastal erosion.
- Sustainable management of grasslands and rangelands to enhance pastoral livelihoods and increase resilience to drought and flooding.
- Establishment of diverse agricultural systems, where using indigenous knowledge of specific crop and livestock varieties, maintaining crop and livestock diversity, and conserving diverse agricultural landscapes can help to secure food provision in changing local climatic conditions.
- Strategic management of shrub lands and forests to limit the frequency and size of uncontrolled forest fires.
- Establishment and effective management of protected area systems to ensure the continued delivery of ecosystem services that increase resilience to climate change.

EbA guiding principles³²

- Involving local communities: Community participation in EbA is an important element to success. EbA measures are more successful when the local population participates in planning, implementation and monitoring processes.
- Multi-partner strategy development: EbA presents a tangible opportunity to solve climate change problems by aligning conservation, development, and poverty alleviation interests.
- Building upon existing good practices in NRM: The most effective EbA strategies apply established best practices in land, water, and natural resource management to confront new challenges posed by climate change.
- Adopting adaptive management approaches: EbA strategies should support adaptive management options that facilitate and accelerate learning about appropriate adaptation options for the future. Climate impacts and EbA measures should be monitored carefully so that management actions can be adjusted in response to changing conditions.
- Integrating EbA with wider adaptation strategies: Successful adaptation depends upon integrating EbA initiatives with other risk management components such as early warning systems, awareness raising, and, in some cases, with physical infrastructural interventions.
- Communicating and educating: Successful EbA initiatives depend on knowledge transfer, capacity-building, the integration of science and local knowledge, raising awareness about climate change impacts, and the benefits of sound ecosystem management.

³¹ Sterrett, C., 2011. Review of Climate Change Adaptation Practices in South Asia, Oxfam Research Report, November 2011. Climate Concern, Melbourne, Australia.

³² Sterrett, C., 2011. Review of Climate Change Adaptation Practices in South Asia, Oxfam Research Report, November 2011. Climate Concern, Melbourne, Australia.

Local natural resource rehabilitation and protection initiatives



Mangrove reforestation to stabilize coastal shorelines



Vegetative planting and maintenance around small-scale natural irrigation canals



Hillside reforestation for slope stabilization



Community engagement in forest fire line construction



Natural stream rehabilitation with trees, shrubs, grasses and stabilized rock beds for water flow regulation – before and after photos



Water

Water is crucial for national economic development, e.g. for energy through hydropower, agricultural development, and industrial needs. As important, 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. At the community level, the aforementioned aligns with 1) economic availability of water, and 2) the physical availability of water.

Improved and more efficient management and use of water resources can help reduce vulnerability to climate change impacts. Some available adaptation measures are listed below:

Policy and Structural	• Development of regulations and technologies for direct control of land and water use • Improvements in water management operations and institutions
Ecological	• Enhanced protection and or rehabilitation of water sources, e.g. protection/ restoration of waterside vegetation and river channels, watershed management including reforestation, slope stabilization, reductions in water pollution, and enhance local management capacities. • Flood management – build reservoirs and dikes • Protect and restore wetlands • Curb flood plane development
Behavioral	• Increased awareness, knowledge, and monitoring of local water use patterns • Economic incentives to change user behavior
Infrastructure	• Development of new water sources (water harvesting and storage)

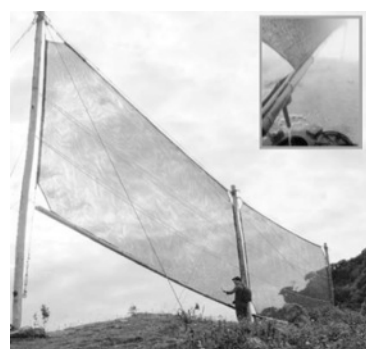
Local water retention and harvesting initiatives



Contour trenching – water, moisture and soil conservation



Differentiated water, moisture, and soil conservation



Rain and fog water harvesting



Local rainwater harvesting



Community dike and reservoir – water flow is regulated by a local water user committee



Localized water storage ponds – some for livestock, others for domestic water use

Soil

Poor soil health is often a limiting factor for crop production and increases the potential for soil runoff, erosion and drought like conditions. These problems are anticipated to become more severe with climate change.

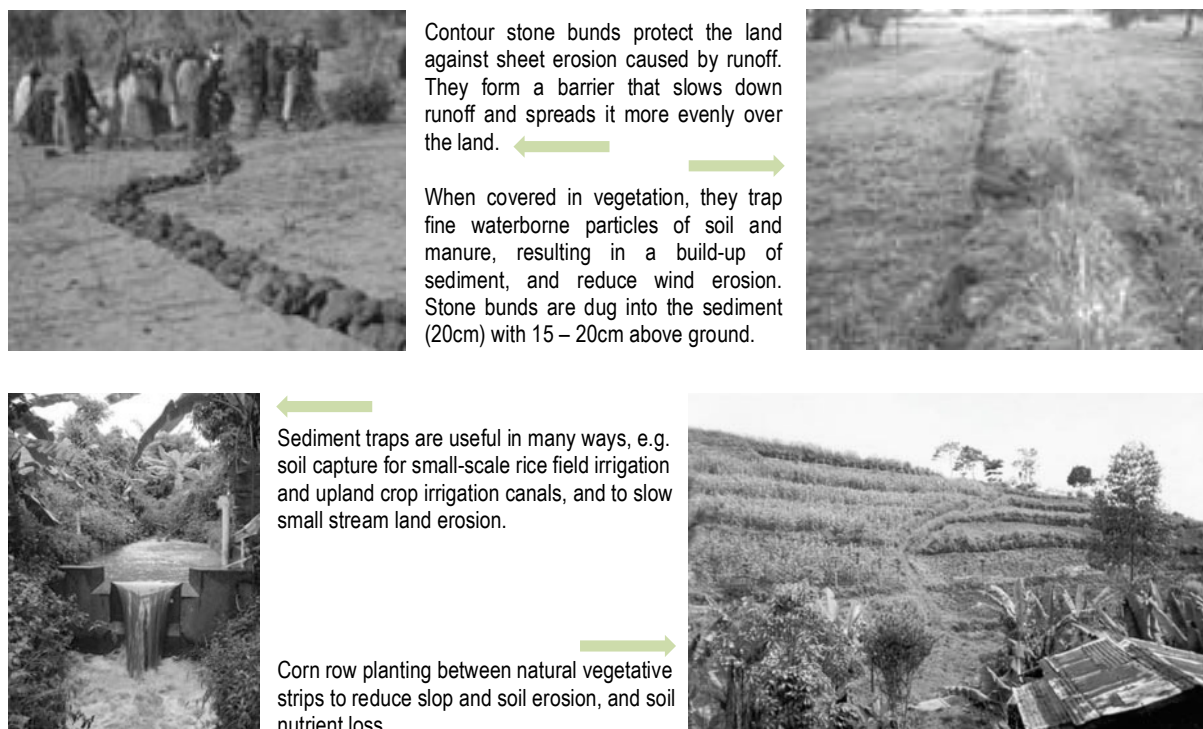
Intensive production of field crops and animal grazing habits in Southeast Asia frequently result in soil degradation through loss of organic matter and erosion. With lower productivity, farmers often increase production inputs to compensate, e.g. addition of chemical fertilizers. The overall gain in production, if any, does not justify cost inputs and often further degrades the soil, and causes greater environmental impacts as a result. Degraded soils are less resilient to the effects of climate change, especially during periods of excess rainfall or no rainfall. With a changing climate, expected are greater occurrences of extreme weather events. For example, excess rainfall brings a higher potential for runoff, erosion, water logging, nitrogen leaching, pesticide runoff, compaction damage, and disease pressure. Conversely, higher temperatures and more severe droughts will cause greater drought stress, plant root restriction, and yield losses. Better soil health management can thus make the soil and crop system more resilient and mitigate these climate change effects. Following are some basic examples of soil management adaptation fitting for communities. Their main purpose is to retain soil and soil nutrients.



← Permeable rock dike to mitigate soil erosion from heavy rainfall by slowing surface water flows. As tree and grass cover developed along the dikes, this will contribute to lowering soil temperature and reducing wind erosion along the entire length of the structure.

Grass strips reduce the harmful effects of heavy rain and violent downpours; they also improve rainwater harvesting and water retention in the soil. →





Framework for integrating climate risk management into NRM³³

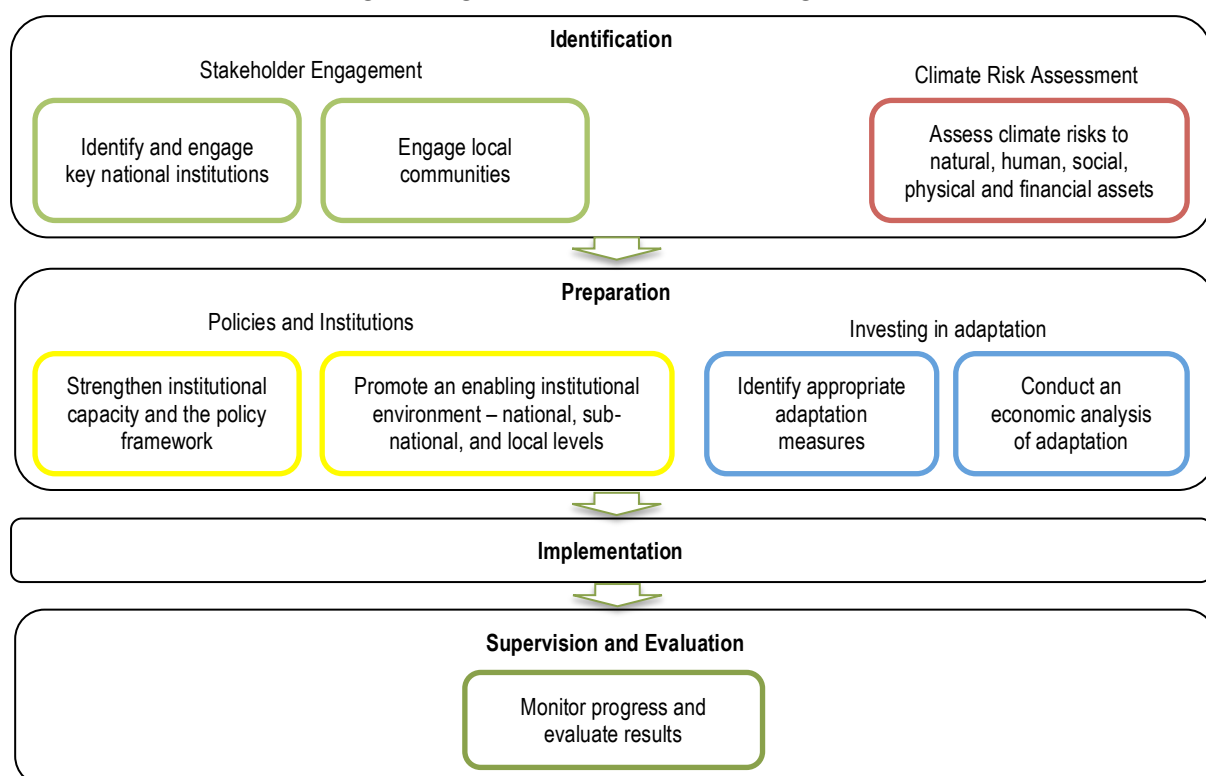


Figure 2 World Bank framework for the integration of climate risk management into natural resource management.

³³ Adopted from the World Bank - <http://climatechange.worldbank.org/content/mainstreaming-adaptation-climate-change-agriculture-and-natural-resources-management-project>

Agriculture and fisheries are highly dependent on specific climate conditions. Thus, trying to understand the overall effect of climate change on food supplies can be difficult. Increases in temperature and carbon dioxide (CO₂) can be beneficial for some crops in some places, and not for others. Technologies can be adjusted, but nutrient levels, soil moisture, water availability, and other conditions must also be met. Changes in the frequency and severity of droughts and floods could also pose challenges for farmers, and warmer water temperatures are likely to cause the habitat ranges of many fish and shellfish species to shift, and potentially disrupt ecosystems. Overall, climate change could make it more difficult to grow crops, raise animals, and catch fish in the same ways and same places as done in the past. The effects of climate change also need to be considered along with other evolving factors that affect agricultural production, such as changes in farming practices and technology.

Agriculture adaptation

On broader scales, planned adaptation measures in the agriculture sector are conscious policy options or response strategies aimed at altering the agricultural system. For example, deliberate crop selection and distribution strategies across different biophysical geographic zones, to the substitution of new crops for old ones. Such adaptations include changes in land-use to maximize yields under new conditions; application of new technologies; new land management techniques; and water-use efficiency related techniques on large scales. However, large-scale adaptations can also be effective for small-farm holders. Jointly, adaptations can be grouped into major classes (also see Table 1 for an outline of localized CBA strategies):

- Seasonal changes and sowing dates
- Selection of different varieties or species
- Water supply and irrigation systems
- Forest fire management, promotion of agroforestry, adaptive management with suitable species, and silvicultural practices
- Other inputs such as changes to fertilizer and tillage methods

Table 1 Overview of CBA strategies for small-scale farm holders in Southeast Asia.

Hazard and Climate Change Scenarios	Strategy	Adaptation Options
Seasonal variability, weather and heat intensities	Use different crops, different farming methods	• New crop varieties and farming methods
Increase storm intensity, decreases and increases in annual rainfall and variability, increases in wind intensities, and increases in water/ moisture evaporation	Change land topography to improve water uptake and reduce wind erosion.	• Sub-divide large fields • Maintain grasses around water-ways • Roughen the land surface to increase water absorption • Build windbreaks to reduce wind erosion • Build up soil organic matter (compost additions, employ grazing management)
Decreases in annual rainfall, increases in wind intensities, increases in water/ moisture evaporation	Improve water use and availability, and control erosion.	• Line canals with plastic films • Where possible, use brackish water • Concentrate irrigation in periods of peak growth • Use drip irrigation or other water saving technologies
Decreases in annual rainfall and increases in rainfall storm intensities	Change framing practices to conserve soil moisture and nutrients, reduce run-off, and control soil erosion.	• Blend in mulch stubble and straw into soils • Practice crop rotation and avoid mono-cropping • Use lower planting densities
Variable seasonality	Change the timing of farm operations.	• Advanced planting dates to offset moisture stress during warm periods

Specialized adaptation experiences

HAZARD: Continuous and seasonal flooding

Floating agriculture

- Floating gardens provide a substrate to grow vegetables on during prolong flooding periods
- Rafts are made of hyacinth inter-laid with bamboo, compost and dirt as a top layer
- and or Nutrients gained from flood waters and hyacinth organic matter
- Typical beds can be 1.5m x 15m x 3/4m high
- After the harvest, farmers preserve the stubble for the preparation of subsequent beds



Download more information at: <http://practicalaction.org/floating-gardens>

HAZARD: Saltwater intrusion in soils, and drought conditions

Auto pot system

- High value fruits and vegetables grow in an automated pots system
- Water and nutrients are managed for efficiency
- Electrical supply not critical - gravity or tap fed
- Simple and reliable technology



Download more information at: <http://www.autopot.com.my/Projects.htm>

HAZARD: Decreased rainfall, increased heat and water evaporation, degraded soils

Trenching and plastic tarps

- Trenching with straw cover improves soil water retention, whereas the use of plastic cover greatly reduces water evaporation
- Underneath the plastic tarps farmer use a course compost mixture of straw and manure, providing organic nutrients but also keeping soil temperatures within growing limits



HAZARD: Decreased rainfall, increased storm activity, soil erosion and degradation, heat extremes, and invasive pests

Climate Smart Intensive Gardening (CSIG)

- Process of growing vegetables under variable climate conditions
- Physical structures to adapt to extremes. Netting shades and cools soils, and protects plants for storm damage. Bamboo frames ensure soil stays in place during intense raining periods
- Soil preparation process improves below ground water storage, greatly reduces time between cropping and space needed vs. standard growing technologies
- Versatile technology for larger growing plant species



For more information: Contact sofedev@gmail.com



HAZARD: Decreased rainfall to drought like conditions

Drip irrigation

- Slow and regular application of water directly to the root zone of plants through a network of small plastic pipes and low discharge emitters
- Regular application of water and nutrients improves product quality and increases yield
- Water savings at 50% compared to traditional irrigation methods. This means a farmer can irrigate more crop area per unit of water used
- A number of different crops can be irrigated, e.g. vegetable crops, fruit crops, commercial cash crops, flowers, etc.



Download more information at: http://www.ideorg.org/ourtechnologies/ideal_drip_technical_manual.pdf

Fisheries adaptation

Changes in global temperatures and seasons could affect the timing of reproduction and migration for many fish species, i.e. many marine species have certain temperature ranges at which they can survive. Yes, fish can move into new, more suitable areas, but this puts them into competition with other species over food and other resources in ways that can impact the function of the ecosystem. It is also known that some aquatic diseases become more prevalent in warm water and lead to declines in fisheries production. In addition to warming, the world's oceans are gradually becoming more acidic due to increases in atmospheric carbon dioxide (CO₂). Increasing acidity could harm shellfish by weakening their shells, and may also threaten the function of sensitive ecosystems.

Focusing on freshwater systems, e.g. the Mekong River Basin, changes in temperature, rainfall, river flow and flooding as a result of climate change affects the fisheries sector and results in reduced food security, especially for the poor. It is thought that runoff throughout the Mekong Basin is expected to increase by 21% by 2030.³⁴ As this significant change is to be realized, important is to build fisher communities' capacity to adapt to immediate environmental changes, partly by securing and restoring threatened habitats (upstream and down), diversifying their livelihoods, and by improving their access to natural resources.

Unlike adaptation in the agricultural sector, technical fixes are few and far between. In most cases, mitigating climate change impacts means to make improvements in fisheries management and increase investment in aquaculture infrastructure. Some current solutions are:

- Improve the management of fisheries and aquaculture by safeguarding the integrity and resilience of aquatic ecosystems
- Implement integrated ecosystem disaster risk reduction measures in the management of coastlines, fisheries habitats, and within fishing communities
- Improve aquaculture infrastructure to safeguard against flood pressures, e.g. netting, floating cages and enclosures, and tank rearing
- Eliminate subsidies that promote overfishing and excess fishing capacity
- Consider appropriate regulatory measures to safeguard aquatic environments and their resources against adverse impacts of climate change mitigation strategies, e.g. hydro dam construction
- Respond to opportunities and threats related to food and livelihood security at the local level
- Provide climate change education in schools and create greater awareness among all stakeholders
- Undertake assessments of local vulnerability and risk to improve climate change adaptation planning

³⁴ Eastham J, Mpelasoka F, Mainuddin M, Ticehurst C, Dyce P, Hodgson G, Kirby M. 2008. Mekong River Basin water resources assessment: Impacts of climate change. Australian Commonwealth Scientific and Research Organization: Water for a healthy country national research flagship.

Health sector adaptation

Climate change, including climate variability, has multiple influences on human health. Direct impacts include the effects of rising temperatures and more intense heat waves and floods on human well-being. Warmer temperatures and a more variable climate can impact the availability of clean water and sanitation, and the transmission of vector and water-borne diseases. The World Health Organization (WHO) estimates that climate change may already be causing over 150,000 deaths per year and these risks are expected to increase substantially in the future.³⁵ Noting health infrastructure, in many developing countries these are already stretched beyond their capacity to supply even basic health protection. Unless adaptation mechanisms are implemented, climate change is likely to result in further demands on these facilities and their services given an increasing burden of disease.

While there is an increasing awareness that climate change poses significant health threats, health practitioners have historically concentrated on responses that deal reactively with climate-sensitive diseases through curative treatment. Consequently, little attention has been paid to defining exactly what vulnerable and resource-poor developing countries can do differently to minimize adverse health impacts of climate change in a cost-effective manner. Thus, as a beginning to defining adaptation, a framework to mapping the links between climate change and health has been put forth by the WHO (Figure 1).³⁶

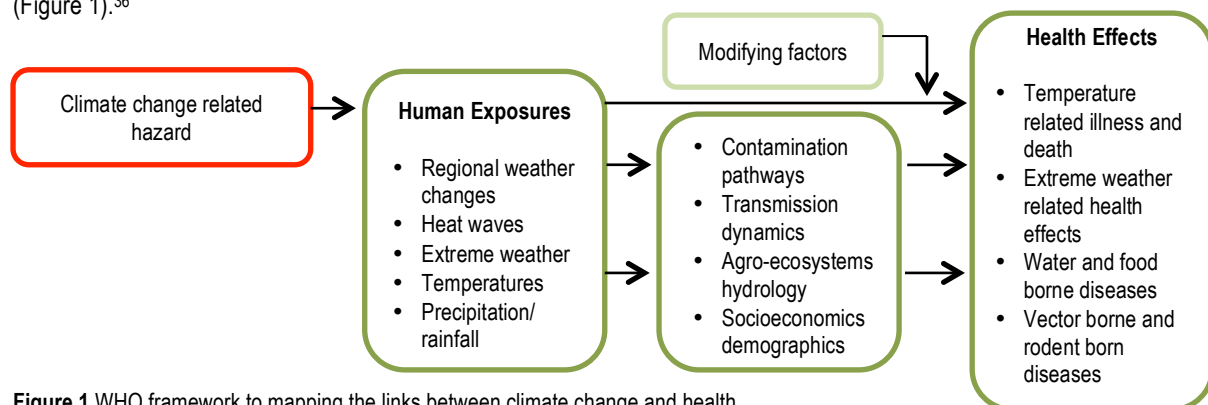


Figure 1 WHO framework to mapping the links between climate change and health.

What to adapt to

- Injuries, disability and drowning due to the increase in frequency and intensity of extreme weather events such as floods and storms
- Water and food-borne diseases due to more variable precipitation patterns that will compromise the supply of freshwater, increasing the risk of water-borne diseases like cholera and outbreaks of diarrheal diseases
- Rising temperatures and variable precipitation are likely to decrease the production of staple foods in many of the poorest regions increasing risks of malnutrition
- Warmer temperatures are likely to lengthen the seasonal and geographical transmission of important vector-borne diseases such as dengue and malaria and to alter their geographic ranges, potentially reaching regions that lack either population immunity or strong public health infrastructure
- Psychological stress caused by the displacements of population and loss of livelihood

Common adaptation responses

- Improved public health surveillance and medical care services in rural areas, especially for infectious diseases
- Water, Sanitation and Hygiene (WASH) approaches and projects
- Disaster Risk Reduction (DRR) approaches and projects aimed at controlling vector borne diseases
- Water purification and vaccination initiatives
- Public education and awareness raising on linkages between environmental health and human health

³⁵ <http://www.who.int/whr/2002/en/index.html>

³⁶ <http://www.who.int/globalchange/climate/gefslideshow.pdf>

Development gone wrong – fix it

Exercise SE7.1

Objectives

- ✓ To apply, in principle, key information presented in Session 7 handouts regarding climate change hazards and impacts, the community based adaptation framework, and adaptation approaches.
- ✓ Provide an evaluation process to gauge participant learning.

Facilitation

Step 1

Introduce the exercise and delivery process. Divide participants into groups of 4 or 5; give each group an exercise worksheet for guidance.

Step 2

Let the participants know that they can interpret the situational context given in any way they want... but to try and remain as realistic as possible. Emphasize that what is important is they outline the 'perceived hazards' from multiple perspectives, and make CBA recommendations that will address the hazard directly. Participants can refer to Session 6 and 7 handouts to build a strong case for their answers. Allow 20-25 minutes for group work.

Step 3

Once groups have charted their information, they should present this in a plenary format. Encourage other groups to challenge the presenters by, 1) making sure hazards are justified, 2) that recommendation cover all four (4) CBA components, and 3) that recommendations are doable to the noted context, and of that shown in the worksheet picture.

Step 4

With all group work posted for viewing, wrap the exercise up with a short focus group discussion on challenges that may arise in the implementation of given recommendations. This should be done in consideration of 1) possible policy barriers, 2) social and environmental barriers, 3) technical and economic barriers, that would prevent positive adaptation outcomes.

Comment

- ✓ Participants should be aware that the exercise is about reviewing the types of CBA responses only. A full climate vulnerability capacity analysis (CVCA) is needed to make concise CBA recommendation. The CVCA approach will be covered in subsequent modules.

Materials

- ✓ Exercise worksheet (SW7.1) – 1 for each group (4 to 5 participants)
- ✓ Chart paper, markers, and tape

Time
45 – 60
minutes

Worksheet

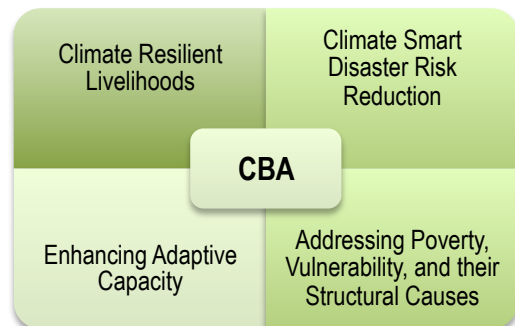
SW7.1

Your situational context

As part of a field based research project on 'drivers of climate change adaptation', researchers found that changes in land use via dike building had greatly increased the amount of area for rice cultivation. At the same time, the mangrove forest died back and so did fisheries production. Villagers have expressed that their "fisheries production is almost gone, dikes to keep out salt water have improved our rice production by 30%, but with changes in water availability, weather extremes damaging our rice fields, and increases in rice production costs... we are still poor and not sure if we have benefited at all". (Village Consensuses)



Prey Nup, and O Oknhaeng Communes, Sihanouk Province, Cambodia



A realistic challenge

Percieved Hazards	CBA Component	Adaptation Strategy
• _____ _____ _____	_____	• _____ _____ _____
• _____ _____ _____	_____	• _____ _____ _____
• _____ _____ _____	_____	• _____ _____ _____
• _____ _____ _____	_____	• _____ _____ _____
• _____ _____ _____	_____	• _____ _____ _____

Objective

- ✓ Familiarize one's self with the six (6) sub-components to resilience in the context of climate change adaptation.

Facilitation

Step 1

Introduce handout S8.1 through an organized PowerPoint presentation. This would include the objectives of the session, and the process the facilitator will take to deliver the session.

Step 2

Inform participants that the six (6) new concepts related to resilience will be built upon in following sessions. Focus the presentation on each concept. As presented, the facilitator should give a brief example, and then ask participants for examples from their own understanding, and or work profile. The following examples can be given:

- **Robustness**
 - If you were to develop a risk reduction monitoring system, this must be done in a way that ensures enough data is collected, e.g. entries and types of data to bring confidence to decision making processes. You must also ensure that data is informed by multiple sources.
 - If you were to build a flood barrier, you must ensure that it is built strong enough to withstand 150% of expected storm and flood forces.
- **Scale**
 - Your CBA actions are to improve food security in the face of natural disaster in rural areas. You have decided that CSIG installations are a good option. Now you must decide if you are supporting enough installations to meet your target, e.g. in numbers, size, and reach across villages, and or disadvantaged groups etc.
 - If your CBA response is to work on policy change, are you partnering with enough civil society groups and other actors at various levels of society and governance to strengthen and support your case for needed policy changes? In this case, the aforementioned includes both scale and robustness factors.
- **Redundancy**
 - Communities have been working with a non-government organization (NGO) to develop a climate change risk reduction strategy. However, the NGO had no funding to continue its assistance. The good news is that the NGO and others had worked with the local government in a similar way. Thus, the local government is able to step in and work with communities to finish their planning, as well as to coordinate their plan better with that of the local government.
 - Drought has hit the local farmers and their staple food crops have collapsed. However, they have looked after their ecosystem habitats and are meeting their food needs through the gathering of non-timber forest products (NTFPs) and fisheries efforts. Some of these products they sell to by staple foods from lowland areas where the drought has not impacted crops due to irrigation.
- **Rapidity**
 - Local food crop production and rainfall data have been a common practice of a particular community. This data is also being distributed to local and provincial disaster response committees and reviewed every two weeks. Because of the aforementioned, disaster response committees were able to prepare and then mobilize relief goods ensuring a hazardous condition did not turn into a disaster.

- Within the international donor community, many have now developed rapid response desks to accept funding proposals for immediate action. Some of these desks make the funding decision within a 24-hour period.
- **Flexibility**
 - A group of farmer-to-farmer extension workers have been collecting crop production data for years. Most recently, within the same area a disaster response committee was formed. The later approach the extension workers, asking to add their data collection efforts to their tasks to meet their needs.
 - In Cambodia, the Ministry of Environment spearheads much of the climate change actions in the country, however, other ministries have also adopted 'climate change' as part of the profile, i.e. being flexible in their mandates, and allowing for a degree of redundancy across the system.
- **Self-organizing**
 - For many remote communities, development services are minimal. In Papua New Guinea, communities work together to organize themselves to form a farmer-to-farmer extension system, as well as a disaster response system in light of gaps in development services. In turn, government workers have reorganized their own duty profiles to help support and connect these self-formed groups.
 - Since the 'climate change' wave, many development organizations have adopted CBA as part of their development assistance profiles. Through time, practitioners have organized themselves and networks have sprung up all over. Today, these networks have thematic and regional identities.

Step 3

Use Figure 1 (handout S8.1) to support the learning points in the handout. Back track to examples of resilience building given by the participants, and or the examples given in step 2. Use these to stimulate a discussion on the connections between community adaptation assets and societal structures and processes. For example: under 'Robustness', the first example links influence (a human asset) to that of levels of government and community structures. And, construction of a physical adaptation asset links to policies, levels of government, the private sector, and communities respective of information, communication and cooperation.

Comments

- ✓ Keep track of participant examples of resilience/ responses on a chart paper. At the end of the session, ask individual participants about the participant responses given, e.g. is this about building resilience, and if so how, and where does it fit within the six sub-components of resilience'? Note that this process is not about correct answers being given, rather, it is about providing space for discussion to develop a clearer picture of what resilience building is and how this can be applied in real terms to the delivery of adaptation responses.
- ✓ There have been many examples of climate change adaptation given in Session 7. For 'homework', participants can go over these and list out which ones do they think fit better as a resilience building responses (the how to) than adaptation responses (the what to do). They should be able to justify their selections.

Materials

- ✓ PowerPoint presentation covering handout S8.1

Time

60 minutes

Six factors of resilience in adaptation

Resilience – The capacity of a system, community or society exposed to hazards to adapt, by resisting or changing in order to reach and maintain an acceptable level of function. This is determined by the degree to which the social system is capable of organizing itself to increase its capacity for learning from past disasters for better future protection and to improve risk reduction measures.³⁷

Responding to climate change threats through adaptation is just one component of a larger sustainable development framework. Globally, moving towards an ever-changing climate change context, looked for are development options that will enable communities, systems, and/ or society to become more resilient to climate change today and into the future. As the focus of this manual is on adaptation, it is important to understand that in the most simplistic context, '*adaptation*' is the 'what to do' to lower vulnerability to climate change, resilience building should be seen as the 'how to do it' in the context of systems, community, and or society.

Resilience is a debated concept, and definitions differ among different writers, yet common to all is the ability to withstand an external disturbance, and the ability to change and sustain this change in the face of an external disturbance, i.e. going beyond survival.³⁸ Resilience can be seen as synonymous with 'adaptive capacity'; for example defined as 'the ability of a system to adjust to climate change (including variability and extremes), to moderate potential damages, to take advantage of opportunities, or to cope with the consequences', yet there are specific attributes, sometimes referred to as sub-properties of a system, that set firm the importance of focusing on resilience building.

Ospina, A., V., and R., Heeks (2010) have summarized these 'attributes' into six (6) elements:³⁹ In context:

- **Robustness:** refers to the ability of the system to maintain its characteristics and performance in the face of environmental fluctuations or shocks. Within robust systems, reinforcing influences between CBA components help spread the risks and effects of disturbances widely to retain performance. This could include the strengthening of livelihood assets or of the connection between the assets. Examples of climate change specific actions to improve robustness include investment in strong flood barriers, developing local knowledge management systems with complete data needs, to the selection of crop varieties that are physically able to survive under changing climatic conditions, yet may have lower yields.
- **Scale:** refers to the range of assets and structures a system can access in order to effectively overcome or bounce back from the effects of disturbances. Scale involves, for example, access to networks of support beyond those existent at the immediate community level. From another view, are adaptation interventions large enough to create a difference, e.g. 10 farmers adapting or 100 farmers adapting their farms to ensure food security in a given area?
- **Redundancy:** refers to the extent to which components within a system can compensate for another in the event of disruption or degradation. Redundancy may also be seen as a collection of processes, capacities and response pathways that allow for partial failure within a system without complete collapse. Collaborative and multi-sector approaches can contribute towards redundancy as they facilitate the existence of overlaps and multiple sources of support and expertise that can help fill the gaps in times of need.
- **Rapidity:** refers to how quickly assets can be accessed or mobilized to achieve goals in an efficient manner. This can be critical particularly when responding to an acute climate related disturbance. This could be the availability of financial mechanisms, savings, credit or insurance that can be mobilized. Rapid

³⁷ UN/ISDR (Inter-Agency Secretariat of the International Strategy for Disaster Reduction), 2004: Living with Risk – A global review of disaster reduction initiatives. UN/ISDR.

³⁸ Magis, K. (2009) 'Community Resilience: An Indicator of Social Sustainability', Society and Natural Resources, 23:401-416.

³⁹ Ospina, A., V., and R., Heeks (2010). A Conceptual Framework for e-Resilience and e-Adaptation. Centre for Development Informatics. Institute for Development Policy and Management, University of Manchester, UK.

access to information, both incoming to and outgoing, will also be key to making quick decisions and mobilizing support after hazardous events.

- **Flexibility:** refers to the ability of the system to undertake different sets of actions to make use of opportunities that may arise from change, e.g. a combination of processes, structures or policies that can be utilized to maintain function and direction of a system. This suggests the relevance of flexibility to respond to the challenges at micro, meso and macro levels. Flexibility in the face of climate change can come from various sources, including the existence of social networks that can suggest different courses of action for problem solving.
- **Self-organization:** refers to the ability of the system to independently re-arrange its functions and processes in the face of an external disturbance, without being forced by the influence of other external drivers. Self-organization can be a threefold process based on thinking, communication, and co-operation, brought together to address climate change impacts.

Learning Point

It is difficult to say 'this is resilience building, and that is not'. What is important to understand in the context of rural development and climate change adaptation is that resilience building is the strengthening of linkages and the building of positive and equitable modes of influence between local adaptation assets (financial, human, natural, physical, and political), adaptation strategies/ efforts, and societal structures (levels of government, community, and the private sector) and processes (laws, policies, culture and institutions)(Figure 1).

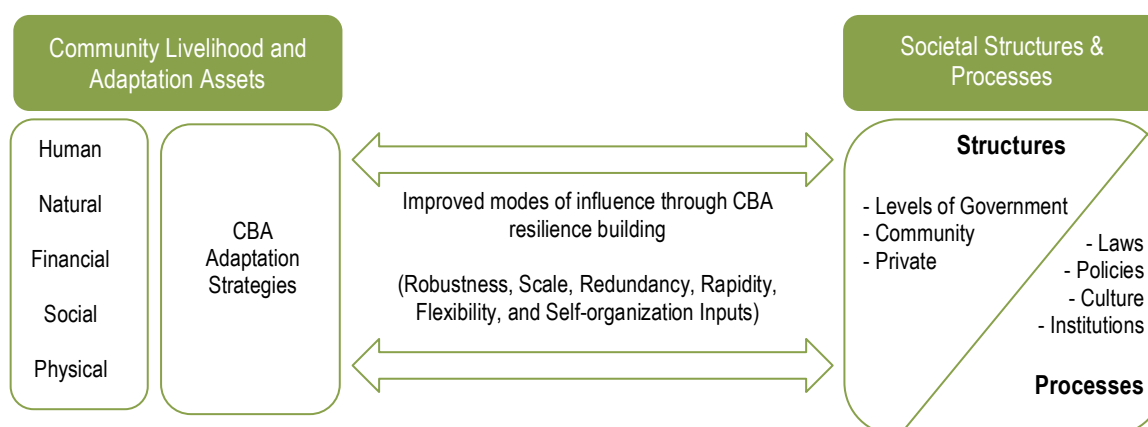


Figure 1 Conceptual framework for CBA adaptation resilience building within a system, community, or society.

Module 3

Enabling environments for climate change adaptation

3

Module Overview

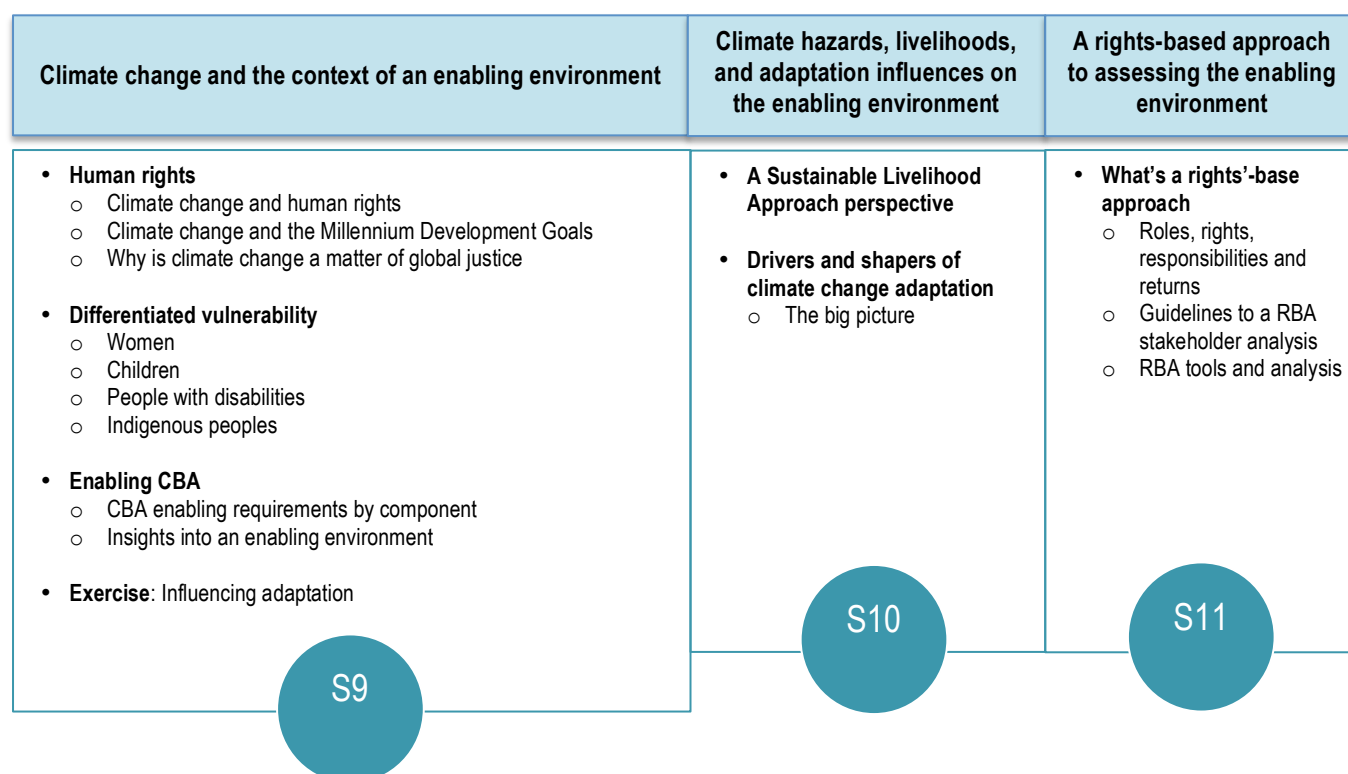
Module 3 is an intensive knowledge building process focused on helping participants to understand the community based adaptation enabling environment from two perspectives, 1) human rights, and 2) rural livelihoods. Within, considerable time is spent on further describing vulnerability, and how this differs among people, groups, and society. This is followed with a breakdown of the CBA enabling environment by component.

The later half of Module 3 brings together session lessons from all modules into a 'big' picture of how CBA is being driven and shaped by the enabling environment, and how such determines options and opportunities for adaptation. The module ends with a review of guidelines and tools to assessing the enabling environment using rights-based tools.

Objective

- ✓ Build a comprehensive understanding of the CBA enabling environment, e.g. origins of vulnerability, how vulnerability and adaptation can be influenced, how to assess it through a rights based approach (RBA), and what practitioners can do to improve it.

Module process



Module resources

3 Learning sessions 6 Handouts 1 Participatory exercise 1 Worksheet 2 Learning aids

Objectives

- ✓ To establish a basic understanding of how 'climate change' connects to key elements of human development, i.e. human rights, and global development goals.
- ✓ To re-introduce the concept of 'vulnerability', how this differs amongst different segments of society, and how it can be reshaped by a CBA enabling environment.

Facilitation

Step 1

Introduce handout S9.1, S9.2, and S9.3 through an organized set of PowerPoint presentation. This would include the objectives of the session, and the process the facilitator will take to deliver the session. Important to state in this introduction is the need to:

- Build of good understanding of how the field of 'climate change' connects to mainstream directions and needs in human development
- How mainstream directions and needs in human development will be challenged by climate change for differing parts of society
- Understand how CBA framework components work together to create an influential enabling environment for sustainable and equitable adaptation

Option: Depending on the level of participant knowledge, recommended is to review briefly vocabulary/ concepts given in learning aid SLa9.1. Remind participants that at this stage they are not required to understand the vocabulary/ concepts fully as this understanding will be built throughout the module. If reviewed, allow participants to share their understanding of the learning aid content. Recommended is to allow 30 – 45 minutes for the activity.

Step 2

Starting with handout S9.1, 'Human rights and development goals'. Present in brief how climate change impacts and challenges the realization of human rights and the Millennium Development Goals. Session materials are not to be presented as a memorization exercise, e.g. what human right declaration documents connect to the specific human rights, rather, they are used to bring realism to the seriousness climate change poses on human development. (Recommended is a 20-minute presentation)

Step 3

Continue with handout S9.2, 'Differentiated vulnerability'. The presentation's key message should be that climate change vulnerability is different for all segments of society, and that this is shaped by circumstances unique to an individual, household, and community. Use the Learning Point given at the end of the handout to stimulate discussion and sharing amongst participants. The following questions may be helpful to start the process:

- In your household, community, or in a particular community you work, what are the main influences shaping vulnerability? Have you seen differing results of this vulnerability in times of stress? Explain.
- At some point in our lives have been left out of decision-making process or have not been able to make our work as participatory as we would like. From experience, participants can share a particular event, what they would have done differently and why, and how their idea could be considered 'not possible'.

Recommended is to allow 60 minutes to cover and discuss handout S9.2.

Step 4

Present handout S9.3. When reviewing the component material, emphasize that what is being presented in the charts are not climate change adaptations, i.e. they are suggested needs to support adaptation decision-making, planning, implementation, and management of adaptation actions. It may be of

interest to all to ask participants if they are already contributing to a CBA enabling environment in the context of their work (see comments for a suggested process).

When presenting information under the sub-section 'insights into an enabling environment', it is recommended that only the main headings (that given in bold) be presented. The facilitator should then ask participants what is meant by the heading and to give a situational example for discussion.

Recommended is to allow 45 - 60 minutes to cover and discuss handout S9.3.

Step 5

End Session 9 with exercise SE9.1. Follow the given guide sheet accordingly. It is recommended to allow 60 minutes for the exercise.

Comments

- ✓ Information noted in handout S9.1 can be used to guide further research into human rights and the MDGs in preparation of advocacy initiatives.
- ✓ For handout S9.3, the facilitator should prepare on chart paper a large copy of each CBA framework component and enabling environment needs. Provide space in the charts for participants to place their name by identified needs. This will help identify experience among participants for further sharing outside of training sessions. Suggested example:

Climate resilient livelihoods					
National Level - Summarized climate data in user-friendly formats - Disseminated climate change information to sectoral actors - Reviewed national sectoral policies with climate "lens" - The integration of climate vulnerability issues into poverty reduction strategies and/or other development plans.		Local government and community organizations - Scaled down climate projections - Reviewed local plans/policies using climate change "lens" - Trained local government and NGO extension workers on vulnerability analysis and adaptation - Promoting of climate-resilient agricultural practices - Supported income diversification, including non-agricultural livelihoods		Household and the individual - Promoted climate-resilient agricultural practices - Supported diversification of livelihoods, including non-agricultural livelihoods strategies - Built capacity to analyze risks - Promoted savings and building capacity to plan for risk management	

Materials

- ✓ PowerPoint presentation covering handouts S9.1, S9.2 and S9.3 (Note recommended timings given in the facilitators guide)
- ✓ Pre-made charts of CBA framework components and enabling environment needs (see handout 9.3)
- ✓ Relevant handouts, guide sheets, worksheets, chart paper, markers and tape, including other materials noted under exercise SE9.1

Time

3.0 – 3.5hrs

Human rights

Climate change will have implications on the enjoyment and fulfillment of human rights. The United Nations Human Rights Council recognized this in its resolution 7/23 “Human rights and climate change” (28 March 2008), expressing concern that climate change “poses an immediate and far-reaching threat to people and communities around the world”.

United Nations Human Rights Council Statement

“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

Climate change and human rights

Noted by the Intergovernmental Panel on Climate Change (IPCC), global warming will have implications on a range of human rights.

1

The right to life: The right to life is 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 relates directly to the fulfillment of other rights, such as those related to food, water, health and housing. Considering weather-related natural disasters, the aforementioned is reflected in the Inter-Agency Standing Committee (IASC) operational guidelines on human rights and natural disasters.

2

The right to adequate food: The right to food is 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 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 as a need of an adequate standard of living, while the Convention on the Rights of the Child refers to ‘clean drinking water’ as part of the actions countries need to take to combat disease and malnutrition.

Weather extremes, such as drought and flooding, will impact water supplies. Climate change will exacerbate existing stresses on water resources and worsen the problem of access to safe drinking water. Access to safe drinking water is denied to approximately 1.1 billion people globally, and a major cause of death and disease.

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, e.g. adequate food and nutrition, housing, safe drinking water and adequate sanitation, and a healthy environment.

Climate change is projected to affect the health status of millions of people via increases in malnutrition, diseases, injury due to extreme weather events, and an increased burden of diarrhea 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 increases vulnerability and reduces 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. Article 1, paragraph 1, of the International Covenant on Economic, Social and Cultural Rights and the International Covenant on Civil and Political Rights state 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 person not to be deprived of their basic needs. While the right to self-determination is a collective right held by peoples rather than individuals, it is an essential condition for the effective enjoyment of individual human rights. Thus, countries have a duty to take positive action, individually and jointly, to address and avert threats to self-determination, e.g. taking action to avert climate change impacts that 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, participating countries commit to promote and facilitate 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.

Participation in decision-making is of key importance in efforts to tackle climate change. For example, adequate and meaningful consultation with affected persons should precede decisions to relocate people away from hazardous zones. Under the UNFCCC, promotion and facilitation of 'public participation in addressing climate change and its effects, and developing adequate responses' is a core responsibility of participating countries. The right to participation in decision-making is implied in article 25 of the International Covenant on Civil and Political Rights that 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 participating countries shall consult and cooperate with indigenous peoples 'to obtain their free, prior and informed consent' before adopting measures that may affect them.

Climate change and the Millennium Development Goals

The Millennium Development Goals (MDGs) provide a framework for the entire United Nations (UN) system to work together towards a common goal. Championed by the United Nations Development Programme (UNDP), the UNDP and its global development network help advocate for change, connect countries to knowledge and resources, and coordinate broader efforts at the country level to address development barriers, barriers that impede the realization of human rights. Hence, as climate change affects the realization of human rights, it also affects the realization of the MDGs.

MGD 1 **Eradicate extreme poverty and hunger:** Agricultural production and food security, access to clean and abundant water resources and gainful employment that underpin the solution to extreme poverty and hunger are vulnerable to climate change.

MGD 2 **Achieve universal primary education:** Climate change stresses pose additional burdens on agricultural production and other subsistence activities like water collection, which may burden families enough to remove children from school. Livelihood activities must become more resilient to future climate for education goals to be met. Climate change also threatens to destroy infrastructure (e.g. schools) and increase the displacement and migration of families thus disrupting and limiting education opportunities.

MGD 3 **Promote gender equity and empower women:** Women are the most vulnerable to climate change. Their traditional roles as the primary users and managers of natural resources, primary caregivers, and unpaid laborers mean they are involved in and dependent on resources that are put most at risk by

climate change. Furthermore, women lack rights and access to resources and information vital to overcoming the challenges posed by climate change.

- MGD 4** **Reduce child mortality:** Climate change will worsen health primarily through: increased vulnerability to poor health due to reduced food security and water security; water-borne diseases associated with reduced water quality due to floods and drought; more favorable conditions for the spread of vector-borne and air-borne diseases; and the direct link between temperatures and heat stress.
- MGD 5** **Improve maternal health:** Climate change will worsen health primarily through: increased vulnerability to poor health due to reduced food security and water security; water-borne diseases associated with reduced water quality due to floods and drought; more favorable conditions for the spread of vector-borne and air-borne diseases; and the direct link between temperatures and heat stress.
- MGD 6** **Combat HIV AIDS, malaria and other diseases:** Climate change will worsen health primarily through: increased vulnerability to poor health due to reduced food security and water security; water-borne diseases associated with reduced water quality due to floods and drought; more favorable conditions for the spread of vector-borne and air-borne diseases; and the direct link between temperatures and heat stress.
- MGD 7** **Ensure environmental sustainability:** Climate change threatens environmental sustainability because it will cause fundamental alterations in ecosystem relationships, change the quality and quantity of available natural resources, and reduce ecosystem productivity. The poor depend on these resources for their day-to-day survival and livelihoods in many parts of the developing world.
- MGD 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.

Why is climate change a matter of global justice?

- Rich, industrialized countries are historically responsible for the bigger share of green house gas emissions, and those emissions, to many, is how they got to be rich and industrialized;
- Rich countries have greatly overused their carbon emissions quota, and owe a Carbon Debt to the South, which many consider to be larger than the financial debt of the highly indebted poor countries;
- The poorest nations, who are least responsible for global warming, are the most vulnerable to its impacts. It is in these countries where the effects are being most felt today, and where people lack the resources to adapt to worsening storms, water and food shortages, and other impacts of climate change; and
- People who are poor need resources to at the least 'cope' with climate change impacts. Access to these resources is their human right, and governments are obligated under international law to provide it.

Climate change poses many threats to human development, e.g. worsening hunger, poverty, and magnifying existing inequalities. It is also thought that climate change will undo efforts to promote global health and combat poverty via increases in human displacement, food insecurity, and peace and security.

Comment

- Displacement - Perhaps 330 million people through flooding
- Food Security - Climate change may undermine food production and food security in the developing world due to extreme and unpredictable weather conditions (drought, flooding, worsening storms)
- Peace and security - If left unchecked, climate change will intensify scarcities of water, useable land and other natural resources, increasing the risk of resource wars

Differentiated vulnerability

'Gender' is being recognized as an important element to the way we understand climate change and the way we develop responses to climate change impacts at local, national and international levels. The Ad Hoc Working Group on Long-term Cooperation noted that the effects of climate change will be felt most acutely by those segments of the population that are already vulnerable due to their geography, gender, age, indigenous or minority status and disability, and that gender equality and the effective participation of women and indigenous peoples are important for effective action on all aspects of climate change.⁴⁰ Yet, the term 'gender' has become a 'catch all' term in the context of climate change, used to describe a range of issues in a rather unstructured way. Additionally, gender is often taken to be only about women's needs, rather than about the unequal social relationships between women and men, and power.

Climate change acts as a magnifying glass, exposing differentiated inequalities across genders, but this also holds true for children, the disabled, and the socially displaced/ disempowered. Inequalities in status and rights often translate into constraints in access to productive resources, education, and active participation in decision-making. Cultural or social norms may compound these constraints by restricting freedom of movement and voice.

Women

Vulnerability to climate change impacts is gender specific. Evidence shows that more women than men die from natural hazards in countries and communities in which the socio-economic status of women and men is highly unequal. This is a result of a diverse set of inherent disadvantages:

- A lack of access to education and information, and a low level of contact with institutions working on disaster prevention, mitigation, and preparedness
- A higher incidence of poverty, constraints to their mobility, reproductive responsibilities, and social norms that limit their voice in decision making
- A greater reliance on natural resources such as rivers, wells, reliable rainfall, and forests
- Have fewer physical resources such as land, fertilizer or irrigation, and fewer assets they can use to earn money, or to sell as a last resort
- Have fewer financial resources such as cash, savings or access to credit

During and in the aftermath of a hazardous event, the adaptive capacity of women and men is also differentiated, because women, in many contexts, have less control over assets such as land, have limited employment and economic opportunities, lack voice in decision making, and do not enjoy the same personal or inherent rights as men. The scarcity of resources during times of climate stress also expose women to increased levels of abuse and violence. All these factors, and others, reduce women's capacity to adapt to and overcome hazards both in the short and long term.

Existing evidence underscores the vulnerability of women to climate change. There is also a wealth of evidence that underlines a women's role in supporting households and communities to mitigate the effects of, and adapt to climate change. At the local level, women provide particular kinds of social capital for mitigation, adaptation and coping; actively organizing themselves during and after hazardous events to help their households and communities. Women also contribute to the mapping of risks and vulnerabilities and play an important role in early warning detection. However, women's contribution to climate change adaptation is still limited, due to the fact that they are largely under-represented in decision-making processes.

⁴⁰ http://unfccc.int/files/meetings/cop_16/application/pdf/cop16_lca.pdf

Children

In the rapid-onset of a climate related hazardous events, such as a landslide or flashflood, children in schools whose construction is not hazard-resilient are particularly vulnerable to physical harm. In the case of slow-onset hazardous conditions, e.g. seasonal floods, extended dry seasons and drought like events; the well-being of children is likely to be compromised for a number of reasons, much are economically driven:

- A reduction in household income to provide basic needs often leads to food shortages, under-nutrition and malnutrition in children.
- A disruption in their education, in worst cases, total withdrawal from school to help with family subsistence needs.
- In severe cases, adolescent girls may be forced into prostitution, adolescent boys drawn into delinquency, or both being drawn into forced labor.

The growing intensity and frequency of climate related hazards events brings to light the potential for harm to food production, nutritional security, health, and basic services of those living with vulnerability. Children will also experience disproportionately this vulnerability as under-nutrition, malnutrition, and ill health during childhood impedes their learning and physical development.⁴¹ Part of the challenge in understanding how climate change affects children is the complexity of interactions between the two. Not only can climate change affect most aspects of children's development directly, e.g. their health, nutrition, education or emotional and social wellbeing, they are also at risk from other development pressures at the local and household levels, e.g. rising food prices, spread of disease and illness, and competition over scarce natural resources. Added to this, impacts will largely depend on the context: rural children will experience the impacts of climate change in a different way than urban children, and impacts on children from poor and marginalized households are likely to be very different than those felt by more well-off households.

Children have the right to be protected, and to participate in decisions and adaptation responses that affect their lives. To do so effectively, children must develop an understanding of climate risks and actively learn of, and participate safely in climate change adaptation and disaster risk reduction responses.

People with disabilities

Disabilities are mental and physical impairments that limit a person's cognitive ability, mobility and activity. Women, men and children with disabilities are often excluded from aspects of a community's daily life because of a lack of awareness or assumptions made by other members of that community. People with disabilities are typically among the most 'resource poor' within a community due to poor education, lack of income, social exclusion and limited access to decision-making authorities. As with other marginalized groups, they have little access to or control over adaption assistance. Additionally, they may not be asked to participate in discussions about the risks the community faces, and therefore may not be able to help identify risk reduction and adaptation measures that could be effective for people living with disabilities.

People with limited cognitive ability are particularly vulnerable to rapid-onset hazards. For example, they may have a limited understanding of what an early warning signal, and may not react in time to be safely evacuated. People with limited mobility, for example, are also likely to be very vulnerable to increasing water scarcity (a slow-onset hazard), as they may not be able to access more distant water points.

Indigenous peoples

Indigenous peoples are among the first to face the impacts of climate change because of their dependence upon, and close relationship with the environment and its natural resources. Their vulnerability to climate change is made worse by political and economic marginalization, loss of land and resources, human rights violations, discrimination and unemployment. In many cases, land tenure and access rights of indigenous communities are not legally recognized. As a consequence, their land and resources are often exploited and encroached by outsiders. With the implementation of Clean Development Mechanism (CDM) projects in developing countries, there are fears that the land rights of traditional and indigenous peoples will be increasingly contested or violated. In some cases, these mitigation actions have unwanted consequences, e.g. some

⁴¹ Baez, J.; De la Fuente, A.; and Santos, I. (2010) Do Natural Disasters Affect Human capital? An assessment based on existing empirical evidence. Discussion paper No. 5164. World Bank and the Institute for the Study of Labor. (<http://ftp.iza.org/dp5164.pdf>)

plantation agricultural initiatives may reduce greenhouse gas emissions but also lead to a decline in biodiversity and subsequently indigenous peoples food security.

The insecure situations indigenous people face adds to their already challenging situation, and may result in severe implications to their vulnerability and capacity to adapt. Insufficient income, assets or wealth is one of the most important determining factors of socioeconomic vulnerability of indigenous and traditional peoples. For many, subsistence agriculture as well as hunting and gathering remains the core of the household economy, and food consumption is therefore both the driving force as well as the outcome of indigenous livelihood systems. They often have very limited additional income from cash crops or other activities, and are highly dependent on natural resources. Deforestation also pushes indigenous families to migrate to cities for economic reasons. In such cases they face double discrimination as both migrants and as indigenous peoples making them more vulnerable to irregular migration such as trafficking and smuggling.

Resulting from poverty and marginalization, Indigenous people often have very limited access to mainstream health services, health prevention and promotion programmes. If they do, they are often culturally inappropriate. It is also important to note that in many cases, indigenous and traditional communities still maintain their indigenous health systems, which largely depend on the health of the environment. If environmental destruction takes place, e.g. as a consequence of climate change induced hazards, the communities' ability to obtain medicinal plants and food may collapse, subsequently increasing their vulnerability.⁴² From another perspective, it is also important to think about how indigenous people adjust to new situations. This is often based on traditional knowledge developed through their own observations and interpretation of climate variability and change. With a more rapid climate change context today and into the future, their observations and weather forecasting systems may become less meaningful or even mislead them in their decisions.

Learning point

Vulnerability to climate change is shaped in many ways. Differing roles and responsibilities, language, age, abilities and assets, cultural differences, to economic status tells a lot about how vulnerability would be felt during climate stressors and hazardous conditions. Yet, no matter the status of the individual, being excluded from decision-making processes negatively compounds the outcome. What is needed for all, is to have 1) a better understanding and awareness of climate change, 2) have a more active role in adaptation response strategies, and 3) greater and more meaningful participation in relevant policy decisions that affect them.

Recommended Reading

- ✓ Skinner, E., 2011. Gender and Climate Change Overview Report. Institute of Development Studies, UK. (http://www.bridge.ids.ac.uk/vfile/upload/4/document/1111/Climate_changeSRC1.pdf)

⁴² Montenegro, R.A., Stephens, C., 2006. Indigenous Health 2. Indigenous health in Latin America and the Caribbean. *Lancet* 367: 1859–69.

Enabling CBA

Effective climate adaptation requires an enabling environment, one that grants the poor the rights, resources and access they need to sustain and benefit from ecosystems, governments and markets. Development experience provides important lessons for fostering such enabling environments, including principles of good governance that provide the rural poor with control of the ecosystems on which they depend.⁴³ As a whole, an enabling environment for CBA consists of a set of conditions to which adaptation efforts aim for to support adaptation. This would include ensuring the basic requirements of good governance at both national and local levels are in place, and that the rural poor communities and households have access to livelihood assets, education, and information to consistently lower their vulnerability to climate change impacts.

CBA enabling requirements by component

Revisiting the Community-Based Adaptation (CBA) framework, noted is that the four (4) central components are centered on addressing different points of vulnerability. The CBA framework incorporates these four components together to form an enabling environment for adaptation (Figure 1). Following, CBA components have been separated, and outlined are 'needs' to be in place to create an enabling environment for adaptation. The aforementioned is depicted at three levels, 1) National, 2) local government and community based organizations, and 3) the household and individual level.⁴⁴

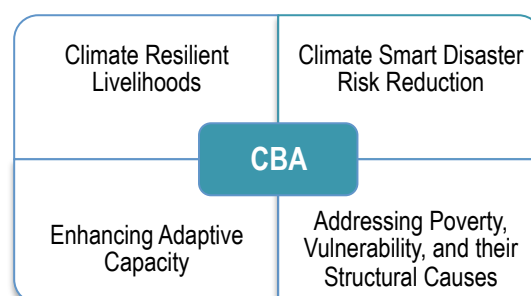


Figure 1 Community based adaptation (CBA) framework.

Climate resilient livelihoods		
National - Summarized climate data in user-friendly formats - Disseminated climate change information to sectoral actors - Reviewed national sectoral policies with climate "lens" - The integration of climate vulnerability issues into poverty reduction strategies and/or other development plans	Local government and community organizations - Scaled down climate projections - Reviewed local plans/policies using climate change "lens" - Trained local government and NGO extension workers on vulnerability analysis and adaptation - Promoting of climate-resilient agricultural practices - Supported income diversification, including non-agricultural livelihoods	Household and the individual - Promoted climate-resilient agricultural practices - Supported diversification of livelihoods, including non-agricultural livelihoods strategies - Built capacity to analyze risks - Promoted savings and building capacity to plan for risk management

⁴³ Bapna, M., Mcrray, H., Mock, G., and L., Withey, 2009. Issue Brief: Enabling Adaptation: Priorities for Supporting the Rural Poor in a Changing Climate. World Resources Institute. Washington, DC. May 2009 (http://pdf.wri.org/issue_brief_enabling_adaptation.pdf)

⁴⁴ Adapted from "Climate Vulnerability and Capacity Analysis Handbook" © 2009 by CARE International. Used by permission.

Climate smart disaster risk reduction

National - Supported planning for disaster risk management - Built capacity of disaster risk management actors on climate change - Supported development of early warning systems - Built government capacity to respond to disasters	Local government and community organizations - Support to implement local disaster risk management plans - Established locally-appropriate early warning systems - Built local government and community capacity to respond to disasters	Household and the individual - Established food and seed banks in places safe from hazards - Improved shelter to withstand hazards - Strengthened access to early warnings - Facilitated evacuation planning - Protection of assets
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Enhanced adaptive capacity

National - Mapped climate change adaptation capacity among national institutions - Supported roll out of national policies at regional and local levels - Institutionalized inclusive and transparent decision-making on adaptation	Local government and community organizations - Promoted participatory planning processes at local levels - Built capacity of local institutions to analyze climate risks and plan for appropriate actions - Established mechanisms for communication of climate information	Household and the individual - Strengthened social protection schemes - Facilitated access to financial services - Built knowledge and skills on adaptation strategies - Facilitated access to climate information
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Addressing underlying cause of vulnerability

National - Raised awareness of vulnerability of women and other marginalized groups to climate change - Strengthened civil society involvement in planning for adaptation - Supported advocacy for rights of vulnerable people	Local government and community organizations - Supported voices of women and other marginalized groups in local planning processes - Advocated access to and control over critical livelihoods resources in local policies	Household and the individual - Empowered women and other marginalized groups - Promoted equitable division of labor within households - Advocated rights to livelihoods resources
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Insights into an enabling environment⁴⁵

1

Access to information is a major factor determining ability to act on adaptation

Ongoing learning, analysis, planning and adjustment are required to respond to an evolving climate change context and changing risks. To do this requires availability of appropriate, timely and locally relevant climate information such as weather forecasts, seasonal forecasts and early warnings for climate hazards. It also requires that this information is made accessible to the people and institutions that need it, including the most vulnerable groups within communities.

⁴⁵ Understanding Vulnerability to Climate Change: Insights from Application of CARE's Climate Vulnerability and Capacity Analysis (CVCA) Methodology. ©CARE International Poverty, Environment and Climate Change Network (PECCN), 2011. Used with permission.

2

For adaptation policies and programs to reach the most vulnerable, they must have a voice in the process

Vulnerable people are vulnerable in part because they are left out and do not have a voice in decision-making on policies and allocation of resources in their communities, regions and countries. Engaging all relevant stakeholders, including the most vulnerable communities and populations, in national and local level planning can help to ensure that investment is directed to the most vulnerable populations. Participatory decision-making promotes empowerment and transparency, as well as accountability of policy makers to citizens. Giving vulnerable people a voice in decision-making will ensure that adaptation initiatives are responsive to their needs, priorities and aspirations. This is critically important in the development of National Adaptation Plans if they are to be effective in reaching the most vulnerable populations with adequate and appropriate support.

3

Insecure rights to resources exacerbate vulnerability

Adaptation efforts often emphasize changes in livelihood strategies to respond to changing climate conditions. However, this approach to adaptation assumes that people have access to the resources needed to put these strategies in place. For the most vulnerable people in many communities, this is simply not the case. Access to and control over resources such as agricultural and forest lands and water sources is a determining factor of vulnerability. When people do not have secure access to these livelihood resources, their options are limited and they are less able to act on adaptation.

4

Existing coping strategies are ineffective or unsustainable, and may exacerbate vulnerability to climate change over time

The most vulnerable people to climate change are most often the poorest, who lack effective coping strategies to deal with shocks and stresses and who have had to resort to ineffective responses. This suggests a need to analyze not only what risks people are exposed to, but also the quality of the options and capacities they have for coping. This understanding can facilitate the identification of the most vulnerable groups and can also create opportunities to identify indigenous strategies that are effective and sustainable, and be built upon for longer-term adaptation. It also suggests that adaptation for the most vulnerable must involve the creation of safety nets, in the form of social protection schemes and improved emergency response mechanisms.

5

The most vulnerable people lack access to services that would facilitate adaptation

In many communities, access to basic services remains a challenge. This is particularly true for poorer households, women and socially marginalized groups. When people are unable to meet basic needs such as health care and safe water, it is very difficult for them to think beyond their immediate needs, much less to make plans for longer-term adaptation. Access to services, including health, agricultural extension and financial services, must therefore be a consideration in determining the feasibility of different adaptation actions.

6

Gender matters when it comes to vulnerability to climate change

Women and men have different roles in household livelihoods, and they experience the impacts of climate change differently. And importantly, women and men have differing abilities to respond to the threat that climate change poses to their lives and livelihoods. Often women are at a disadvantage when it comes to adaptation. Effective and equitable adaptation requires an understanding of the dynamics of vulnerability. Gender influences these dynamics, and therefore a vulnerability assessment must take gender differences into account. Further, this must lead to planning, implementation, monitoring and evaluation of adaptation that reflect the differing roles, responsibilities and power that men and women have.

Recommended Reading

- ✓ Mainstreaming Adaptation to Climate Change in Agriculture and Natural Resources Management Projects (World Bank Resources (<http://siteresources.worldbank.org/EXTTOOLKIT3/Resources/3646250-1250715327143/GN5.pdf>))
- ✓ CARE 2011. Understanding Vulnerability to Climate Change. ©CARE Poverty, Environment and Climate Change Network (http://www.careclimatechange.org/files/adaptation/CARE_Understanding_Vulnerability.pdf)

Influencing adaptation

Exercise SE9.1

Objectives

- ✓ To give participants an opportunity to apply the principles of 'enabling environments' covered in Session 9 in a practical context and project the outcome.
- ✓ Provide an interactive review process for Session 9 handouts, and an evaluation process to gauge participant learning.

Presented in Session 9 handouts were topics that connect to and shape the context of an enabling environment for adaptation:

- Human rights and the Millennium Development Goals
- Differentiated vulnerability amongst the marginalized
- Characteristics and requirements of an enabling environment for CBA

To complete the exercise task well, participants should be encouraged to use the full range of Session 9 handouts.

In practical terms, listed in the table (see worksheet SW9.1) are eight (8) areas of influence that determine if the outcome of a coping strategy, and or planned adaptation strategy will be positive or negative. The challenge for the participants is to identify 1) what CBA framework component the 'influence factor' best identifies with, and 2) identify potential adaptation results when the 'influence factor' is addressed appropriately at different levels of society.

Facilitation

Step 1

Introduce the given exercise and task as noted. Divide participants into 4 groups; give each group an exercise worksheet for guidance. It is recommended that each group work with two (2) influence factors. This is a time consideration, as well as allowing for an interactive discussion when group work is presented.

Step 2

Review the instructions as noted with all groups, and give a brief example of the task to be completed (Example is simplified, groups should give more, and more detailed potential adaptation results)

CBA Framework Component/s	Influence Factor	Potential Adaptation Results
• Climate Resilient Livelihoods and Enhancing Adaptive capacity	The quality of the natural resource base	N – Increase in cooperation amongst relevant ministries, and policy improvements
		L – Sustainable use of natural resources via enhancements in community based management
		H – Participation in decision making processes has led to practical adaptation strategies

*N = National, L = Local government and community organizations, H = Household and the individual

Step 3

Allow groups 20-30 minutes to complete their task. Have each group post their output on a wall. Gather all participants around each output, and have a group representative explain their output. After, invite participants to add further inputs, and or comment on the completed work e.g. choice of CBA framework component, correctness and completeness of the potential adaptation result, to the sharing of related experiences in their work life. Recommended is to allow for 10-15 minutes for discussion/ group effort.

Materials

- ✓ Exercise worksheet (SW10.1) – 1 for each group (4 to 5 participants)
- ✓ Chart paper, markers, and tape

Time
60 – 90
minutes

A realistic challenge

N = National
L = Local government and community organizations
H = Household and the Individual

Worksheet SW9.1

CBA Framework Component/s	Influence Factor	Potential Adaptation Results
Group 1		
	The ability of information, goods and services to flow into and out of affected areas	N
		L
		H
	Existing patterns of vulnerability created by gender, income and social position	N
		L
		H
Group 2		
	The nature of livelihoods within an area	N
		L
		H
	The ability of rural people to migrate or access non-farming sources of income	N
		L
		H
Group 3		
	Access to education, self-help groups, government departments, banks, NGOs and social networks	N
		L
		H
	The nature of physical infrastructure within the local area (communication and early warning systems, roads, houses, water supply systems, dikes etc.)	N
		L
		H
Group 4		
	The ability of a household to obtain secure sources of water for domestic use	N
		L
		H
	The quality of the natural resource base	N
		L
		H

Language commonly used in enabling environments

Learning aid SLa9.1

Gender

Gender refers to the social characteristics and opportunities associated with being male and female and the relationships between women and men and girls and boys, as well as the relations between women and men. These characteristics, opportunities and relationships are socially constructed. This means that they are constructed or produced by society and as such can be modified or changed.

Gender equality

Gender equality refers to the equal rights, responsibilities and opportunities of women and men and girls and boys. Equality does not mean that women and men will become the same but that women's and men's rights, responsibilities and opportunities will not depend on whether they are born male or female. Gender equality suggests that the interests, needs and priorities of both women and men are taken into consideration, recognizing the diversity of different groups of women and men. Gender equality is not a women's issue and should consider and fully engage men as well as women. Equality between women and men is seen both as a human rights issue and as a precondition for, and indicator of, sustainable people-centered development.

Differentiated vulnerability

Vulnerability to climate change differs across regions, communities and even households. The degree of vulnerability for each can change for each due to sensitivities to hazards and adaptive capacity based on demographic or socially differentiated markers, e.g. socio-economic status, gender, age, geography, ethnic and cultural background etc.

Societal structure and processes

Social structure is the way in which people in a society respond to each other in a patterned way. Individuals living in a social structure are often influenced by their surroundings, e.g. government and community, to economic and political conditions, and opportunities. Social processes are activities, actions, and operations that involve the interaction between people. Most often this involves laws, policies, culture, and institutions that govern, influence and shape society.

Livelihood assets

Important factors shaping the adaptive capacity of individuals, households and communities is their access to and control over financial, human, natural, physical, and social assets.

Financial	Micro-insurance, diversified income sources (job, investments, remittances, and pensions), cash and bank deposits, liquid assets such as livestock and jewelry, credit-providing institutions
Human	Knowledge, skills, and good health to enable labor (quality and quantity) to be used in the pursuit of livelihood strategies

	and objectives
Natural	Reliable water sources, productive land, vegetation and trees, and supporting, productive and regulating ecosystem services
Physical	Irrigation infrastructure, seed and grain storage facilities, tools and equipment (producer goods) needed to support livelihoods, and basic infrastructure, e.g. secure shelter and buildings, water supply and sanitation, energy and communication infrastructure.
Social	Women's savings and loans groups, farmer-based organizations, traditional welfare and social support institutions, networks and connectedness that increase people's trust and ability to work together, e.g. membership in formalized groups.

Enabling environment

An enabling environment is a set of interrelated conditions, e.g. legal, organizational, fiscal, informational, political, and cultural, that impact on the capacity of civil society organizations to engage in development processes in a sustained and effective manner. An enabling environment for climate change adaptation is one that grants the poor the rights, resources and access they need to sustain and benefit from ecosystems, governments and markets.

Session 10

Climate hazards, livelihoods and adaptation influences on the enabling environment

S10

Objectives

- ✓ To highlight the range of influences (supporting and non-supporting), and determining factors that drive, shape, limit, and support livelihood adaptation strategies.
- ✓ To develop a broader view of climate change impact (beyond that of climate related hazards) in consideration of societal and environmental influences as co-drivers and shapers of climate change adaptation OPPORTUNITIES, OPTIONS, and RESULTS.

Facilitation

Step 1

Introduce handout S10.1 and S10.2 through an organized set of PowerPoint presentation. This would include the objectives of the session, and the process the facilitator will take to deliver the session. Inform participants that handout S10.1 is framed in the context of the Sustainable Livelihoods Approach (SLA) framework developed by DFID, and that handout S10.2 is based on field-based research and development practitioner efforts supported through the United Nations Environment Programme.

Step 2

Starting with handout S10.1 (A Sustainable Livelihoods Approach perspective) present an overview of the SLA framework given in Figure 1. Focus attention on the noted livelihood and adaptation assets and explain what each is, e.g. financial, human, natural, physical, and social assets (refer to learning aid SLA10.1 for assistance). Follow through with an explanation of the SLA process flow, influences and feedback loops. Main areas of focus are explained in the text, e.g. points 'A to C'. It is recommended that the facilitator review the 'recommended reading' in handout S10.1 before delivering the session handout.

Recommended is to allow 30 minutes to cover and discuss handout S10.1.

Step 3

Continue the session with handout S10.2. It is important to inform the participants that they have covered key concepts depicted in Figure 2 (see Session 4, handout S4.1 for a short review if needed). Inform the participants that Figure 2 is an encompassing view of what drives, influences, and shapes the outcome for climate change adaptation. As complex as the diagram seems, there are six (6) key learning points within, each represented by a letter (A to F) and a corresponding explanation. Review each in order.

Option: Much of Figure 1 has been presented in varying contexts through Modules 1, 2, and 3. Allow participants to try and explain the key interactions depicted in the figure. Correct as needed.

Recommended is to allow 30 minutes to cover and discuss handout S10.2.

Materials

- ✓ PowerPoint presentation covering handouts S10.1, S10.2 (Note recommended timings given in the facilitators guide)
- ✓ Relevant handouts for each participant guide sheets, chart displays of Figure 1 – handout S10.1 and of Figure 1 – handout S10.2 are optional

Time

90 minutes

A Sustainable Livelihoods Approach perspective

In many climate change impact and vulnerability assessments, focus is placed on the biophysical impacts of climate variability, but to a lesser extent, non-climatic related hazards such as those that may exist within the enabling environmental, e.g. economic, social, demographic, technological, and political factors that may have beneficial and/or adverse effects. As noted in Module 2 and 3 sessions, it is important to consider the existence of adaptation options and opportunities within a community as they see it, i.e. from the perspective of their livelihoods. In the context of rural communities, 'livelihood' must be underscored when trying to define community vulnerability in terms of climate hazards and non-climate related influences for adaptation to climate change within the enabling environment (Figure 1).

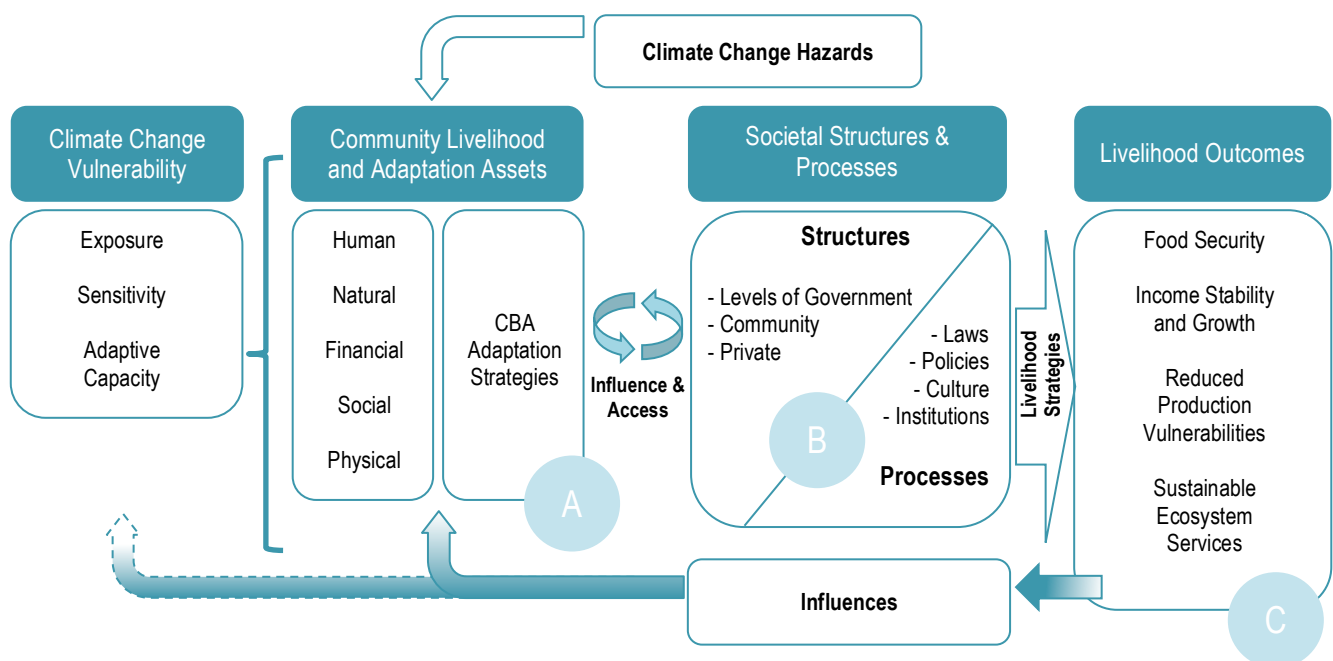


Figure 1 Expanded Sustainable Livelihood Approach⁴⁶ (SLA) framework for CBA and resilience within a system, community, or society.

Livelihoods frameworks, such as DFID's SLA, outline a process of understanding how people use a diverse set of assets to achieve important outcomes in their lives. These outcomes include the fulfillment of basic rights, as well as sustainable access to ecosystem services like water, shelter, and food. Thus, to understand livelihood vulnerabilities requires understanding how people access resources and manage these through societal structures and processes, e.g. gender and other social norms, policy frameworks, economic trends, and the physical environment.

Figure 1 outlines the origins of restrictions, control, and influence that shape rural livelihood strategies in a climate change context. This context is described in terms of exposure, sensitivity, and adaptive capacity, and is influenced by climate and non-climate related hazards and influences. Following are key learning points to be taken from Figure 1:

⁴⁶ DFID (1999) Sustainable livelihoods guidance sheets. London: Department for International Development www.eldis.org/vfile/upload/1/document/0901/section1.pdf

A

For communities to cope and adapt to climate change impacts they must have adequate resources to implement adaptation strategies. The extent of these resources, in terms of quantity, quality, and access will determine the range of adaptation strategies available to them.

B

Access to adaptation assets can be limited for a number of reasons, e.g. there may be a 'no access' law in place to protect a sensitive ecosystem or the habitat of an endangered species. In other cases, private investors have restricted access to villagers via economic agreements with government. On the other hand, access may also be improved, e.g. preferential access to certain resources granted to help reduce vulnerabilities amongst highly marginalized members of society. In most cases, a restriction in access to a community's livelihood asset base/ adaptation assets can result in an increase in their vulnerability to climate change hazards. And, improvements in access and management of the given set of assets can result in a decrease in climate change vulnerability. This underscores the importance of societal structures and processes as determining factors of livelihood outcomes and climate change vulnerability – the enabling environment for adaptation.

C

There is also a feedback loop of influence between the outcome of a livelihood strategy and the changing context of the adaptation asset base and overall climate change vulnerability. Note that this influence can be negative for some members of a community or societal group, and positive for others.

Recommended Reading

- ✓ DFID (1999) Sustainable livelihoods guidance sheets. London: Department for International Development
www.eldis.org/vfile/upload/1/document/0901/section1.pdf

Referring back to Module 1 (Session S4, handout S4.1, figures 1 and 2) these conceptual frameworks were just starting points to understand a very complex set of interactions that shape and drive climate change adaptation. Important to understand is that climate change adaptation is in motion always; one factor influencing another constantly. Figure 1 below shows how complex the influences behind climate change adaptation can be. These influences often determine if ecosystem services will be degraded or improved, who will benefit, and to what degree climate change adaptation and resilience can be gained or lost. Figure 1 also shows that the results of adaptation attempts are tightly connected to how principles of sustainable development are implemented, and human rights realized at the level of community, society, and country.

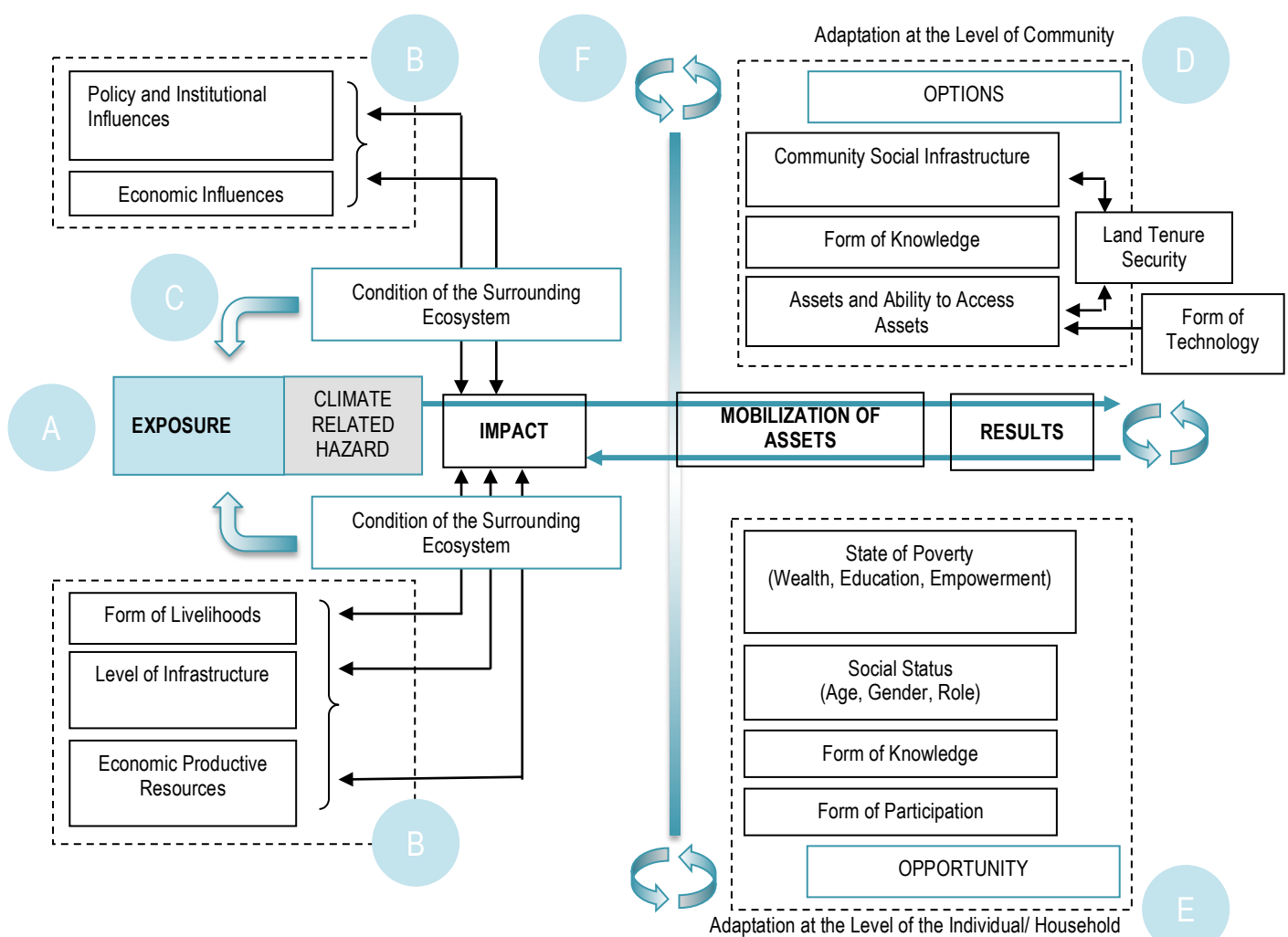


Figure 1 Schematic of the driving forces behind climate change adaptation, including key influences shaping adaptation strategies and results.⁴⁷

The type, strength, and frequency of the climate related hazard (not disaster) links directly to the level of impact communities could experience in varying context. This will be greatly determined by the condition of the surrounding ecosystem in terms of its ability to deliver ecosystem services. Following through from the 'impact',

⁴⁷ AIT-UNEP (2011). Climate Change Adaptation - Factors of choice, effectiveness, and supporting systems. Copyright ©AIT-UNEP RRCAP 2011, Bangkok, Thailand.

communities begin to mobilize assets to compensate for the impact, and or to adapt to the climate related hazard in the long term. How this is influenced and supported will determine the result, and for who. The 'result' also feeds back on/ influences policy and institutional processes, livelihood choices and how they will be supported. The pattern of influence is cyclic, revealing the ever-changing nature of climate change impacts, and just how difficult it is to understand what people need to adapt to or advocate to improve the enabling environment.

B

The condition of the surrounding ecosystem is greatly dependent on policy, institutional, and economic processes, e.g. the level of demand, conservation and protection over the natural resource base. The condition of the surrounding ecosystem is also dependent on the nature of local livelihoods, e.g. the form of livelihood, and the level of supporting infrastructure and productive resources available.

C

Note that areas identified by 'B' do not operate in isolation of each other. In fact they influence one another and shape the condition of the surrounding ecosystem and the level of services provided to sustain livelihoods and protect communities from climate change impacts. As a simple example, if access to the natural resource based is limited, i.e. in favor of sustainable management, the ecosystem is able to provided a buffer against climate related hazardous events. However, if the ecosystem is not managed well, perhaps exploited due to weak governance and or high demand to support local livelihoods, the ecosystem is not able to provided a buffer against climate related hazardous events.

D

Assuming that some form of coping or adaptation strategy has occurred, 'what' will also be influenced through a number of determining factors. At the level of community, OPTIONS for adaptation are more so influence by a community's social infrastructure, form of knowledge resident within the community, its access to new knowledge, land tenure security, and its assets and ability to access these productively, e.g. financial, human, social, physical, and natural in form.

E

At the individual and or household level, the OPPORTUNITY to adapt to climate change impacts is greatly dependent on a person's (or household's) state of wealth, education, and degree of empowerment. There are determining factors to the aforementioned such as age, gender, and social role and status within the home or community. Ultimately, this combination of determining factors determines the individual or household's ability to access community assets needed for adaptation, and or their participation in risk and vulnerability reduction decision-making process.

F

As noted in 'C' above, OPTIONS and OPPORTUNITIES, and determining factors to adapt at the individual, household and or community level to adapt can influence one another in positive and negative ways. Important to note is that the degree of fairness, or equity in this process is seldom the same for all, e.g. women, men, children, the disabled, to those groups considered to be socially marginalized.

Reflection

Looking at what shapes and drives climate change adaption can provide CBA project and programme planners with a unique understanding of the enabling environment and of the hidden complexities within. For example, on one hand, sustainable land use policies at the local level could be considered enabling, yet, culture can negate this 'positive enabling environment' if vulnerabilities associated with social and economic marginalization are not addressed.

Recommended reading

- ✓ AIT-UNEP (2011). Climate Change Adaptation - Factors of choice, effectiveness, and supporting systems. Copyright ©AIT-UNEP RRCAP 2011, Bangkok, Thailand.

SLA – Livelihood assets and capital⁴⁸

Learning aid SLa10.1

What is human capital?

Human capital represents the skills, knowledge, ability to provide labor and good health that together enable people to pursue different livelihood strategies and achieve their livelihood objectives. At a household level, human capital means the amount and quality of labor available. This varies according to household size, skill levels, leadership, and health status, etc. Human capital appears in the generic framework as a livelihood asset as a building block to achieving livelihood outcomes. Many people regard ill health or lack of education, as core dimensions of poverty and thus overcoming these conditions may be one of their enabling livelihood objectives.

Why is human capital important?

As well as being of essential value, human capital is required in order to make use of any of the four other types of livelihood assets, e.g. financial, natural, physical, and social capital. It is therefore necessary for the achievement of positive livelihood outcomes.

What is social capital?

There is much debate about what exactly is meant by the term 'social capital'. In the context of the sustainable livelihoods approach (SLA) framework it is taken to mean the social resources that people use in pursuit of their livelihood objectives. These are developed through:

- Networks and connectedness that increase people's trust and ability to work together and expand their access to wider institutions, such as political or civic bodies
- Membership in formalized groups that require one to follow mutually-agreed or commonly accepted rules, norms and sanctions
- Relationships of trust, mutual benefit and exchanges that facilitate co-operation, reduce transaction costs, and provide the basis for informal safety nets

Of the five (5) forms of livelihood assets, social capital is the most intimately connected to transforming structures and processes. For example, when people are already linked through common norms and sanctions they may be more likely to form new organizations to pursue their interests, or to further shape policies to ensure that their interests are reflected in laws, policies and governance structures.

Why is social capital important?

Mutual trust and mutual benefit lowers the cost of working together. This means that social capital has a direct impact upon other types of capital:

- By improving the efficiency of economic relations, social capital can help increase people's incomes and rates of saving (financial capital)
- Social capital can help to reduce the 'free rider' problems associated with access to and use of public goods. This means that social capital can be used to improve the management of common resources (natural capital) and the maintenance of shared infrastructure (physical capital)
- Social networks facilitate the development of knowledge and sharing of that knowledge

What is natural capital?

Natural capital is the term used for the natural resources provided by a range of ecosystem services useful to livelihoods. There is a wide variation in natural resources that make up natural capital, from the intangible – our atmosphere and biodiversity, to that used directly for production purposes, e.g. trees, land, etc. Within the SLA framework, the relationship between natural capital and 'vulnerability' is particularly close. Many of the climate related hazards and shocks that devastate the rural livelihoods destroy natural capital.

⁴⁸ DFID (1999) Sustainable livelihoods guidance sheets. London: Department for International Development
www.eldis.org/vfile/upload/1/document/0901/section1.pdf

Why is natural capital important?

Natural capital is important to those who derive all or part of their livelihoods from natural resource-based activities (farming, fishing, gathering in forests, mineral extraction, etc.). However, the importance goes way beyond this. None of us would survive without the help of ecosystem services. For example, health (human capital) would tend to suffer in areas where air quality is poor, or food is unavailable or of poor quality.

What is physical capital?

Physical capital comprises the basic infrastructure, tools and equipment (producer goods) needed to support livelihoods. Infrastructure consists of changes and additions to the physical environment that help people meet their basic needs and to be more productive. Some examples of physical capital are affordable transport, secure shelter and buildings, water supply and sanitation, affordable energy, and communication infrastructure.

Infrastructure is commonly a public good that is used without direct payment. Exceptions include shelter, which is often privately owned, and some other infrastructure that is accessed for a fee related to usage (e.g. toll roads and energy supplies). Producer goods may be owned on an individual or group basis or accessed through a fee, e.g. rice mills.

Why is physical capital important?

Many poverty assessments have found that a lack of infrastructure is considered to be a core dimension of poverty. Without adequate access to services such as water and energy, human health deteriorates and long periods are spent in non-productive activities such as the collection of water and fuel wood. Without roads and transportation, essential fertilizer cannot be distributed effectively, agricultural yields remain low and difficult to transport limited produce to the market cost effectively. Insufficient or inappropriate producer goods also constrain people's productive capacity and therefore the human capital at their disposal.

What is financial capital?

Financial capital represents the financial resources that people use to achieve their livelihood objectives. There are three main sources of financial capital:

- Savings - a preferred type of financial capital because there is no liability attached and usually does not involve reliance on others. Savings can come in many forms, e.g. cash, bank deposits or liquid assets such as livestock and jewelry.
- Borrowed - where cash is obtained through credit-providing institutions
- Regular income/ money inflows – to include earned income from a job or investments, remittances, and pensions etc. In order to make a positive contribution to financial capital these cash inflows must be reliable.

Why is financial capital important?

Financial capital is the one asset that tends to be the least available to the poor, yet, it is probably the most versatile of the five livelihood assets because:

- It can be converted into other types of capital
- It can be used for the direct achievement of livelihood outcomes, for example when food is purchased to reduce food insecurity
- It can also be transformed into political influence, and or allow people time to participate in organizations that formulate policy and legislation, and govern access to natural resources.

Recommended reading

- ✓ DFID (1999) Sustainable livelihoods guidance sheets. London: Department for International Development
www.eldis.org/vfile/upload/1/document/0901/section1.pdf

Session 11

A rights-based approach to assessing the enabling environment

S11

Objectives

- ✓ Build a basic understanding of what a rights based approach (RBA) is, regarding rights and obligations to be fulfilled to enhance the 'enabling environment'.
- ✓ Introduce a basic set of questions/ tool process used to assess the enabling environment at the level of country, the duty bearer, and rights holder vis-à-vis a problem context.

Facilitation

Step 1

Introduce handout S11.1 through an organized PowerPoint presentation. This would include the objectives of the session, and the process the facilitator will take to deliver the session.

Step 2

Introduce the RBA, placing emphasis on its three (3) characteristics, 1) origin, 2) objective, and 3) actors. Follow with a review of the 4Rs, and then proceed to the RBA stakeholder analysis guidelines.

Step 3

Set the foundation for why a RBA stakeholder analysis is done, e.g. to understand the characteristics, interests and expectations of groups or individuals likely to be important in climate change adaptation and resilience building responses. At this time, it is recommended to ask participants to give examples of who or what they think would be involved in the analysis. If their answer involves 1) a duty bearer, 2) a rights holder, and or 3) something else, e.g. a societal structure or process, participants should explain their answers. Follow the aforementioned question and answer (Q&A) by reviewing the 'guidelines' to a RBA stakeholder analysis'.

If time is available, recommended is to build a climate change problem context to be used as a contextual backdrop when reviewing the guidelines to a RBA stakeholder analysis. Use handout S9.1 – subsection 'climate change and human rights' to help develop the problem context, e.g. right to water. Participants, or the facilitator can then give their input in context on each question noted in each stage of the analysis guidelines. (Recommended is to allow an extra 45 minutes for this process)

- Problem context example: Although city dwellers have access to sufficient, safe, acceptable, and affordable water for personal and domestic uses, the lack of infrastructure, combined to extreme poverty has resulted in a 30% higher incidence of water borne diseases in the rural areas.

Step 4

Continue with handout S11.1, RBA tools and analysis. Present and review the three matrices as shown. Participants should understand that the country level analysis takes a considerable amount of time to do properly, i.e. specific research is required. The matrices for the duty-bearer and rights holder can be done as a desktop analysis process, or as a participatory exercise with relevant stakeholders. This process is preferred as it acquires practical information and builds awareness amongst stakeholders in relation to the problem context.

Materials

- ✓ PowerPoint presentation covering handout S11.1 (Note recommended timings given in the facilitators guide)
- ✓ Option: Prepared 'problem context' examples and or pre-filled matrices in relation to a chose 'problem context'

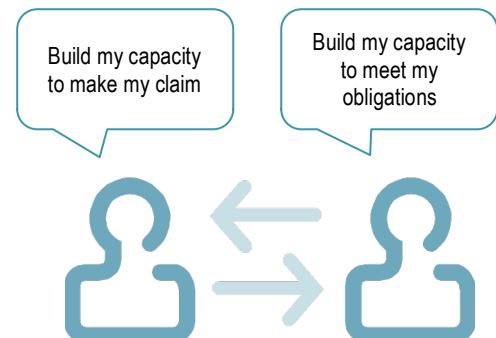
Time

60 minutes

What's a Rights Based Approach?

Under a Rights Based Approach (RBA) to human development, plans, policies and programmes are anchored in a system of rights and obligations established by international law. This helps to promote sustainability and empower the **right-holders** to participate in policy formulation and hold accountable those who have a duty to act (**duty-bearers**). There are three identifying characteristics to the RBA:

- **Origin:** Its principles and standards are derived from international human rights treaties, and are to be used to guide policies and programming in all sectors and in all phases of actions to be taken;
- **Objective:** The main objective to the formulation of policies and programmes are to ensure human rights are upheld and strengthen; and
- **Actors:** The approach identifies **rights-holders** and their entitlements and the **duty-bearers** and their obligations, and works to strengthen the capacity of rights-holders to make their claims and of duty-bearers to meet their obligations.



Roles, rights, responsibilities, and returns

The 4Rs (roles, rights, responsibilities, and returns) is more than a concept, it is actually used as an awareness building and analytical tool to clarify the roles of different stakeholders, the nature of their relationships, and the context in which this takes place, i.e. the enabling environment. Specifically, understanding the 4Rs helps CBA programme and project developers to:

- To analyze multi-stakeholder situations and diagnose problems
- To assess and compare policies that could impact adaptation and resilience building strategies
- Negotiate needed roles and responsibilities amongst stakeholders in support adaptation initiatives
- Evaluate progress in programmes and projects respective of changes in the enabling environment

The most common use of the 4Rs is to create awareness amongst stakeholders respective of an issue-base by unpacking their role in the issue-base into a more specific and understandable set of rights, responsibilities and returns. This 'unpacking' also helps stakeholders identify capacity gaps needed to reconcile different interests and work cooperatively together, e.g. how rights and obligations are to be expressed.

Guidelines to a RBA stakeholder analysis

The aim of a RBA stakeholder analysis is to understand the characteristics, interests and expectations of groups or individuals likely to be important in climate change adaptation and resilience building responses. Through analysis, the aim is to find out who needs what, who is best to do this, and how regarding rights holders and duty bearers. Also learned is who has vested interests in the present situation remaining the same, who might oppose changes, and whom in civil society should be empowered through specific CBA interventions.

A RBA stakeholder analysis is carried out in most development programs. Central to the process is to:

- Identifying who is responsible for addressing a given problem in terms of rights and obligations, i.e. the right-holder/s and the corresponding moral or legal duty-bearer/s
- Assess whether rights-holders can claim their rights through legal processes, e.g. the judicial courts or through more informal means at the community level
- Remember that rights-holders have specific responsibilities, an obligation to respect the rights of others, and an obligation to take responsibility for their own lives and actions

Thus, a RBA stakeholder analysis should clarify what can be expected from societal structures and processes, and from the vulnerable in relation to a specific issue/problems base. As a helpful guide to the RBA stakeholder analysis:

Define the problem context

1

- What human rights are at threat?
- What is the affect of the aforementioned on rights holders that are the most impacted by, marginalized, and or at a heightened state of vulnerability?
- What is currently being done to address the problem in relation to societal structures and processes?

Be specific when identifying the duty-bearers

2

- Who are the duty-bearers directly involved in the problem context? Are they legal or moral, governmental or non-governmental?
- What are their characteristics in terms of resources and capacity?
- Are they operating at the community level, national level, or international level, and how do they interact with rights-holders?
- What are their obligations in relation to the specific problem?
- Do they meet their obligations? Are they aware of them? Do they recognize them?
- If they do not meet their obligations, why not?
- What is their position on the problem?

The state is the primary legal duty-bearer. The duty of the state extends to all parts of government, parliament, local and national authorities, the legal and the educational system, the police and many more. It is also important to recognize that local leaders, companies and civil society organizations are also duty-bearers even though they are regarded as rights-holders in other respects.

Define what is to be expected of the duty-bearers

3

- What should they do to respect the relevant rights of the rights-holder?
- What should they do to protect the relevant rights of the rights-holder?
- What should they do to fulfill the relevant rights of the rights-holder?
- What should they do to ensure that their own rights as duty-bearers, are respected, protected and fulfilled?

Be specific when identifying rights-holders

4

- Who are the rights-holders?
- What are their immediate needs?
- Are they aware of their rights or how and where to claim them?
- What are their assets and capabilities?
- How are they organized?

Define what is to be expected of the rights-holder

5

- What should they do to respect the relevant obligations of the duty-bearer?
- What should they do to protect the relevant obligations of the duty-bearer?
- What should they do to help fulfill the relevant obligations of the duty-bearer?
- What should they do to ensure that their own obligations as a rights-holder, are respected, protected and fulfill?

RBA tools and analysis

The analysis should be based on a problem vis-à-vis a human right context, e.g. how this is being impacted by action and or non-action. Important is to be as specific as possible, and be aware that more than one analysis may be needed for more complex issue bases that have multiple problems within.

The analysis must determine whether the duty-bearers and rights holders are able to meet obligations and undertake actions. If the answer is yes, how can they be encouraged to act? And if the answer is no, why, and what should be done? It is important that key stakeholders participate in the process. This builds awareness, helps to describe and prioritize problems better, and informs people of their obligations.

Tool 1 – Country level analysis

Problem/ main issue identified:

Answer questions horizontally, e.g. 1., 1.1, and 1.1.1 - they are connected to each other

Make a separate chart for each problem/ issue identified

Legal framework	Institutional framework	Policy Framework
1. What are the laws and regulations dealing with the problem?	1.1 What are the institutional mechanisms (state and non-State) to deal with the question?	1.1.1 What are the relevant policies affecting the issue?
2. Do the laws and legal framework guarantee the respect, protection and fulfilment of rights in accordance with human rights standards and principles?	2.1 Do they have a mandate to respect, protect and fulfil rights in accordance with human rights standards and principles?	2.1.1 Do they guarantee the respect, protection and fulfilment of rights in accordance with human rights standards and principles?
3. Do national laws establish the roles of right-holders in exercising and claiming their rights?	3.1 Do institutions create a space for the roles of right-holders in exercising and claiming their rights?	3.1.1 Do policies define the roles of right-holders in exercising and claiming their rights?
4. Do they establish the roles of duty-bearers in meeting their obligations?	4.1 Do they create a space for the roles of duty-bearers in meeting their obligations?	4.1.1 Do they define the roles for duty-bearers in meeting their obligations?
5. Are these laws applied or function adequately? If not, why?	5.1 Do these institutions function adequately? If not, why?	5.1.1 Are these policies applied or function adequately? If not, why?

Tool 2 - Duty-bearer capacity analysis

Problem/ main issue identified:

Make a separate chart for each problem/ issue identified

Note specific instructions and or questions to be answered

Duty-bearer	Role Analysis	Capacity Analysis		
		Motivation or Willingness	Authority	Capacity
<i>Listed the most relevant duty-bearers to be involved in the analysis vis-à-vis the identified problem</i>	<i>List key responsibilities of each duty-bearer</i>	<i>Do they accept their responsibility? If not, why not?</i>	<i>Do they have the authority to carry out their responsibilities? If not, why?</i>	<i>Do they have the needed knowledge, skills, and resources to carry out their responsibilities? If not, what is missing?</i>
Example: Community leaders				
Example: Civil society				
Example: Local government/ public sector				
Example: National government ministries				

Tool 3 - Rights-holder capacity analysis

Problem/ main issue identified:

Answer questions horizontally across the table and record as appropriate, e.g. 1a, 1b, 1c

Make a separate chart for each problem/ issue identified

Rights-bearer	Right/ Claim Violation	Justification of the Violation
<i>List 'groups' whose rights/claims are most vulnerable to be neglected.</i>	<i>Identify what specific right/ claim is in danger of being neglected, or is being neglected?</i>	<i>Explain/ describe why the right is being 'violated' (To be done according to international human rights standards)</i>
1a. 2a. 3a.	1b. 2b. 3b.	1c. 2c. 3c.
Knowledge of the 'right' being neglected	Expression of the 'right'	Capacity Support
<i>What formal and informal knowledge does the right-bearer have regarding the right being neglected?</i>	<i>What action/s does the right bearer undertake to show they have the 'right'?</i> <i>What risks were incurred because of the action/s taken?</i>	<i>What capacities supported the right-bearer's actions?</i> <i>What capacities were absent to lower the risks involved in action/s taken?</i>
1d. 2d. 3d.	1e. 2e. 3e.	1f. 2f. 3f.

Other important RBA rural appraisal tools for analysis

Tool	Brief Description	Particularly Useful For
Problem Tree	Identify the root problem cause to climate change related issues within the enabling environment and barriers to adaptation	Analyzing and differentiate symptoms of poverty, poor development practices, and the impacts of climate change
Institutional Relationship Map	Identify relevant stakeholders vis-à-vis problem statements, their linkages, relationships, and capacities in use	Identifying important stakeholders that can contribute to climate change responses, and or remove blocks to progress
RBA Country Analysis	Describe a country context respective of legal, institutional, and policy related structural and societal processes	Analyzing the context of human rights issues within a country vis-à-vis legal, institutional, and policy frameworks
RBA Capacity Gap Analysis	Identify capacity gaps and influences among the duty-bearers and rights holders vis-à-vis an identified human rights issue	Analyzing responsibilities, motivation, willingness, authority, and resources needed for the realization of human rights in a given context
RBA Rights Holder Analysis	Identify role patterns of rights holders vis-à-vis a prioritized human rights problems	Categorizing rights holders, identifying their roles, responsibilities, capacities and capacity gaps, and risk factors involved in addressing a human rights problem
Multi-Stakeholder SWOT Analysis	Identify stakeholder linkages vis-à-vis their Strengths, Weaknesses, Opportunities and Threats/barriers to implementing a climate change response, and or improving the enabling environment	Identifying barriers to climate change mitigation, adaptation and disaster risk reduction responses, and learning of pathways to resolve identified barriers
RBA Project Modeling	Provides a conceptual framework and roadmap for program or project development	Summarization, visualization, and simplification of RBA project/program frameworks
DRR Capacity Assessment and Action Planning	A charting tool that aligns stakeholder disaster risk reduction (DRR) capacities and capacity development needs with specific climate change and non-climate vulnerabilities to be addressed and how	DRR vulnerability and capacity assessment. Can also be used to build awareness amongst stakeholder vis-à-vis their local context of risks, hazards, and vulnerabilities

Creative Problem Solving	A simple participatory matrix tool that helps stakeholders break away from 'business as usual' attitudes to solutions by focusing on what works well and innovating with what doesn't	Finding creative solution to standard problems; helping to create energy and excitement around problem solving; encouraging participation from those traditionally not involved in solution finding and decision making
Flow Diagrams and Charts	These are graphical representations of the "flow" of data and activities. A flow chart shows the flow of control allowing a reader to determine what operations will be performed, in what order, and under what circumstances, but not what kinds of information the flow is based on	
Objective Tree	An objective tree is a hierarchic flowchart of objectives. When used to develop a logical framework, the objective tree is the opposite of a problem tree	To build a clear picture of what needs to be done to solve a problem; providing a basis for the development of project activities; and ensuing and encouraging participation from multi-stakeholders
Multi-Stakeholder Negotiated Problem Solving	This is a process consisting of many tools that bring a RBA to solving an issue through negotiated solutions with defined actions, roles and responsibilities. The tool usually takes a three day workshop to implement back by prior research and extensive consultations	When conflict is present around an issue that can't be resolved through regular dialog; when using an issue based planning framework to project designs; when a participatory approach needs to be highlighted

Module 4

Assessing climate change vulnerability and capacity; planning for adaptation

4

Module 4

Assessing climate change vulnerability and capacity; planning for adaptation

4

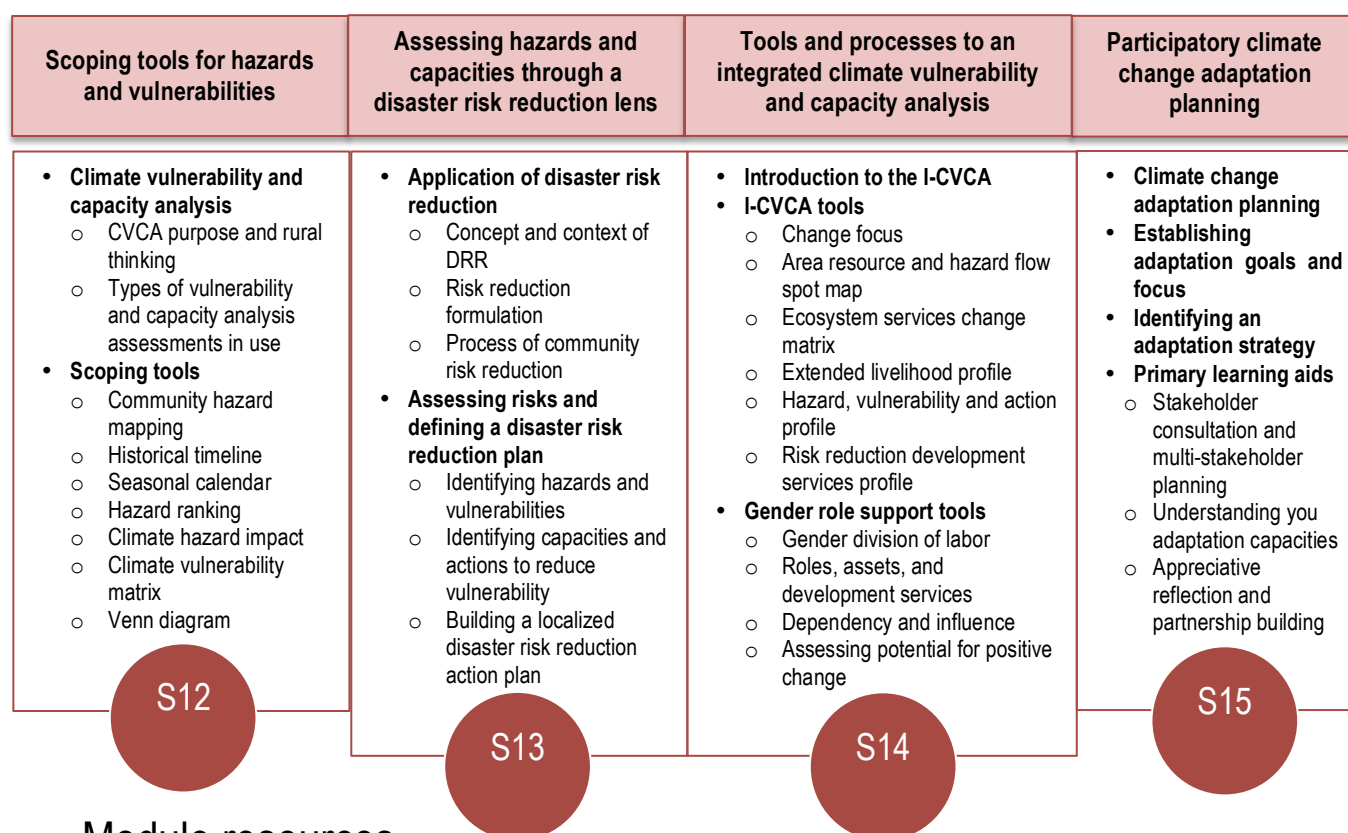
Module Overview

Module 4 provides learners with a wealth of participatory climate changed adaptation and rural appraisal tools. Each tool comes with detailed delivery instructions and context information regarding their application and use. Tools are grouped into processes, starting with the very basic of scoping tools commonly used in participatory rural assessments, and those used in the context of disaster risk reduction, and climate vulnerability and capacity analysis. Central to the module is the Integrated Climate Vulnerability and Capacity Analysis (I-CVCA) process. The I-CVCA is an investigative process that aims to separate 'impact' caused by poor sustainable development practices, and that of climate change impacts. The I-CVCA process also investigates the enabling environment for climate change adaptation, including assessing the capacities of development services providers, and aspects of gender, dependency and influence. The module ends by putting forth a participatory adaptation planning process backstopped by the I-CVCA.

Objectives

- ✓ Build a comprehensive understanding of hazard, vulnerability, and capacity assessment tools and processes, and how information derived from the assessment tools are used in adaptation planning.
- ✓ Provide a doable and collaborative adaptation planning process that also helps to build awareness, consensus, and partnerships for climate change adaptation project delivery.

Module process



Module resources

4 Learning sessions 24 Handouts 6 Learning aids

Objectives

- ✓ Understand common concerns of rural communities and how they will project these concerns during a Climate Vulnerability and Capacity Analysis (CVCA) assessment.
- ✓ Gain familiarity with a set of basic CVCA scoping tools, how to facilitate these in the field, and what information can be derived from the tool set.

Facilitation

Step 1

Introduce handouts S12.1 to S12.8 through an organized PowerPoint presentation. This would include the objectives of the session, and the process the facilitator will take to deliver the session. Note that the tools to be reviewed are akin, if not common in process, to those used in participatory rural appraisals, but have been adapted to investigating climate related hazards and impacts. Important facts about the tools:

- Aside from the 'community hazard mapping' tool (see handout S12.2), most tools will yield subjective information.
- Scoping tools are designed to provide generalized context information (past and present) and insight into community life in the context of hazards and vulnerabilities. They are not intended to supply quantitative information to be used as a measurable baseline.
- Information derived from the scoping tools are only designed to inform the design of a more in-depth study into climate change hazards, impacts, vulnerabilities, and adaptive capacities. Hence, scoping tools should not be used as the sole bases for adaptation project planning.

Step 2

Introduce handout S12.1 by giving an overview of why a CVCA assessment is done:

- Develop an understanding around climate change impact, vulnerability and adaptive capacities among specific target groups and geographic scope
- Establish a quantifiable base line to measure climate change impact, vulnerability, and adaptive capacities
- To create awareness around why vulnerabilities exist and to prioritize specific vulnerabilities to which stakeholders can realistically responded to

It is important to convey to participants that during CVCA investigations, communities will often equate climate change impacts to losses, but these losses may or may not be a result of climate change. Such can be a result of poor land management, to poor development patterns, etc. Key learning focus is captured in Figures 1 and 2.

Step 3

To facilitate learning of the 'scoping tools' (handouts 12.2 to 12.8), it is advised that participants have time to review each tool prior to the session, e.g. 1 day. During the session, present each tool, focusing on the tool briefing and objectives. Following, a brief review of the tool deliver process is needed. This should be followed by a question and answer period for clarification. If time permits, participants can be asked for data examples, and or what types of data they think would be gained and how would they use this in planning a vulnerability reduction and or adaptation response.

Allow approximately 20-30 minutes to review each tool. Provide 1.5 days for a field level practicum.

Materials

- ✓ PowerPoint presentation covering handouts S12.1 – S12.8
- ✓ For a field based practicum, refer to the handouts for specific material needs

Time

3.0 – 3.5hrs

CVCA purpose and rural thinking

The purpose of conducting a Climate Vulnerability and Capacity Analysis (CVCA) is to develop 1) an understanding of climate change impact, vulnerability, and adaptive capacities among a specific target groups, e.g. women, forest and agricultural based communities and local government agencies, 2) establish a quantifiable base line to measure climate change impact, vulnerability, and adaptive capacities, and 3) to create awareness around why vulnerabilities exist and to prioritize specific vulnerabilities to which stakeholders can realistically responded to.

Important to note is that communities are not alone when considering vulnerability, e.g. ecosystems and habitats, and everything within are vulnerable to climate change. However, when facilitating a CVCA process, facilitators need to be aware of common concerns rural communities have, and that these are often expressed as food and economic vulnerabilities, and few will directly refer to ecosystem services (Figure 1). Thus, it is important that the CVCA process and facilitator help local stakeholders understand the connection between ecosystem services, development patters and their well being.

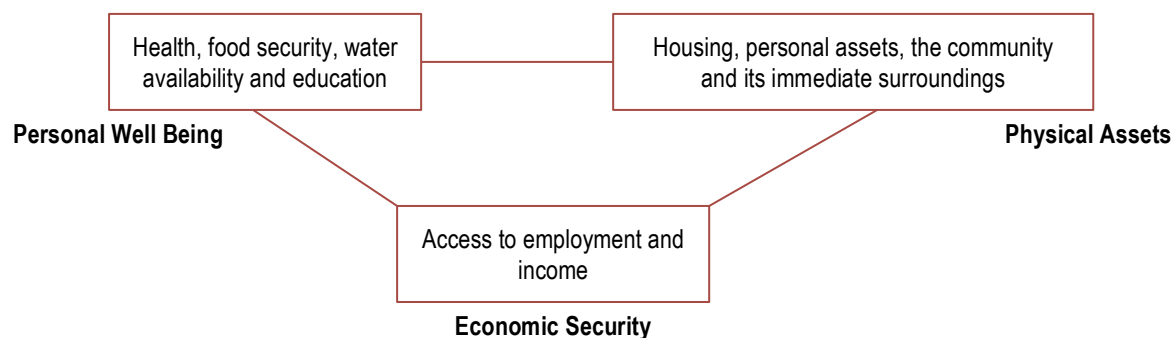


Figure 1 Common concerns of rural communities in a climate change context.

Additionally, communities see 'climate change impact and vulnerability' in terms of losses in productive ecosystem services, food security, livelihood, and in human well being. However, as a CVCA facilitator, it is important to remember that in many situations, the aforementioned losses are not related to climate change in isolation. Poor land use and management patterns, development patterns, self-interest, e.g. economic and political, and influences also need to be considered in the analysis (Figure 2).

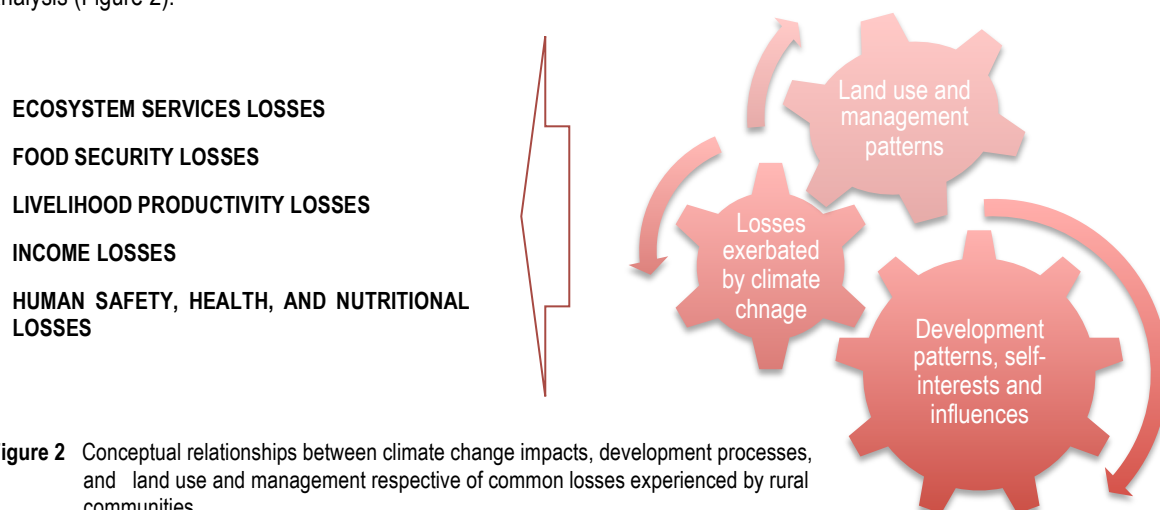


Figure 2 Conceptual relationships between climate change impacts, development processes, and land use and management respective of common losses experienced by rural communities.

Types of vulnerability and capacity analysis assessments in use

Vulnerability assessments, in a climate change context, initially were based on frameworks built around concepts of disaster risk reduction, food security, poverty, sustainable livelihoods and other related fields. Many organizations have taken these frameworks and attempted to build in a climate change lens, guided by definitions of exposure, sensitivity and adaptive capacity provide by the Intergovernmental Panel on Climate Change (IPCC).⁴⁹ However, the IPCC does not present vulnerability in terms of an equation, as does the Disaster Risk Reduction community. Additionally, most participatory or community based vulnerability assessment frameworks avoid mathematical models and quantitative generalizations of community vulnerability. The reality is, if you are to conduct a community based vulnerability assessment, best is to understand a variety of assessment models in use, and reformulate/ combined/ adjust, and/ or adopted an assessment model to the context of the 'community' where the assessment will be applied. Table 1 provides a brief view into the various vulnerability and capacity analysis assessments in use to consider.

Table 1 Climate change vulnerability analysis assessments in use.⁵⁰

Organization	Remarks	Reference Source
CARE International	CARE International focuses on the qualitative aspects of addressing the underlying causes of vulnerability at a variety of scales - from national to household/individual levels.	Dazé, Ambrose, & Ehrhart, 2009
International Institute for Sustainable Development (IISD)	The International Institute for Sustainable Development (IISD) developed CRISTAL (Community-based Risk Screening Tool – Adaptation and Livelihoods) as an interactive, step-by-step tool for quantifying livelihood components in relation to hazards. However, focus is laid heavily on hazards (with no account of seasonal or projected changes), coping strategies rather than adaptation, and the impact on existing projects, rather than communities. This assessment model does not develop a quantification of overall vulnerability taking adaptation into account.	http://www.iisd.org/cristalttool/
International Union for Conservation of Nature (IUCN)	IUCN also focuses on obtaining qualitative data from communities and triangulating it with scientific data, although some matrix ranking of vulnerability versus adaptive capacity is included.	Marshall, et al., 2009
Livelihood and Forestry Programme (LFP) and UKAid	The Community based tool kit for practitioners developed by LFP and UKAid is based on a sustainable livelihood framework and some tools are adopted from CRISTAL, LOCATE2 and SAS3 tools with existing PRA techniques. Tools focus on hazards and subsequent vulnerability and livelihood analysis via rating techniques, e.g. hazard ranking, matrix ranking, hazard assessment, livelihood resource vulnerability assessment, and vulnerability matrix ranking etc.	Regmi et al, 2010
Practical Action	Practical Action's Vulnerability to Resilience (V2R) framework stresses the dynamic and cyclical nature of building resilience to climate change that makes numerical measurement difficult.	Pasteur, 2010
Tearfund	Tearfund's vulnerability assessment includes the quantification of risks posed by various climate-related hazards that allows for the prioritization and selection of adaptation options, i.e. the greater the risk, the greater the need for adaptation options. Yet, this assessment model does not develop a quantification of overall vulnerability taking adaptation into account.	Wiggins, 2009

⁴⁹ IPCC (2001). Third Assessment Report. Annex B. Glossaries.

⁵⁰ The table presented is adopted from a review on behalf of Ministry of Environment, Government of Nepal's assignment on "Strengthening capacity for managing climate change and environment: Community based vulnerability assessment, risk mapping and adaptation planning" carried out by consortium of INGO's in Nepal with financial support from Asian Development Bank (ADB). The consortium members include Practical Action Nepal, World Wildlife Fund for Nature Conservation (WWFNepal), International Union for Nature Conservation (IUCN-Nepal), Canadian Center for International Studies and Cooperation (CECI- Nepal) and National Association for Village Development Committee (NAVIN) in Nepal (July, 2010).

SOFEDev, UNEP	SOFEDev and AIT-UNEP RRCAP have developed an Integrated – Climate Vulnerability and Capacity Analysis (I-CVCA) assessment that integrates principles of 1) disaster risk reduction, 2) sustainable livelihoods, 3) sustainable ecosystems, and 4) enabling environments, into a single I-CVCA framework. This is a comprehensive assessment, both quantitative and qualitative in design that tracks the impacts of climate change related hazards, and how rural communities are coping and adapting to climate change. The approach places emphasis on climate and societal related hazards in relation to differentiated vulnerabilities, development service profiles, gendered influences and dependencies, and power divisions. The approach also helps to differentiate climate change impacts from that of poor rural development practices (<i>see Session 14 for the latest version of this assessment</i>).	AIT-UNEP, 2011
World Bank	The World Bank has published a quantitative vulnerability assessment that quantifies vulnerability in terms of existing conditions and assets (physical, biological, social, economic, and cultural), and the impacts of changes and hazards on those conditions/assets.	Panray, Noyensing, and Reddi, 2009

Suggested reading and references

- ✓ AIT-UNEP (2011). An Approach to Climate Change Adaptation Research: Events, Strategies, and Drivers. Copyright ©AIT-UNEP RRCAP 2011, Bangkok.
- ✓ Dazé, A., Ambrose, K., & Ehrhart, C. (2009). Climate Vulnerability and Capacity Analysis (Handbook). London: CARE International.
- ✓ Marshall, N. A., Marshall, P. A., Tamelander, J., Obura, D., Malleret-King, D., & Cinner, J. E. (2009). A Framework for Social Adaptation to Climate Change: Sustaining Tropical Coastal Communities and Industries. Gland, Switzerland: IUCN.
- ✓ Pasteur, K. (2010). Integrating approaches: Sustainable livelihoods, disaster risk reduction and climate change adaptation (Policy Briefing). Rugby: Practical Action.
- ✓ Panray, K. B., Noyensing, G., & Reddi, K. M. (2009). Vulnerability Assessment as a Tool to Build Resilience among the Coastal Community of Mauritius. In R. D. Van den Berg & O. Feinstein (Eds.), Evaluating Climate Change and Development (pp. 361 - 378). Washington D.C.: World Bank.
- ✓ Regmi, B., Morcrette, A., Paudyal, A., Bastakoti, R. and Pradha, S. (2010). Participatory Tools and Techniques for assessing climate change impacts and exploring adaption Option. A community based tool kit for practitioners. Livelihood and Forestry Programmes (LFP) and UK Aid from the Department of International Development.
- ✓ Wiggins, S. (2009). CEDRA: Climate Change and Environmental Degradation Risk and Adaptation Assessment (Toolkit). Teddington, U.K.: Tearfund.

Scoping tool: Community hazard mapping

Handout

S12.2

Tool briefing

The development of this map will provide the 'researcher' with reference points to ecosystem composition, natural assets, natural resource use and management patterns, to hazardous locations for community health and safety. The map is also to be used to reference/ place information gathered from other investigative tools, to help facilitate and contextualize discussions, and to help formulate questions to deepen the assessment.

Tool objectives

- ✓ Map local hazards and assess their risk
- ✓ Clarify the area under consideration in the group discussion
- ✓ Gain a comprehensive understanding of the natural and physical features of the area under investigation
- ✓ Help communities identify the critical hazard types and their impacts

Materials

- ✓ 8 sheets of chart paper (approximately 0.75m x 1.5m taped together in a square), several colored markers and colored paper, and tape

Facilitation time: 2 hours

Facilitation

Step 1

Recommended is a group of 12 – 16 participants balanced between male and females, youth, adults and the elderly etc. Start by introducing the tool objectives, process, and how the output will be used. To start the mapping process, 1st ask participants to outline the boundaries of the area the assessment would include, identify North, then identify on the map ecosystem and habitat components. (see table below for guidance)

Component	Description
Defined boundaries	▪ Political, livelihood or bio-physical orientation
Ecosystem composition	▪ Grass and agricultural lands, forest space and type, wet lands, marine system components
Key geo-physical elements	▪ Hills, rivers/ streams, mountains, natural embankments, and direction of water flows

Step 2

The next step would be to ask participants to add human features to the map. (see table below for guidance)

Component	Description
Human made infrastructure	▪ Roads, homes/ buildings, dikes, water wells, reservoirs, irrigation, water gates
Land use	▪ Agricultural, fisheries, forestry, animal husbandry, waste disposal
Natural resource based livelihood assets	▪ Fresh water and marine products, NTFP ⁵¹ , timber, agroforestry, fodder, agriculture space, water
Land management	▪ Key management areas for protection, conservation, and exploitation, areas that have been degraded and or converted to alternative uses, areas of cultural use

⁵¹ NTFP: Non Timber Forest Products

Step 3

Ask participants to now map hazards (climate and non-climate). Note at this time it is not important to distinguish between the two, e.g. shoreline loss and tsunami affected areas. Recommended is to map hazard-prone areas with a red marker, using different patterns to differentiate different types of danger and impacts. At this time it is also recommended to facilitate a discussion on current and future risk of each hazard happening again. (see table below for guidance)

Hazards	▪ Commonly affected areas and villages by rain and windstorms, floods, drought, landslides, fire, pests, shoreline waves etc. ▪ Areas where livelihood losses are the greatest ▪ Water flow during wet season and extreme events, and drought patterns
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Step 4

Identify and map past and recent changes to the landscape, e.g. coast line diking, forest conversion, land conversion. Such changes could have been because of political or socio-economic decisions, and or natural hazards. Ensure to record the participant's perspective on why changes might have been made, and what had been the result of the changes.

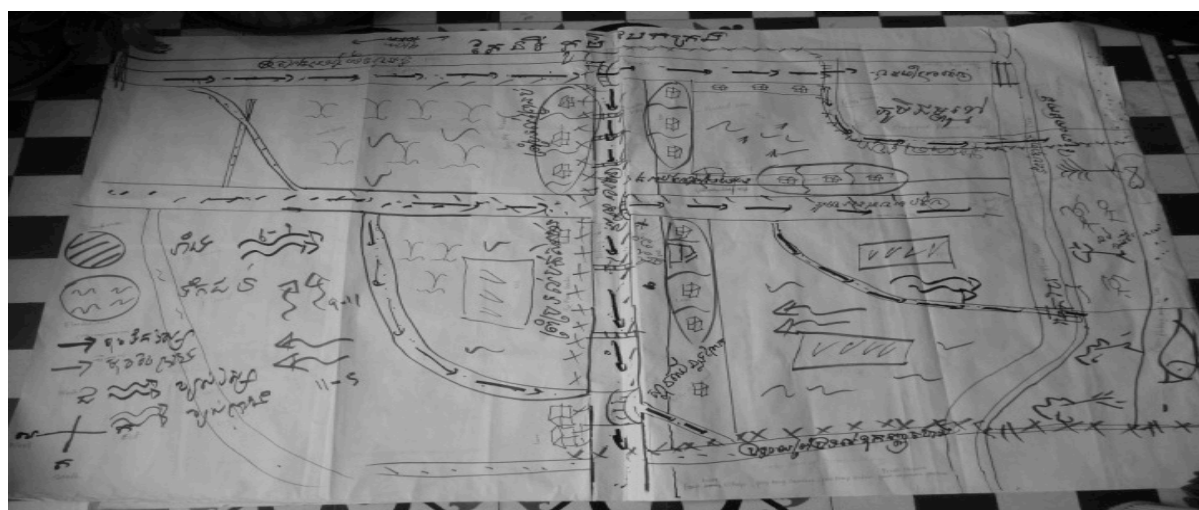


Figure 1 Sample hazard map, Cambodia (AIT-UNEP RRCAP, 2011b).⁵²

Guidance notes

- Consider writing notes on the map, e.g. distances and directions, explanations, events, and changes, to quantity and quality indicators
- During the mapping process, the facilitator should stimulate discussions around visible and invisible impacts of hazards and disasters on livelihoods, impacts on biodiversity, and impacts on ecosystem services
- The mapping process is a good way to make space for raising issues and increasing awareness amongst community members. Recommended is to stop the mapping process from time to time and discuss in more detail, as a group, information being depicted on the map

Further questions

- Where are the most important livelihood assets located (financial, human, natural, physical, and social)?
- Are the hazards natural or man-made?
- Which locations are at risk from health hazards (such as malaria) or socio-political issues (such as conflict or redistribution of land)?
- Physically, where in the community are people most at risk from the different hazards? Why?
- Are there places in the community that are safe from hazards? How are these places used to protect people and assets from hazards?

⁵² AIT-UNEP RRCAP, 2011b. CLIMATE CHANGE ADAPTATION: Factors of choice, effectiveness, and supporting systems. Copyright © AIT-UNEP RRCAP 2011, Bangkok, Thailand

Tool briefing⁵³

Historical timelines, sometimes referred to as a 'Trend Analysis' tool, are most often used as a tool for introducing communities to the concept of climate change, and or used to identify significant changes and events within a localized area. They can also inform a CBA project developer of specific climate hazards and trends, their frequency, severity, and patterns of impact. Hazard information gained, feeds into the climate hazard impact, and hazard ranking tools.

Tool objectives

- ✓ To gain insight into past hazards, changes in their nature, intensity and behavior
- ✓ To help people become more aware of trends and changes over time respective of their lives and/ or surrounding ecosystem etc.
- ✓ Understand historical community reactions to and coping strategies for climatic hazards
- ✓ Investigate historical institutional support following hazard events
- ✓ Gather insight into socio-economic and political changes in the past
- ✓ To introduce the concept of a changing climate to the community

Materials

- ✓ 30 sheets of different colored papers, several colored markers, tape, and 15 meters of strong string

Facilitation time: 1½ hour

Facilitation

Step 1

Recommended is a group of 15 – 20+ participants balanced between male and females, youth, adults and the elderly etc. Start the process by explaining what a historical timeline is, and then introduce the tool objectives, process, and how the output will be used.

Step 2

Facilitation starts with taking a long piece of string or other material and stretching it across the meeting area. Inform the participants that this 'line' will now represent the passage of time. Ask what is the earliest hazardous and or disastrous event in the area that they can remember. This event will mark the beginning of the timeline. Develop a timeline of the last 20 – 30 years if possible.

Step 3

Invite participants to stand on the timeline at the appropriate place and describe the hazardous and or disastrous events they are remembering. The facilitator should then encourage discussion on the 'event', i.e. finding out the impacts of the event, community reactions, coping strategies, and institutional support. When and where applicable, the facilitator should also make connections between the 'event' and the concept of climate change vis-à-vis cause and effect.

Step 4

Ensure that all major environmental, socio-economic and political events are recorded. Papers can be placed along the length of the line for recorded details.

⁵³ Adopted from Climate Vulnerability and Capacity Analysis Handbook" © 2009 by CARE International. Used by permission. And UKAid LFP, 2010. Participatory Tools and Techniques for Assessing Climate Change Impacts and Exploring Adaptation Options: A Community Based Tool Kit for Practitioners. United Kingdom Aid and the Livelihoods and Forestry Programme.

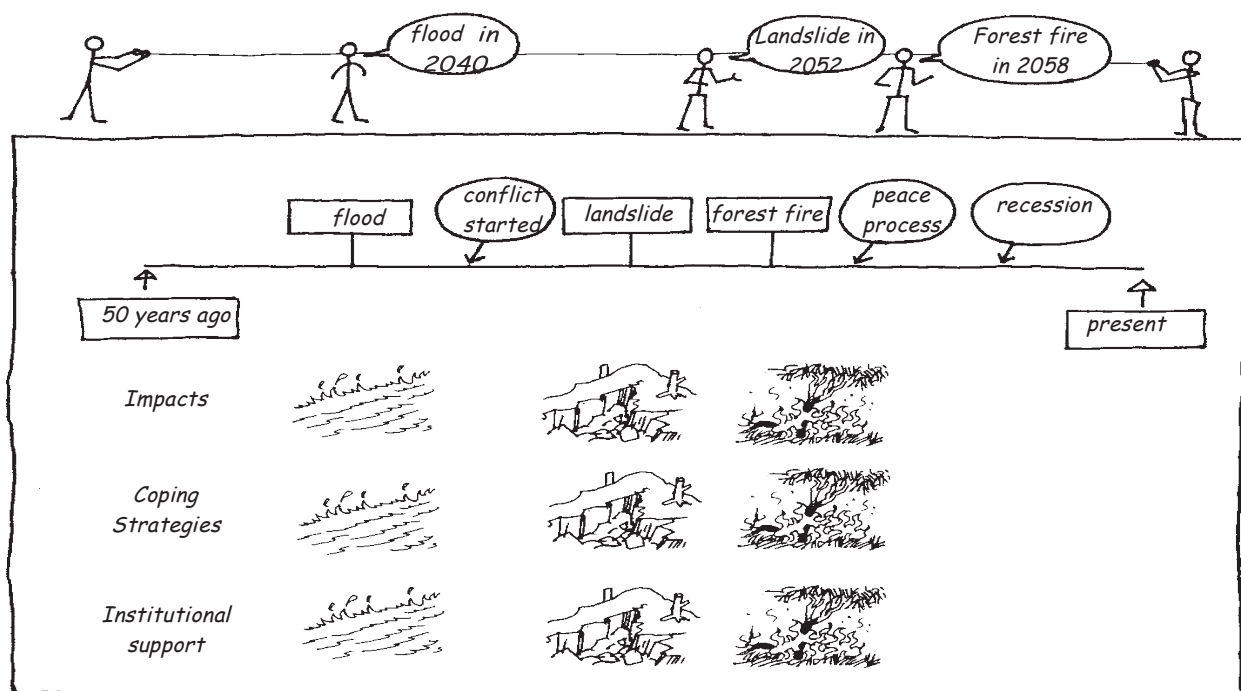


Figure 1 Example of a multi-hazard, multi context historical timeline.⁵⁴

Guidance notes

When reviewing the historical timeline from the perspective of a climatic hazard trend analysis, the facilitator should be careful in how they express cause and effect, and refrain from immediately linking an increase in extreme weather and climate events to 'climate change'.

The trend analysis is a good exercise to start a participatory session. It is powerfully visual, offers the opportunity for participation of a large group of people, and can be a good way to introduce the fundamental concepts of hazard, impact, change, coping, and institutional support. The trend analysis can be combined with a seasonal calendar related to the sector of choice, e.g. forest, agriculture, or fisheries, in order to link changes in crops, local species availability, water availability, pests and disease etc. The documentation of other socio-economic and political changes is an important part of the exercise, offering insight into other drivers of change in the community that need to be taken into account during a CVCA process.

Further questions

- What changes have there been in livelihoods strategies over the period of the timeline?
- What changes have there been in biodiversity and the availability of forest and fisheries products?
- How are existing coping strategies working? Have these strategies changed over time?
- What hazardous events do you expect to occur in the future? How does this expectation of a hazardous event affect your plans for the future?

⁵⁴ UKAid LFP, 2010. Participatory Tools and Techniques for Assessing Climate Change Impacts and Exploring Adaptation Options: A Community Based Tool Kit for Practitioners. United Kingdom Aid and the Livelihoods and Forestry Programme.

Tool briefing

A seasonal calendar is a multi-purpose tool, documenting the main activities and events that happen over a year in a community, e.g. cropping seasons, livestock production, marketing, seasonal health risk, and other main activities. Under these major events, information is further defined to the activity level. For example, cropping seasons would include activities such as land preparation, planting, weeding, and harvesting; livestock production seasons (birthing, milking, etc.); main marketing seasons (crops, livestock, labor, etc.); seasonal health risks (malaria and dengue events) etc. Seasonal calendars contain powerful insights into rural life, and convey something about the complexity of people's lives, and hidden constraints and opportunities within the current CBA enabling environment.

Tool objectives

- ✓ To identify periods of stress, hazards, diseases, hunger, debt, vulnerability, etc.
- ✓ To analyze changes in seasonal activities
- ✓ To evaluate use of climate information for planning
- ✓ To gain a simple understanding about livelihoods and coping strategies

Materials

- ✓ 3-6 sheets of chart paper (approximately 0.75m x 1.5m taped together in a square), several colored markers, and tape

Facilitation time: 1½ hour

Facilitation

Step 1

Recommended is a group of 15 – 20+ participants balanced between male and females, youth, adults and the elderly etc. Start the process by explaining what a seasonal calendar is, and then introduce the tool objectives, process, and how the output will be used.

Step 2

On a square sheet of paper, mark off the months of the year on the horizontal axis and explain to the participants that you would like to develop a calendar to show key events and activities that occur during the year. Ask the participants to list seasons, events, conditions, etc., and arrange these along the vertical axis. The list should include planting and harvest seasons, periods of food scarcity, times of migration, timing of hazards/disasters such as cyclones, droughts and floods, and when common seasonal illnesses occur; at the least.

Step 3

When the key events have been listed, ask participants to plot the timing of them in a calendar table (12 months). A brief sample table is shown below.

Events	J	F	M	A	M	J	J	A	S	O	N	D
• Dry season	X	X	X	X								
Planting	X											X
Harvest			X									
• Wet season						X	X	X	X	X		
Planting							X					
Harvest										X		
Malaria									X	X		
Flu					X	X						

Further questions

- What are the most important livelihoods strategies employed at different points of the year? When livelihoods have been stressed, have coping strategies change over time?
- Are there any differences in the timing of seasons and events as compared to the past?

Tool briefing

Hazard ranking is an exercise tool to help focus an in depth CVCA assessment, particularly when communities identify multiple hazards, impacts and/ or vulnerabilities. The tool allows for many hazards (small and big) to be identified, prioritized and segregated, e.g. those that are climate change related, and those that are important to addressing the underlying causes of poverty and marginalization. This information is then applied to a more in depth investigation and analysis process; ultimately cutting down information gathering, and allowing for CBA project developers to focus upon a prioritized set of hazards to address.

Tool objectives

- ✓ Differentiate between climate change induced and other forms of hazards
- ✓ Compare and prioritize local climate change hazards and other forums of hazards to be addressed by a CBA intervention
- ✓ Understand how communities perceive and evaluate local hazards

Materials

- ✓ 2 sheets of chart paper (approximately 0.75m x 1.5m taped together in a square) for each matrix, several colored markers and colored paper, tape

Facilitation time: 1 hour

Facilitation

Step 1

Recommended is a group of 20 – 25 participants balanced between male and females, youth, adults and the elderly etc. Start the process by explaining what a hazard is,

a potential event that causes the loss of life, and or damage to property, environment, livelihood, and or human dignity,

and then introduce the tool objectives, process, and how the output will be used.

Step 2

Facilitation starts with asking participants to name 'hazards' common to their area. These are to be listed, then discussed as to which are most likely due to a one event or another, e.g. weather, climate change, development patterns, policies, and or social and cultural norms etc. The facilitator should group hazards into categories. Recommended are two categories to be used, 1) those that are climate change related, and 2) those that may have importance to assessing the underlying causes of poverty and marginalization.

For those hazards mentioned by participants not related to the two categories suggested, inform participants that they will be put aside for now and the information to be used at a later time if needed.

Step 3

For the chosen categories, the hazards are to be listed in the row and column headings of a square table (see Figure 1 and 2 for an example). Participants are to consider every pair of hazards. First, ask participants to decide on their own which hazard within the pair is most important to do something about. The facilitator asks the participants to raise their hand for one hazard or the other.

Step 4

Following, allow time for participants to discuss their answers together, and try to come to a consensus. If the 'consensus' is a clear choice, enter the choice in the correct box, if not, the facilitator can ask 'which of the hazards most affects the poor and vulnerable members of the community?' This aims to enable participants to agree more easily on their choice. When the table is complete, the number of times each hazard was chosen is added up. These scores then suggest which hazards are the greatest priorities to work with when conducting the in depth CVCA. Normally, the top 4 hazards are chosen.

Caution: Sometimes it is hard to get a consensus from a group of participants, e.g. others may influence the answer of another participant. This can be addressed by limiting the time for discussion, e.g. 3 minutes, then call for an individual vote.

	Climate related hazards	Landslide	Flood	Drought	Forest Fire	Malaria
Priority ranking:	Landslide	X	Flood	Drought	Forest Fire	Malaria
1st forest fire (4),	Flood	X	X	Flood	Forest Fire	Flood
2nd flood (3),	Drought	X	X	X	Forest Fire	Drought
3rd drought (2),	Forest Fire	X	X	X	X	Forest Fire
4th malaria (1),	Malaria	X	X	X	X	X
5th landslide (0)						

Note:
Shaded areas with an 'x' are repeats and do not need to be filled in/

Figure 1 Example of a climate hazard-ranking matrix; commonly known as a double matrix preference ranking tool.

	Hazards related to poverty and marginalization	Community conflicts	Climate change vulnerability	Exclusion from decision making	Social exclusion	Human rights violations
Priority ranking:	Community conflicts	X	Climate change vulnerability	Exclusion from decision making	Social exclusion	Human rights violations
1st social exclusion (4),	Climate change vulnerability	X	X	Climate change vulnerability	Social exclusion	Climate change vulnerability
2nd climate change vulnerability (3),	Exclusion from decision making	X	X	X	Social exclusion	Exclusion from decision making
3rd exclusion from decision making (2),	Social exclusion	X	X	X	X	Social exclusion
4th human rights violations (1),	Human rights violations	X	X	X	X	X
5th community conflicts (0)						

Note:
Shaded areas with an 'x' are repeats and do not need to be filled in/ answered

Figure 2 Example of a poverty and marginalization hazard-ranking matrix; commonly known as a double matrix preference ranking tool.

Further questions

- Which of the hazards are likely to pose the greatest risk in 5 years' time?
- How might the risk of each hazard happening change over the next few years?
- How do the hazards affect one another?

Tool briefing⁵⁵

A 'Climate Hazard Impact' tool is used after hazards and livelihood activities have been defined. At this point, community participants are to identify the hazards that have the greatest impact on their lives and livelihoods. Important to note is that the tool does not yield quantitate data, rather, it helps build a case for adaptation planning, e.g. what is most important to address. Follow on investigative work will still be required, e.g. setting a quantitate baseline, to understanding of resident capacities and gaps vis-à-vis adaptation needs. This information would be derived from a full CVCA.

Tool objectives

- ✓ Identify the most likely impacts of localized climatic hazards
- ✓ Increase understanding of 'uncertainty', and that it is likely to increase with climate change, and the importance of assessing the risk of climatic hazards happening

Materials

- ✓ 3-4 sheets of chart paper (approximately 0.75m x 1.5m taped together to make a square, several colored markers, tape, and rocks/ beans/ leaves/ sticks (see Figure 1)

Facilitation time: 1 - 1½ hours

Facilitation

Step 1

Recommended is a group of 20 – 25 participants balanced between male and females, youth, adults and the elderly etc. Start the process by explaining what the words hazard, impact, and risk mean:

Hazard: A potential event that causes the loss of life, and or damage to property, environment, livelihood, and or human dignity

Impact: The result of an event (most often seen as a loss or gain in something of importance, e.g. crops, income etc.

Risk: To be understood as the chance of a hazard and or impact happening

Follow with an introduction to the tool, objectives, process, and how the output will be used.

Step 2

Prepare a table on a large sheet of paper, as in the example shown in Figure 1. Hazards can be taken from the historical timeline/ trend analysis (handout S13.3) or the hazard ranking (handout S13.5) tools.

Through widespread discussion, participants are to add the details of the actual or likely impacts to the table - with support from the facilitator when necessary.

Step 3

The facilitator leads a discussion around the causes of the hazards and current risk of the hazards happening. From there, an assessment is made of future risk and given a rating, e.g. low risk (1), medium risk (2), high risk (3), and very high risk (4).

⁵⁵ UKAid LFP, 2010. Participatory Tools and Techniques for Assessing Climate Change Impacts and Exploring Adaptation Options: A Community Based Tool Kit for Practitioners. United Kingdom Aid and the Livelihoods and Forestry Programme.

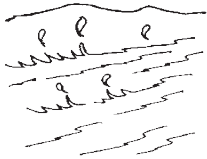
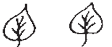
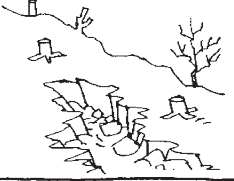
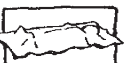
Hazard	Risk of hazard happening	Impact of the hazard locally	Risk of hazard induced impact happening
River floods 	Very High 	 Rice crop flooded and rots  Rice terraces covered in sand  Homes destroyed	  
Landslides 	Low 	 Homes destroyed  Death  Terraces	  

Figure 1 Example of a climate hazard impact assessment matrix.⁵⁶

Guidance notes

This tool is straightforward and best used after the historical timeline/ trend analysis or hazard ranking to focus the discussion. It can be adapted to respond better to group discussions and can be useful to encourage participation and open discussion if the participants are quiet.

Participants need to be clear about the difference between the hazard (the harmful event) and risk (the chance of that harmful event happening). They then need to consider the size of the event. It should be noted that even if the event is likely to occur on a small scale it might have a large impact on highly marginalized groups or on the poorest of the poor. Hence, it is important to cover this during group discussions.

Impacts can vary from place to place and among different groups, so it is important to include representatives from among different ethnic and wealth groups. Additionally, impacts that are visible across various time scales are important to consider during discussion.

Understanding of climate induced hazards and risks will be deepened by all stakeholders by doing a transect walk around the village and affected areas. This will also validate the information and create opportunities to discuss hazards and their potential impacts.

Further questions

- How frequently does the climatic hazard occur in the area?
- What are the chances of it occurring this year? Over the next 5 years?
- How serious are the potential impacts of the climate change hazards?
- What are the chances of the impacts happening?
- Which villages and communities are most affected? Amongst them, which individuals?

⁵⁶ UKAid LFP, 2010. Participatory Tools and Techniques for Assessing Climate Change Impacts and Exploring Adaptation Options: A Community Based Tool Kit for Practitioners. United Kingdom Aid and the Livelihoods and Forestry Programme.

Tool briefing⁵⁷

The climate vulnerability matrix is a two-part tool that helps CBA project developers identify a range of vulnerabilities among social groups and livelihoods vis-à-vis climate related hazards. The tool also helps to identify those most at risk, and assets most at risk vis-à-vis climate related hazards. Hence, the tool has a built in prioritization process. This prioritization process will help focus in depth CVCA assessment work, and ultimately lead to a more focused CBA intervention, i.e. directed at the most vulnerable people.

Tool objectives

- ✓ Differentiate vulnerability to climatic hazards across different sectors and social groups
- ✓ Identify the most vulnerable people and groups within a community and the most vulnerable sectors
- ✓ Encourage people to consider the different vulnerabilities of social groups within their community and how the adaptive capacity of all groups can be increased
- ✓ Provide space for marginalized people to describe their vulnerability and how they believe they can be best helped

Materials

- ✓ 3-6 sheets of chart paper (approximately 0.75m x 1.5m taped together to make two squares – one for each matrix), several colored markers, and tape

Facilitation time: 1½ - 2 hours

Facilitation

Step 1

Prepare the first matrix. A sample is shown below. Hazards to be used can come from the 'hazard ranking' matrix output (refer to handout 12.5). If this tool has not been done, facilitate participants in the identification and prioritization of hazards at this time. Try to use only the five most important.

Social Group		Hazard				
		Landslide	Flood	Drought	Forest Fire	Malaria
Age	Young					
	Adult					
	Elderly					
Gender	Women					
	Men					
Economic class	Very poor					
	Poor					
	Ok					
	Well-off					
Culture/ Caste	Indigenous					
	Local					
	Other					

Step 2

Recommended is a group of 15 – 20+ participants balanced between male and females, youth, adults and the elderly etc. Start the process by explaining the difference between hazard (the harmful event) and risk (the chance of that harmful event happening). Underscore that if the chance of a harmful event happening is very, very low, chances are that their level of risk to the hazard is also low. Also ensure

⁵⁷ UKAid LFP, 2010. Participatory Tools and Techniques for Assessing Climate Change Impacts and Exploring Adaptation Options: A Community Based Tool Kit for Practitioners. United Kingdom Aid and the Livelihoods and Forestry Programme.

that participants have a basic understanding of vulnerability, e.g. the more often a harmful event happens, the more they are affected by the event, and the less they can do to stop the impact, then they are very vulnerable to the hazard.

Step 3

Introduce the tool objectives, process, and how the output will be used. Follow by introducing the ranking system to be used. Ask participants to agree on what is meant by each ranking, e.g. zero (0) meaning that it is very unlikely the hazard will happen, they are able to cope with the hazard's impact well, and or they have adapted and the hazard is no longer a threat.

Suggested rankings:

- | | |
|--|---|
| 0 – Not vulnerable to the hazard | 3 – High vulnerability to the hazard |
| 1 – Low vulnerability to the hazard | 4 – Very high vulnerability to the hazard |
| 2 – Medium vulnerability to the hazard | |

Step 4

Begin to fill in the social group matrix accordingly (see STEP 1 example). While participants are giving answers or trying to make a consensus on how to answer, ask them to describe the 'vulnerability' and or how they are impacted by the hazard.

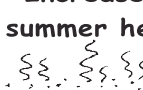
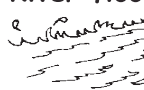
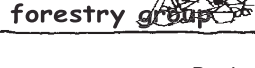
Step 5

The next step is to follow a similar process, but in relation to rural livelihoods. Start off by having the participants list their primary livelihood sources, e.g. agricultural, fisheries, etc. and then under each source, list the resources that are the most important to secure their livelihood. Ensure that they have a list that includes financial, human, natural, physical, and social resources.

Step 6

Participants should then prioritize the livelihood assets that are most important, e.g. highlighting the top 4 or 6. All of Step 5 work can either be done in small groups, e.g. by livelihood source, or as a large group.

Organize and move the selected livelihood resources into a matrix; note that the matrix will use the identified hazards as in the previous matrix. Below is a sample of a forest community livelihood vulnerability matrix (UKAid LFP, 2010).

Livelihood resource/asset	No rain 	Increased summer heat 	River floods 	Family illness 	Forest fire 
Forests 	0			0	0
Streams 	0	0			
Irrigation channel 	0		0	0	
Roads 			0		
Community forestry group 				0	

Step 7

Begin to fill in the matrix accordingly. While participants are giving answers or trying to make a consensus on how to answer, ask them to describe the 'vulnerability' and or how they are impacted by the hazard.

Guidance notes

Social group categories given in the 1st table matrix are only examples. Other possible lines include origin, religion, family, and location of settlement.

Further questions

- Why is one 'group' more vulnerable to a climatic hazard than the other?
- What climate hazard impacts are specific to one social group or livelihood sector?
- Is one group dependent on another group to secure its livelihood?
- Are there other social lines on which the community is divided that have not been considered?

Tool briefing⁵⁸

The Venn diagram is in part an institutional mapping process that helps CBA planners to identify development services providers to be involved or those that could potentially be involved in reducing climate change vulnerability. It is important to understand the connectivity between development services providers, the community, and hazards. Often the community is placed at the center of the Venn diagram; other approaches place the 'hazard or vulnerability context' in the center, and then further investigate possible roles and potential support for adaptation.

Tool objectives

- ✓ To understand which institutions are most important to communities, and to explore the institutional context around the community
- ✓ To analyze how different community groups and or stakeholders engage in local planning processes
- ✓ To evaluate access to development services providers and availability of support for climate change adaptation

Materials

- ✓ 3-6 sheets of chart paper (approximately 0.75m x 1.5m taped together to make two squares – one for each part of the exercise)
- ✓ Colored paper, scissors, several colored markers, and tape

Facilitation time: 1 - 1½ hours

Facilitation

Step 1

Recommended is a group of 15 – 20+ participants balanced between male and females, youth, adults and the elderly etc. Start the process by explaining the tool objectives, process, and how the output will be used.

There are a number of different ways to do the Venn diagram. You can draw and write with a stick on soft ground or you can work on paper. If you decide to use paper, ask participants to first use a pencil so they can make changes to the Venn diagram if needed. The best option is to cut circles of different sizes from colored paper to represent the different institutions or stakeholders.

Step 2

Ask the participants which organizations, institutions, community groups, and government agencies are found in the area. Encourage participants to also think about informal groups. Write down all those mentioned and give each organization a symbol that everybody can understand.

Step 3

Ask the participants to draw a big circle in the center of the paper or on the ground. This will represent the community. Following, encourage participants to discuss each identified organizations, institutions, community groups, and government agencies, e.g. the importance of the 'group' and why. The most important ones are then drawn as a big circle and the less important ones as smaller circles. Ask the participants to compare the sizes of the circles and to adjust them so that the sizes of the circles represent the relative importance of the institution, organization or group. Make sure after adjustments are made that all organizations, institutions, community groups, and governance structures mentioned are represented and marked with a name or symbol.

Step 4

Ask the participants to discuss in which way they benefit from the different organizations, institutions, community groups, and government agencies. A note taker should make notes, e.g. discussion points, and why they are considered important or less important.

⁵⁸ Adopted from Climate Vulnerability and Capacity Analysis Handbook" © 2009 by CARE International. Used by permission.

Step 5

Finally, ask participants to show the level of contact or cooperation between the 'community' and the named organizations, institutions, community groups, and government agencies institutions by distance between the circles. Those that they do not have much contact with should be far away from their own big circle. Those that are in close contact with the participants and with whom they cooperate with most, should be inside their own circle.

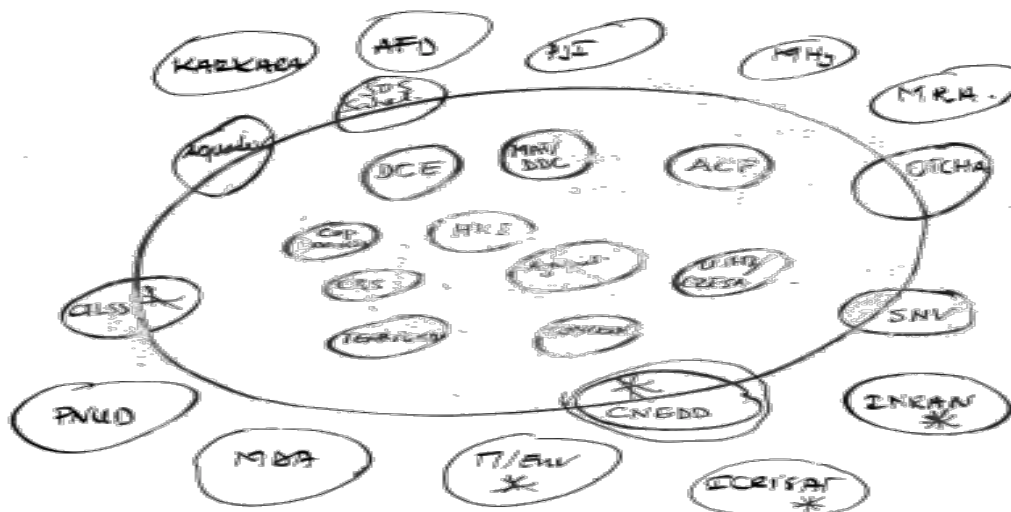


Figure 1 Example of a Venn diagram showing national and international NGOs as well as governmental organizations that are relevant from a climate change perspective.

Further Venn diagram questions

- Are any of the community groups or locally based organizations named only open to membership by men or women? Do any only offer services to men or women? Do they exclude other groups?
- Do any of the organizations, institutions, community groups, and government agencies offer support in times of crisis?
- How does the community receive information from the different organizations, institutions, community groups, and government agencies? How does the community communicate with them?

Guidance notes

- As an informational aid to the Venn diagram, and to help organize verbal information given in discussions, develop a matrix as shown in Figure 2 and place information accordingly. This matrix should be reviewed with the participants to end the session.
- If participants have an incomplete understanding of all the roles and functions of the organizations/ institutions, recommended is to ask staff of these institutions what they feel they have to offer in terms of supporting the development of adaptive capacity.

Institution	Role	Potential adaptation support	Action to gain support, where by whome
A.B.S. NGO	Social mobilisation loans to poor training	help people be aware of rights and speak up (get help in disaster)	Ask them to help prepare adaptation plan
District soil conservation office	start small groups seedlings gabions	bio-engineering and gabions and tree planting to reduce landslide risk	Go to office and ask for materials, by FUG chairman next week.

Figure 2 Example of a matrix used to map adaptation partnerships.⁵⁹

⁵⁹ UKAid LFP, 2010. Participatory Tools and Techniques for Assessing Climate Change Impacts and Exploring Adaptation Options: A Community Based Tool Kit for Practitioners. United Kingdom Aid and the Livelihoods and Forestry Programme.

Objectives

- ✓ Understand the disaster management continuum, noting the differences between disaster risk reduction (DRR) and disaster management (DM).
- ✓ Understand key DRR terminology, risk can vary with variations in vulnerability and capacity, and the process of assessing disaster risk and disaster risk reduction planning.

Facilitation

Step 1

Introduce handouts S13.1 and S13.2 through an organized PowerPoint presentation. This would include the objectives of the session, and the process the facilitator will take to deliver the session.

Before presenting content in handout S13.1, it is advisable to review the DRR terminology presented in learning aid SLa13.1. It is useful to use the disaster management continuum (see handout S13.1 Figure 1) to situate terms covered, e.g. disaster response, disaster relief, disaster recovery, prevention, mitigation, and preparedness.

Present handout S13.1 content. Important to highlight is that the CBA framework is situated mostly within prevention and mitigation actions. When reviewing the 'risk reduction formula', important to note:

- The value of 'Risk' is subjective and can change as vulnerability and capacity changes.
- The 'Hazard' is constant, e.g. drought, however, the degree of the 'drought' can vary. Thus, it is always very important to understand and describe the hazard clearly in DRR assessments.
- Key message from the 'formula' is as capacities rise to address vulnerabilities, the level of risk to a community, livelihoods, or ecosystem can decrease. Vulnerability can be addressed by eliminating the hazardous condition or by moving away from it (prevention).

Step 2

Continue with handout S13.2. Content presented is a step-by-step process that leads to a DRR action plan. Note that the process put forward can be used to focus on climate change related hazards, and or other types of hazards. An example is given in Table 1 (see handout S13.2).

Review the step-by-step process as described in the handout. Note that the process is used at the community level, and solutions/ actions regarding prevention, mitigation, and preparedness must be realistic, i.e. doable with a reasonable degree of capacity building.

Comment

- ✓ It is important that participants have a general understanding of the DRR assessment and planning process. For those that would like to learn more about community driven DRR, please refer to IIRR, Cordaid. 2007. Building Resilient Communities. A Training Manual on Community-Managed Disaster Risk Reduction.

Materials

- ✓ PowerPoint presentation covering handout S13.1, S13.2, and learning aid SLa13.1.

Time

60 minutes

Concept and context of DRR

Disaster Risk Reduction (DRR) focuses on actions to reduce negative impacts on human safety and well being resulting from hazardous events. In a DRR context, reducing the risk of disaster happening is done through three types of actions, 1) by taking preventative measures, 2) by taking actions that would mitigate the impact, and 3) by taking actions that prepare for the eventuality that a hazardous event would happen. Figure 1 illustrates the whole spectrum of risk reduction components – the disaster management continuum - including those noted as Disaster Management (DM) components, e.g. response, relief, and recovery measures taken after disaster has struck.

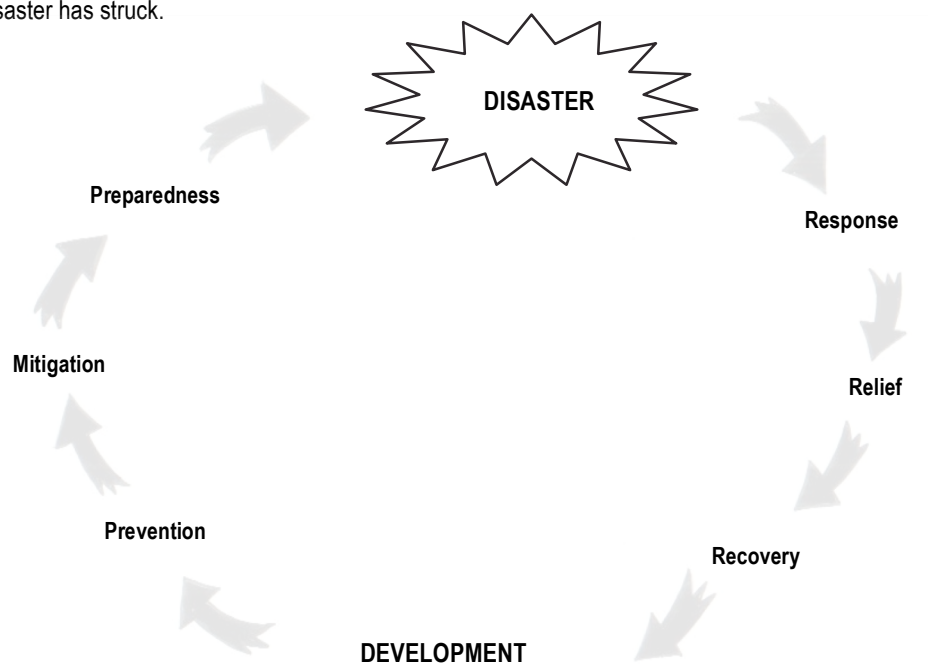


Figure 1 Disaster management continuum.⁶⁰

To consider the disaster management continuum within the CBA framework, lowering vulnerability to climate change impacts focuses on three forums of interventions. They are:

1

Prevention: Activities designed to stop the occurrence of a disaster event and/or prevent such an occurrence from having harmful effects on communities and ecosystem services. Activities would include flood control measures and land use regulations that move people away from harm's way. Other measures that can be taken are part of addressing the underlying causes of vulnerability, e.g. poverty alleviation and assets redistribution schemes such as land reform, provision of basic needs and services such as preventive health care, and education. Hence, prevention is focused on building peoples CAPACITIES AND KNOWLEDGE to lower RISK; it does not change the form of the hazard.



2

Mitigation: Actions taken to minimize the destructive and disruptive effects of a hazard. Mitigation actions can range from physical measures such as flood defenses, water storage, to agricultural adjustments, improved natural resource management and legislation, training, public awareness, food security programs and advocacy on development issues.

⁶⁰ IIRR, Cordaid. 2007. Building Resilient Communities. A Training Manual on Community-Managed Disaster Risk Reduction.

3

Preparedness: Actions taken in anticipation of a hazardous state turning into a disaster. Preparedness actions attempt to limit the impact of a disaster by being able to have a fast and good response to a situation that has gone beyond peoples coping capacities. Examples of preparedness actions are early warning systems, evacuation, stockpiling of supplies for immediate mobilization, emergency communication systems, to the conduct of community disaster drills and simulation exercises.



Risk reduction formulation

Risk is seen as being the accumulation of hazards multiplied by location specific vulnerabilities. The key way of reducing RISK is by building capacities to address vulnerability to hazards and hazardous conditions. A common 'formula' used to express this is:

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

The key message from the 'formula' is as capacities rise to address vulnerabilities, the level of risk to a community, livelihoods, or ecosystem decreases. Vulnerability can be addressed by eliminating the hazard condition or by moving away from it (prevention).

Process of community risk reduction

1st

Assess your RISK. This would include gaining an understanding of climate and non-climate related hazards the community/ area in question experiences. This process is followed by assessing a community's degree of vulnerability to the hazard, and their current capacity to lower the impact of the hazards, i.e. preventing a hazardous condition from turning into a disaster.

2nd

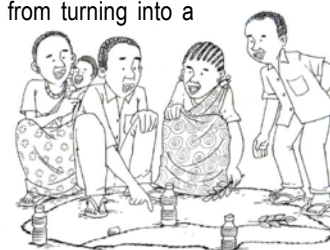
Formulate risk reduction OBJECTIVES

3rd

Prioritize vulnerability reduction actions and resource needs, and then develop a DISASTER RISK REDUCTION action plan. The plan should include a combination of prevention, mitigation, and preparedness actions.

4th

Build CAPACITIES to deliver the action plan



Assessing risks and defining a disaster risk reduction plan

Handout

S13.2

To lower RISK levels to climate related hazards (or non climate related hazards), the action starts with a localized assessment. This assessment focuses on defining the hazard, people's vulnerability to the hazard, and the capacity of local stakeholders to deal with the hazard, i.e. preventing the hazardous situation from becoming a disaster. This is a three-step process. The first step is to assess the nature of hazards experienced in the local area, and outlining the impacts of these as vulnerabilities. The second step is to define the actions needed to prevent, mitigate, and prepare for hazards and their impacts, and identifying local capacities to do this. The third step outlines a capacity needs/ building strategy to implement preventive, mitigative, and preparedness measures. Building the missing capacities becomes the root of a DRR action plan.

1st

Identifying hazards and vulnerabilities

A common matrix forum is used to identify two (2) elements, the first being the hazard, e.g. what it is and how often and or frequent the hazardous condition occurs. The next step is to define people's vulnerability to the hazard, and this is often taken in the context of impact and or losses occurred as a result of the hazard. See Table 1 for a sample matrix and supporting notes.

Table 1 Sample community managed disaster risk reduction hazard and vulnerability matrix in the context of low land rural communities.

RISK	HAZARD		VULNERABILITY	
	What	Frequency or Strength	#1 Impact	#2 Impact
The RISK column is left blank, i.e. assessing risk is not a mathematical equation.	Flood	Twice a year	Loss of agricultural crops	- Children are taken out of school - Under nutrition in children
	Drought	Once every five years on average	Loss of agricultural crops	Financial debt build up
	Landslide	Low - given very few areas are slopped	Loss of life	Loss of property
	Deforestation	High - forest conversion is all the time, about 20 hectares a year	Loss of forest based income for the most poor/ landless	Ground and surface water is becoming less available
	Land Policy	High - land policies, especially economic land concessions do not follow policies	- Marginalizing - Poverty	Cultural Loss
	Diseases - Malaria	Twice a year	Sickness leading to human productivity loss	Financial debt build up

2nd

Identifying capacities and actions to reduce vulnerability

This process is also done through the use of a matrix (see Table 2). Table 2 is a continuation of Table 1 and should be aligned adjacent, i.e. filled in moving horizontally across the charts. An overview of the process is given below:

A

Fill in Table 2 by thinking about what capacities are needed to prevent, mitigate, and prepare for hazard impacts (as listed in Table 1 under vulnerability). This may be a combination of structural needs, knowledge, skills, to policies etc.

Identify the current level of capacity amongst stakeholders to address impacts (listed in Table 1). Consider only current capacities in use at the field level, not potential capacities or 'if' situations.

Table 2 Sample matrix as the second part to Table 1.

L = low, M = medium, and H = High

Identify capacity building actions under each context, e.g. prevention, mitigation, and preparedness. Areas of low capacity should be prioritized for action.

Table 3 Sample matrix as the third part to Table 1.

L = low, M = medium, and H = High

Building a localized disaster risk reduction action plan

Use Table 4 as a guide to developing a localized disaster risk reduction action plan. As noted earlier, focus should be on building capacities in areas where currently capacities to lower vulnerability are low, but should also be focused on doable actions within the short and medium term. See learning aid SLA14.1 for further advice.

Table 4 Sample disaster risk reduction action plan matrix.

Capacity Building Needs	Method/ Procedure for Capacity Building	Partners/ Stakeholders Involved	Partner/ Stakeholder Responsibilities	Needed Resources/ Budget	Planned Outputs and Outcomes	Time Frame	Potential Obstacles and way to Address These
Prevention							
Mitigation							
Preparedness							

DRR terminology

Disaster

A serious disruption in the functioning of a community or a society involving widespread human, material, economic or environmental losses that exceeds the ability of the affected community or society to cope with the situation using its own resources. Disasters are often described as a result of the combination of: an exposure to a hazard; the conditions of vulnerability that are present; and insufficient capacity or measures to reduce or cope with negative consequences.

Disaster risk

The potential disaster losses, in lives, health status, livelihoods, assets and services that could occur to a particular community or a society over a specified time period in the future. The definition of disaster risk reflects the concept of disasters as the outcome of continuously present conditions of risk.

Disaster risk management

The systematic process of using administrative directives, organizations, and operational skills and capacities to implement strategies, policies, and improved coping capacities in order to lessen the adverse impacts of hazards and the possibility of disaster. This term is an extension of the more general term “risk management” to address the specific issue of disaster risks. Disaster risk management aims to avoid or lessen the adverse effects of hazards through activities and measures for prevention, mitigation and preparedness.

Disaster risk reduction

The concept and practice of reducing disaster risks through systematic efforts to analyze and manage the causal factors of disasters by reducing exposure to hazards, lessening vulnerability of people and property, wise management of land and the environment, and improved preparedness for adverse events. A comprehensive approach to reduce disaster risks is set out in the United Nations-endorsed Hyogo framework for Action, adopted in 2005, whose expected outcome is “The substantial reduction of disaster losses in lives and the social, economic and environmental assets of communities and countries.” The International Strategy for Disaster Reduction (ISDR) system provides a medium for cooperation among governments, organizations and civil society actors to assist in the implementation of the Framework. Note that while the term ‘disaster reduction’ is sometimes used, the term ‘disaster risk reduction’ provides a better recognition of the ongoing nature of disaster risks and the ongoing potential to reduce these risks.

Disaster risk reduction plan

A document prepared by an authority, sector, organization or enterprise that sets out goals and specific objectives for reducing disaster risks together with related actions to accomplish these objectives. Disaster risk reduction plans should be guided by the Hyogo Framework and considered and coordinated within relevant development plans, resource allocations and programme activities. National level plans need to be specific to each level of administrative responsibility and adapted to different social and geographical circumstances that are present. The time frame and responsibilities for implementation and the sources of funding should be specified in the plan. Linkages to climate change adaptation plans should be made where possible.

Disaster response

An aggregate of decisions and measures to contain or mitigate the effects of a disastrous event to prevent any further loss of life and/or property, and restore order in its immediate aftermath.

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, provision of food and clothing etc.

Disaster recovery

Recovery is the activity that returns humans and built infrastructures to minimum living/operating standards and guides long-term efforts designed to return life to normal levels after a disaster. This includes building temporary housing and provision of basic household amenities.

Disaster rebuilding

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

Hazard

A dangerous phenomenon, substance, human activity or condition that may cause loss of life, injury or other health impacts, property damage, loss of livelihoods and services, social and economic disruption, or environmental damage. The hazards of concern to disaster risk reduction as stated in footnote 3 of the Hyogo Framework are "... hazards of natural origin and related environmental and technological hazards and risks". Such hazards arise from a variety of geological, meteorological, hydrological, oceanic, biological, and technological sources, sometimes acting in combination. In technical settings, hazards are described quantitatively by the likely frequency of occurrence of different intensities for different areas, as determined from historical data or scientific analysis.

Mitigation

Mitigation refers to the lessening or limiting of the adverse impacts of hazards and related disasters. The adverse impacts of hazards often cannot be prevented fully, but their scale or severity can be lessened by various strategies and actions. Mitigation measures encompass engineering techniques and hazard-resistant construction as well as improved environmental policies and public awareness. It should be noted that in climate change policy, "mitigation" is defined differently, being the term used for the reduction of greenhouse gas emissions that are the source of climate change.

Natural hazard

Natural process or phenomenon that may cause loss of life, injury or other health impacts, property damage, loss of livelihoods and services, social and economic disruption, or environmental damage. Natural hazards are a sub-set of all hazards. The term is used to describe actual hazard events as well as the hidden hazard conditions that may give rise to future events. Their size or intensity, speed of onset, duration, and area of impact can characterize natural hazard events. For example, earthquakes have short durations and usually affect a relatively small region, whereas droughts are slow to develop and fade away and often affect large regions. In some cases hazards may be linked to others, e.g. a flood caused by a hurricane, or a tsunami that is created by an earthquake.

Preparedness

The knowledge and capacities developed by governments, professional response and recovery organizations, communities and individuals to effectively anticipate, respond to, and recover from, the impacts of likely, imminent or current hazard events or conditions. Preparedness actions carried out within the context of disaster risk management aims to build the capacities needed to efficiently manage all types of emergencies and achieve orderly transitions from 'disaster response' through to sustained 'disaster recovery'. Preparedness is based on a sound analysis of disaster risks and good linkages with early warning systems, and includes such activities as contingency planning, stockpiling of equipment and supplies, the development of arrangements for coordination, evacuation and public information, and associated training and field exercises. These must be supported by formal institutional, legal and budgetary capacities. A related term, 'disaster readiness' describes the ability to quickly and appropriately respond when required.

Prevention

Prevention refers to the complete avoidance of adverse impacts of hazards. Disaster prevention expresses the concept/intention to completely avoid potential adverse impacts through actions taken in advance. Examples include dams or embankments that eliminate flood risks, land-use regulations that do not permit any settlement in high risk zones, and seismic engineering designs that ensure the survival and function of a critical building in any likely earthquake. Very often the complete avoidance of losses is not feasible and the task transforms to that of mitigation. Partly for this reason, the terms prevention and mitigation are sometimes used interchangeably in casual use.

Resilience

The ability of a system, community or society exposed to hazards to resist, absorb, accommodate to and recover from the effects of a hazard in a timely and efficient manner. This includes the preservation and restoration of its essential basic structures and functions. Simple, resilience means the ability to 'spring back from' a shock. The resilience of a community in respect to potential hazard events is determined by the degree to which the community has the necessary resources and ability to organize itself prior to and during times of need.

Session 14

Tools and processes to an integrated climate vulnerability and capacity analysis (I-CVCA)

S14

Objectives

- ✓ Understand the participatory tools used in an Integrated - Climate Vulnerability and Capacity Analysis (I-CVCA) assessment, how to facilitate these in the field, and what information can be derived from the tool set.

Facilitation

Step 1

Introduce handouts S14.1 to S14.8 through an organized PowerPoint presentation. This would include the objectives of the session, and the process the facilitator will take to deliver the session. Note that many of the tools use a 'matrix' format. Participants should know that this is done to help keep data organized, put less emphasis on note taking, keep relevant information open for participants to see and engage with, and to make the analysis easier. Additionally, the I-CVCA tools can also be used in concert with those put forward in Session 12. Some of these tools have the same foundation.

Important facts about the tools (see handout S14.1):

- Based on clear and concrete statements of problems and objectives
- Directional, moving from a general context to a deeper and more involved description of the context
- Help separate climate change impacts and vulnerabilities from issues more related to unsustainable development patterns

Place emphasis on the design features of the I-CVCA tools (see handout S14.1 - Considerations taken in the I-CVCA design). Following, review in brief the 7 I-CVCA tools, and note that these tools link to the adaptation planning process covered in Session 15.

Step 2

Introduce handouts S14.2 to S14.8. To facilitate learning of the 'I-CVCA tools' it is advised that participants have time to review each tool prior to the session, e.g. 1 day. During the session, present each tool, focusing on the tool briefing and objectives. Follow with an overview of the tool deliver process is needed. Do not rush this. This should be followed by a question and answer period for each tool. If time permits, the facilitator can provide possible data samples, and or ask participants what types of data they think would be given by stakeholders, and how would they use this in planning a vulnerability reduction and or adaptation response. Allow approximately 30 - 45 minutes to review each tool.

Step 3

Introduce learning aids SLa14.1 and SLa14.2. Present in brief, learning aid SLa14.1. Note that in the field, 2 groups of facilitators work at the same time with 2 groups of similar stakeholders (except for the Change Focus tool – handout S14.2). When facilitating the Gender Role Support analysis tools, groups are divided by female and male. The I-CVCA process most often takes 3 days to complete with experienced facilitators. 40 to 50 participants, split into 2 groups, is an ideal number of community members to work with.

Step 4

Present learning aid SLa14.2, if time permits, ask participants to identify the 'Tool/ Information Gather Process' asked for in Tables 1 to 4. This could also be done as an assignment. Table 5 can be used if a field practicum is planned for this course.

Materials

- ✓ PowerPoint presentation covering handouts S14.1 – S14.8, learning aids SLa14.1 and SLa14.2
- ✓ For a field based practicum, refer to the handouts for specific material needs

Time

6.5 – 7.5hrs

Background and context of the I-CVCA

An integrated climate change vulnerability capacity analysis (I-CVCA) assessment is a set of tools to be facilitated as a complete process for the development of a comprehensive field-based situational analysis, 1) amongst an identified set of stakeholders, 2) an identified physical area, and 3) of a particular theme, i.e. climate change community based adaptation. The process can be used at the village/ community level, and/or higher levels of local governance, e.g. municipal/district, to provincial levels.

The I-CVCA uses an expanded set of common Participatory Rural Appraisal (PRA) tools in a way that clearly reflects their intent and the context to which they should be used. The I-CVCA tools and process is:

- Based on clear and concrete statements of problems and objectives
- Directional, moving from a general context to a deeper and more involved description of the context
- A methodology to help separate climate change impacts and vulnerabilities from issues more related to unsustainable development patterns

The I-CVCA tools and overall process they make up provides participants and facilitators with an opportunity to learn and create awareness around current climate change and rural development contexts, and provides space to discuss issues and events. Importantly, the I-CVCA aims to build a holistic 'description' of the current situation.

Considerations taken in the I-CVCA design

- Tools and process should not be too complicated for the participants to work with, yet not too simplified that a deeper analysis of the climate vulnerability and capacity context cannot be achieved
- Tools should be visual and interactive as much as possible to wave off boredom, and as a composite – allow for both quantitative and qualitative data collection
- The overall process must relate to the lives and or professions of the participants, at the village level and upwards, giving careful consideration to individuals, groups, and sector participation.

The 7 tools/processes used in the I-CVCA

1

Change focus (CF): Used as a 'warm-up' focus group discussion activity to introduce the topic of climate change, the scope of the investigation, and to allow participants space to share and discuss their 'climate change' experiences openly. This would include changes in their surrounding ecosystem/s to impacts on their natural asset based livelihoods, to family, society, and development changes resulting from climate related impacts.

2

Area resource and hazard flow spot map (ARHM): To provide reference points to ecosystem composition, natural assets, natural resource use and management patterns, to hazardous locations for community health and safety. The map is also to be used to reference, by location, information gathered from other I-CVCA tools, to help facilitate and contextualize discussions, and to help formulate relevant questions to deepen the research.

3

Ecosystem services change matrix (ESC): To identify 'changes' in the surrounding ecosystems and in the services these systems provide, e.g. supporting, providing, and regulating services over a period of time. The purpose of the participatory exercise is to help participants focus on 'change' in multiple dimensions, and to provide facilitators/ investigators with an clear context of climate change impact and where adaptation may be happening.

4

Extended livelihood profile (ELP): To define a community's livelihood profile and look for changes in this resulting from climatic change. Of keen interest is the range of strategies and assets villagers use, or lack thereof, which enables them to sustain or improve their livelihood. Understood is that having relevant 'assets' or access to development services most often leads to livelihood and climate change resilience. Thus, in the context of the overall I-CVCA framework, understanding climate change impacts, local livelihood strategies and identifying usable assets for adaptation purposes aides in the identification of climate change adaptation limitations and opportunities.

5

Hazard, vulnerability, and action profile (HVAP): To define climate hazards and vulnerability to these hazards in the context of the physical environment, and that of society as a whole. Thus, hazards are divided into three (3) categories:

- 1) Hazards associated with natural events and the environment
- 2) Hazards associated with culture and societal norms that prevent gender equity and local participation
- 3) Hazards associated with access to natural resources, development services, and participation in decision-making processes

The HVAP is a matrix tool aligned to examine a specific climate related hazard, the impact of this, how villages react to the impact, and what capacities are used to support the reaction and the outcome of such.

6

Risk reduction development services profiles (RRDSP): To provide information related to development services communities and local level stakeholder groups can access in support of climate change adaptation. The RRDSP also identifies gaps in development services in relation to addressing specific climate change hazard contexts and adaptation needs. Profiles developed include:

- Scope of relevant capacity development services provided
- Stakeholder relationships between 'community' and relevant development services providers
- Indications of cooperation between stakeholders, and gaps in development services needed to lower a range of local level vulnerabilities

7

Gender role support analysis (GRS): To understand 'vulnerability' in the context of family and society respective of women and men, their roles and how these are being supported, or not, in ways that builds resilience towards climate related stressors. The gender role support analysis is a set of four (4) tools to help:

- Identify inequalities in access to assets and development services that support women's and men's roles
- Identify support enhancement needs to improve access to assets and development services for adaptation
- Identify gaps in and barriers towards role support
- Define current power relationships and areas of dependency, and influence over decision-making
- Create awareness and an open space for dialog regarding inequities between roles performed and benefits gained

Important Note

Many of the tools use a 'matrix' format. This is done to help keep data organized, put less emphasis on note taking, keep all relevant information in the open for participants to see and engage with, and to make the analysis easier. Additionally, the I-CVCA tools can also be used in concert with those put forward in Session 13. Some of these tools have the same foundation.

Tool briefing⁶¹

The change focus tool is a Focus Group Discussion (FGD) used as a 'warm-up' activity to introduce the topic of climate change, the scope of the I-CVCA, and to allow participants time to share and discuss their 'climate change' experiences openly; from changes in their surrounding ecosystems to impacts on their natural asset based livelihoods, to family, society, and development changes resulting from climate related impacts.

Tool objectives

- ✓ Identify major changes happening in communities over the last ten (10) years
- ✓ Help prioritize the I-CVCA climate, economic and social hazard focus
- ✓ Introduce the concept of climate change and build awareness towards climate related impacts and those associated with poor development patterns

Materials

- ✓ 3 sheets of chart paper
- ✓ Colored paper, several colored markers, and tape

Facilitation time: 1 - 1½ hours

Facilitation

Step 1

Recommended is a group of 20+ participants balanced between male and females, youth, adults and the elderly etc. Start the process by explaining the tool objectives, process, and how the output will be used. Note that it is not important to introduce the subject of 'CLIMATE CHANGE' from the start of the FGD. For many local stakeholders, climate change is a very abstract concept. Focus facilitation on 'CHANGE'. At the end of the FGD, relate relevant information to 'climate change', e.g. impacts to livelihoods as a direct result of climate change, and introduce the I-CVCA assessment.

Step 2

Using the FGD format, ask participants to visualize their village area and surrounding ecosystem/s; then to share openly changes that have occurred over time, e.g. variations in seasons, changes in water resources, soil fertility, the environment, to hazardous incidents such as floods, drought, and or illnesses. Highlight significant changes on a chart paper under the category 'Environmental Changes'

Step 3

Ask participants to think of the aforementioned changes (Step 2), and describe how these changes have impacted and or change their livelihood strategies. Highlight significant changes on a chart paper under the category 'Livelihood Changes'

Step 4

Considering all the changes (ecological, to health and safety, to economic), ask the participants to describe how these 'changes' have impacted their social relationships and their participation in community development activities. Highlight significant changes on chart paper under the category 'Social Changes'

Step 5

Review and relate the 'highlights' to the topic of climate change. Afterwards, relate the intent of the I-CVCA as a deeper investigative process into what participants have shared. Follow this by setting the investigative agenda for the I-CVCA. It is also recommended to form two (2) groups for follow-on I-CVCA tools. See learning aid SL14.1 for guidance.

⁶¹ adopted from AIT-UNEP RRCAP, 2011a. An approach to Climate Change Adaptation Research: Events, Strategies, and drivers. Copyright © AIT-UNEP RRCAP 2011, Bangkok, Thailand

Tool briefing

The development of this map will provide the 'researcher' with reference points to ecosystem composition, natural assets, natural resource use and management patterns, to hazardous locations for community health and safety. The map is also to be used to reference/ place information gathered from other investigative tools, to help facilitate and contextualize discussions, and to help formulate questions to deepen the assessment.

Tool objectives

- ✓ Map local hazards and assess their risk
- ✓ Clarify the area under consideration in the group discussion
- ✓ Gain a comprehensive understanding of the natural and physical features of the area under consideration
- ✓ Help communities identify critical hazard types and their impacts

Materials

- ✓ 8 sheets of chart paper (approximately 0.75m x 1.5m taped together in a square), several colored markers and colored paper, and tape

Facilitation time: 2 hours

Facilitation

Step 1

Recommended is a group of 12 – 16 participants balanced between male and females, youth, adults and the elderly etc. Start by introducing the tool objectives, process, and how the output will be used. To start the mapping process, 1st ask participants to outline the boundaries of the area the assessment would include, identify North, then identify on the map, ecosystem and habitat components. (see table below for guidance)

Component	Description
Defined boundaries	▪ Political, livelihood or bio-physical orientation
Ecosystem composition	▪ Grass and agricultural lands, forest space and type, wet lands, marine system components
Key geo-physical elements	▪ Hills, rivers/ streams, mountains, natural embankments, and direction of water flows

Step 2

The next step would be to ask participants to add human features to the map. (see table below for guidance)

Component	Description
Human made infrastructure	▪ Roads, homes/ buildings, dikes, water wells, reservoirs, irrigation, water gates
Land use	▪ Agricultural, fisheries, forestry, animal husbandry, waste disposal
Natural resource based livelihood assets	▪ Fresh water and marine products, NTFP⁶², timber, agroforestry, fodder, agriculture space, water
Land management	▪ Key management areas for protection, conservation, and exploitation, areas that have been degraded and or converted to alternative uses, areas of cultural use

⁶² NTFP: Non Timber Forest Products

Step 3

Ask participants to now map hazards (climate and non-climate related). Note at this time it is not important to distinguish between the two, e.g. shoreline loss and tsunami affected areas. Recommended is to map hazard-prone areas with a red marker, using different patterns to differentiate different types of danger and impacts. At this time it is also recommended to facilitate a discussion on current and future risks of each hazard happening again. (see table below for guidance)

Hazards	- Commonly affected areas and villages by rain and windstorms, floods, drought, landslides, fire, pests, shoreline waves etc. - Areas where livelihood losses are the greatest - Water flow during wet season and extreme events, and drought patterns
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Step 4

Identify and map past and recent changes to the landscape, e.g. coast line diking, forest conversion, land conversion. Such changes could have been because of political or socio-economic decisions, and or natural hazards. Ensure to record the participant's perspective on why changes might have been made, and what had been the result of the changes.

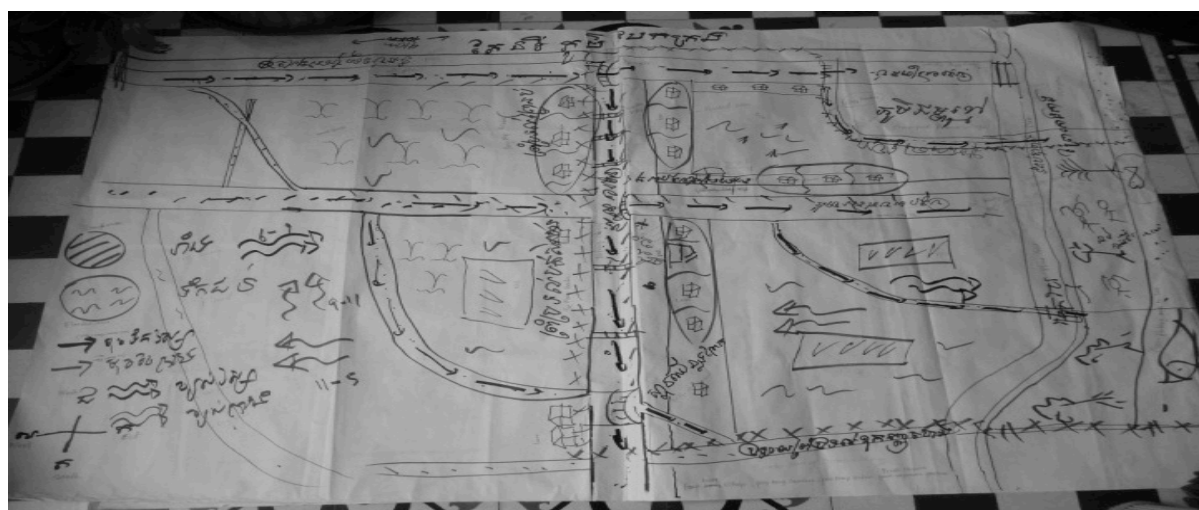


Figure 1 Sample hazard map, Cambodia (AIT-UNEP RRCAP, 2011b).⁶³

Guidance notes

- Consider writing notes on the map, e.g. distances and directions, explanations, events, and changes, to quantity and quality indicators.
- During the mapping process, the facilitator should stimulate discussions around visible and invisible impacts of hazards and disasters on livelihoods, impacts on biodiversity, and impacts on ecosystem services.
- The mapping process is a good way to make space for raising issues and increasing awareness amongst community members. Recommended is to stop the mapping process from time to time and discuss in more detail, as a group, information being depicted on the map.

Further questions

- Where are the most important livelihood assets located (financial, human, natural, physical, and social)?
- Are the hazards natural or man-made?
- Which locations are at risk from health hazards (such as malaria) or socio-political issues (such as conflict or redistribution of land)?
- Physically, where in the community are people most at risk from hazards? Why?
- Are there places in the community that are safe from hazards? How are these places used to protect people and assets from hazards?

⁶³ Adopted from AIT-UNEP RRCAP, 2011b. CLIMATE CHANGE ADAPTATION: Factors of choice, effectiveness, and supporting systems. Copyright © AIT-UNEP RRCAP 2011, Bangkok, Thailand

Tool briefing⁶⁴

The ecosystem services change matrix helps participants to focus on ecosystem services, provide data on how communities use and value these services, and how the services are being impacted from different views, e.g. climate change, land use and management. The tool also sets a baseline; quantifying the changes noted in the context of before and now, and investigates the reason for changes from the view of local stakeholders. The tool also has a built-in overlap with the I-CVCA tool, extended livelihood profile, to allow for the 'cross checking' of information given.

Tool objectives

- ✓ Identify change in the surrounding ecosystems, and in the services these systems provide, e.g. supporting, providing, and regulating services over a period of time
- ✓ Help participants focus on 'change' in multiple dimensions, and to provide investigators with an idea of where climate change impacts may be happening
- ✓ Help investigators separate climate related impacts from those that are a result from natural resource use and management practices

Materials

- ✓ 8 sheets of chart paper (approximately 0.75m x 1.5m taped together in a square), several colored markers and colored paper, and tape

Facilitation time: 2 - 2½ hours

Facilitation

Step 1

Prepare the matrix on a large sheet of paper, allowing needed space for the information, as well as keeping this well organized (see Table 1). Recommended is a group of 12 – 16 participants balanced between male and female, youth, adults and the elderly etc. Start by introducing the tool objectives, process, and how the output will be used.

Ensure that participants consider all components of their surrounding ecosystem (see Table 1 for an example). Significant changes shared by the participants should be further investigated by asking for more specific 'what' information, e.g. quality and quantity of the noted change, and questions of 'why' to bring forth information on ecosystem use and management systems.

Step 2

Ask participants to visualize their surroundings as a complete ecosystem, and all the specific parts of this. These parts will be referred to as habitats (Table 1 - column 1). After the 'habitat' components are listed, ask participants to list down how the benefit/ gains from this habitat, e.g. water, food, income, safety/ protection etc. (column set 2). Participants often focus only on provisional services, yet try to have participants also think of other ecosystem services. Following each answer, immediately move to the next column, 'Has this Benefit Change Over Time', and record the answer. Move to the next benefit listed and follow the same process.

It is recommended to discuss what 'before and now' timeframe participants would like to use, e.g. 5, 7, or 10-years. This timeframe should remain consistent throughout the I-CVCA process.

Step 3

Move on to column three (3). Start by summarizing information collected for an identified ecosystem and or habitat. Afterwards ask the participants 'why the change'? Change might be in a positive way or negative way, or may not have occurred at all. For areas of significant change, and where change has

⁶⁴ adopted from AIT-UNEP RRCAP, 2011a. An approach to Climate Change Adaptation Research: Events, Strategies, and drivers. Copyright © AIT-UNEP RRCAP 2011, Bangkok, Thailand

not occurred at all, participants should be encouraged to discuss the reason why. The facilitator should also participate in the discussion, e.g. providing inputs to if the change is a result of climate change, or could be a result of other factors. Record inputs accordingly.

Step 4

To wrap up the session, ask participants their general feeling 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. Close the session.

Table 1 Example ecosystem services change matrix layout, and example inputs related to forest based communities (7 year timeframe).

Ecosystem/s and Habitat/s	How do you Benefit?	Has this Benefit Changed Over Time?		Why the Change? (FGD)
		Before	Now	
• Forest habitat	• Lowland soil protection and stability • Landslide prevention • NTFPs/ income and medicine	☺: Explain: ☺: Explain: ☺: Explain:	☹: Explain ☹: Explain ☹: Explain	
• Freshwater habitat	• Streams: Drinking water, fish for sale and for consumption	☹: Explain	☹☹: Explain	
• Lake habitat	• Lake: Recreation, fish for sale and for consumption	☹: Explain	☹☹: Explain	
• Upland agricultural lands	• Soil and soil fertility, space to grow corn for animal feed, and to grow traditional rice varieties for consumption			
• Lowland agricultural lands	• Space for vegetable and rice farming for livelihood purposes/ income			
1st column to complete	2nd set of column to complete – move horizontal			3rd column to complete

Note: Faces are often used to start dialog, and as a visual cue to how changes have occurred.

Guidance notes

- **How do you Benefit:** Most local stakeholders will be focused on their livelihoods as how they benefit. It is important for facilitators to help participants also think in terms of supporting and regulating ecosystem services, e.g. nutrients from soils, to water flow regulation. By doing this from the start, this will help participants identify a wider range of 'hazards' and 'effects' later on in the I-CVCA 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 a good option, using 'before' and 'after' with an explanation to yield good information. Other helpful hints are:
 - Asking participants to think back in time to when they thought the benefits were different, i.e. they may provide a date
 - Use 'before' and 'now' columns, then try to search for a date
 - Always retain the use of 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 column focuses on 'WHY' explanations. Try to surface if changes are a result of climate related events, natural resource use and management changes, conflict, policy changes, to population changes etc.

Tool briefing⁶⁵

In the context of the overall I-CVCA framework and purpose, understanding climate change impacts, local livelihood strategies and identifying usable assets for adaptation purposes aides in the identification of climate change adaptation capacities, resilience and key entry points for CBA programming. The extended livelihood profile tool aims to gather this information in a quantitative form.

Tool objectives

- ✓ To define a community's livelihood profile and look for changes in this resulting from climate change impacts
- ✓ Understand the range of strategies and assets villagers use, or lack thereof, which enables them to sustain or improve their livelihoods
- ✓ To acquire quantitative baseline information to measure change from

Materials

- ✓ 12 sheets of chart paper (approximately 0.75m x 1.5m taped together in three separate squares), several colored markers, and tape

Facilitation time: 2 - 2½ hours

Facilitation

Step 1

Prepare the matrix on a large sheet of paper, allowing for needed space for the information, as well as keeping this well organized (see Table 1, and 2). Recommended is a group of 12 – 16 participants balanced between male and females, youth, adults and the elderly etc. Start by introducing the tool objectives, process, and how the output will be used.

Step 2

Build a list of the more common categories of livelihoods present within the target area, e.g. agriculture, forestry, fisheries, and labor etc., and the specific livelihood types within the categories. The list will be very long, thus, ask participants to then select from the list those livelihood types that are of particular interest/ importance to the 'community' for further investigation. Recommended is not to exceed four (4) livelihood types per category. Additionally, try to make clear distinctions between the more traditional livelihoods, e.g. rice cultivation, and of those that have been initiated recently, and ask WHY.

Transfer the final agreed upon livelihood listing to the matrix for further investigation in an organized way (see Table 1 for an example).

Step 3

According to a monthly calendar, identify when each of the listed livelihoods are active (as illustrated in Table 1), e.g. rice planting starts in month 6 (June) and harvest time is in the 10th month (October). Additionally, at the bottom of the calendar, add a row that indicates wet and dry season, seasonal storm periods, and intensity trends.

Step 4

Begin the second part of the Extended Livelihood Profile, Table 2 Productivity and Inputs. For each of the livelihoods listed, asked participants to state what/ how much is produced (listed under productivity), and the inputs required to maintain the productivity (listed under inputs). You will do this vis-à-vis setting a time line, or by using the before and now process. Ask participants which form of data recording they are more comfortable with and follow accordingly with the filling in of the matrix (see Table 2).

For 'productivity' this is quantitative data referring to the livelihood type; stay aligned to Table 1

⁶⁵ AIT-UNEP RRCAP, 2011a. An approach to Climate Change Adaptation Research: Events, Strategies, and drivers. Copyright © AIT-UNEP RRCAP 2011, Bangkok, Thailand

livelihood listing, and use UNITS in a consistent way e.g. metric ton/ hectare, kilograms/ harvest/ season etc. For 'input', this can be both quantitative and qualitative.

Table 1 Partial example of a livelihood calendar matrix.

Livelihood	Monthly Calendar											
	1	2	3	4	5	6	7	8	9	10	11	12
Agriculture based • Field cultivation • Backyard growing						Rice/ planting				Harvest		
				Corn/ 1 st planting	1 st harvest	2 nd planting				2 nd harvest		
						Vegetables/ Continuous planting and harvesting						
Fisheries • Freshwater lake • Freshwater streams												
Forestry • NTFPs												
Animal husbandry • Pigs												
Labor • In the community • Outside of the community												
*Climate Pattern	Dry Season				Wet Season						Dry Season	
*Intensity Pattern - rain												

* If possible, record recent shifts in climate and intensity patterns... multiple intensity patterns can be used.

Table 2 Example layout of livelihood productivity and inputs – the first extension from the livelihood seasonal calendar matrix.

Productivity					Inputs				
2000-2004	2005-2009	Now	Before	Now	2000-2004	2005-2009	Now	Before	Now

Step 5

After completing the input side of the matrix, conduct a focus group discussion to qualify any significant changes noted, e.g. the origin of 'inputs', and how 'inputs' have influenced livelihood strategies.

Guidance notes

- The 'productivity' columns can be done in two (2) ways, e.g. by dates or before and after entries. If choosing the before and after data entry process, it is recommended that this cover the same time frame as that used in the ecosystem change matrix tool (see handout S14.4).
- For some units given, e.g. baskets, this should be further explained, and written on the side of the chart. At a later point the given value should be transferred into a mainstream measurement, e.g. 3kg/ 6m² of vegetable plot.
- It is very important to keep Table 2 data aligned with the given livelihood type in the previous matrix (Table 1).
- After the productivity side of Table 2 is complete, time should be taken to identify significant changes and have participants explain what they think is the **CAUSE** of the change and the **IMPACT** of the change.

- If using trend dates or before and after for the productivity side of Table 2, the same should be used for the input portion of the table.
- When thinking of 'livelihood inputs', these could include 1) products, e.g. fertilizers, 2) development services, e.g. micro-finance and or technology training, 3) structural investments, e.g. irrigation, dams, ponds, barriers etc., and 4) enabling policies that give access to resources, or hindering policies that restrict this access.

Further questions

- As livelihood strategies have changed, have the results caused changes at the level of family and or society? If so, how and why?
- Have changes in other's livelihood strategies influenced and or impacted your livelihood? If so, describe.
- What often hinders positive outcomes in livelihoods, and why? Have there been any new hindrances?
- What livelihood strategies best contributed to building community resilience to climate change impacts, and why?

Tool briefing⁶⁶

In the context of this matrix tool, hazards are divided into three (3) categories: 1) those associated with natural events and the environment; 2) those associated with culture and societal norms that prevent gender equity; and 3) that associated with access to natural resources, development services, and participation in decision-making processes, i.e. elements important to understanding the enabling environment for CBA programming. The tool provides a look into differentiated vulnerability between men, women and children, but can be adapted easily to incorporate other marginalized/ vulnerable groups. The tool also gathers information on coping and adaptation strategies, and their outcomes. Through analysis, local capacity gaps and barriers to lower vulnerability can be identified.

Tool objectives

- ✓ To define climate hazards and vulnerability to these hazards in the context of the physical environment, and that of society as a whole
- ✓ To identify how villages react to hazardous conditions and impacts, what capacities are used to support the reaction, and the result of the action
- ✓ To acquire quantitative and qualitative baseline information to measure change from

Materials

- ✓ 12 sheets of chart paper (3 sets of 4 sheets approximately 0.75m x 1.5m), taped together side by side to form a rectangle, several colored markers, and tape

Facilitation time: 2 - 2½ hours

Facilitation

Step 1

Prepare the matrix on a large sheet of paper, allowing for needed space for the information, as well as keeping this well organized (see Table 1 and 2). Recommended is a group of 16 – 20 participants balanced between male and females, youth, adults and the elderly etc. Start by introducing the tool objectives, process, and how the output will be used.

Step 2

Review the following working definition with the participants:

- Natural hazards: Hazards related to extreme weather and or climate, invasive ecological changes, and or geological events, or as a result of poor natural resource management
- Livelihood hazards: Hazards related to events that cause losses in resources used for livelihoods productivity
- Societal hazards: Hazards related to how culture and governance is expressed at various levels of society that result in human rights violations, unwanted dependencies and influences, to gaps in development services
- Vulnerability: The degree to which physical structures or natural and economic assets are exposed to loss, injury or damage caused by the impact of a hazard
- Capacities: Individual and collective strengths and resources that can be accessed to help individuals and communities reduce the impact of hazards. These capacities can either prevent or mitigate the impact of a hazard, or prepare the community to respond to the impact better (readiness)

⁶⁶ Adopted from AIT-UNEP RRCAP, 2011a. An approach to Climate Change Adaptation Research: Events, Strategies, and drivers. Copyright © AIT-UNEP RRCAP 2011, Bangkok, Thailand

Table 1 Sample hazard, vulnerability, coping, actions and support matrix.

Hazard	Frequency of the Event	Vulnerability		Actions taken to Reduce the Impact	Capacities that Supported the Action	Result of the Action
		#1 Impact	2# Impact			
Natural • • • •						

Society • • • •						
-----------------------------	--	--	--	--	--	--

• Resource Access • Decision Making						
--	--	--	--	--	--	--

Table 2 Suggested sub matrix supplement for facilitating society hazards.

Hazard	*Who is Impacted More?			How?	Why?
	Men	Women	Children		
Natural • • • •					

Step 3

Participants are first to identify what hazards they think are associated with the natural environment, e.g. flood, drought, pest infestations, rising temperature etc. If this information may have been obtained through tools presented in Session 13 & 14. It is advisable to maintain the types of hazard listings across assessment tools.

Note that in some cases defining 'hazards' may be the most difficult part of the tool for participants. Natural hazards should be seen as physical events such as floods, drought, heat, and storms, or geophysical events such as landslides, and earthquakes. Less common hazards are associated with biological changes, e.g. pests or invasive species, to species composition and quantity etc. Note that food insecurity is not considered to be a hazard, rather, it is considered as an impact of a hazardous event/ condition. This example can be used as a guiding example.

Step 4

Continuing with 'natural hazards', work across the table and identify the nature of the hazard, e.g. how frequent the hazard occurs, and other characteristics such as strength and length of the event. It is also recommended to ask participants describe how the hazardous event starts, e.g. what are the initial signs that something difficult is about to happen, where does it occur etc. Note that this information can also be cross checked with the are resource and hazard flow spot map (see handout S14.3).

Step 5

Continue working across the table to 'vulnerability'. It is important to know what the most significant impacts are as a result of the hazard hitting the targeted area. First, facilitate the making of a list of impacts related to the identified hazard. Have participants prioritize the top 2 or 3 impacts for further investigation. Focusing on the more significant impacts allows the assessment to yield a workable level of information for designing an action plan to reduce vulnerabilities to hazards.

Note that the word 'vulnerability' does not translate well into other languages, nor is it well understood at the village level. When facilitating this column, just ask the participants what the main losses are when the hazard is experienced. Additionally, poor communities and or marginalized groups will most often relate impacts to losses in income. GOOD FACILITATION will also help participants think in terms of ECOSYSTEM FUNCTION and SUSTAINABILITY, FOOD SECURITY and NUTRITION, GENDER EQUITY, HUMAN SAFETY, DIGNITY, and EMPOWERMENT.

Step 6

Continue across the matrix to 'Actions Taken to Reduce the Impact'. This is where information related to coping and planned adaptation strategies is derived. Ask participants what actions they take to totally avoid, lessen and or prepare for the impact of the identified hazard, i.e. to lessen their losses? It is helpful to know if the action taken was before, during, or made after the impact period. This makes a difference when referring to something as an autonomous/ coping or planned adaptation strategy.

Step 7

Continue across the matrix to 'Capacities that Supported the Action'. For each action, facilitate participants in outlining capacities and or assets that supported the activity. This can range from personal savings, financial loans, to technical training support, acquiring goods from a relief organization, a change in livelihood, to policy support etc.

Keep in mind the range of livelihood assets that support adaptation, e.g. financial, human, natural, physical, and social.

Step 8

The last step is to find out the 'Result of the Action' taken to reduce impacts/ losses, or to improve the situation, e.g. increase in rice crop production by 15%. Hence, the result may be a negative response (maladaptation) or positive response (successfully planned adaptation). Conduct a focus group discussion after basic responses have been recorded to enrich the investigation process. The best question to ask is WHY.

Step 9

Move on to the next 'society hazards' category and follow the step-by-step process as done for Natural Hazards. It is often difficult for participants to associate society with hazardous conditions. Suggested is to break the section identified in Table 1 into a mini-chart (Table 2), asking who is affected more by the identified hazards listed under 'natural hazards', men, women, or children, and ask how they are impacted, and why. This will help to define the 'vulnerability'.

Continue on to 'Actions Taken to Reduce the Impact' and 'Capacities that Supported the Action', and 'Result of the Action' columns as noted in previous steps.

Step 10

Move on to the next 'hazard' category, 'Access to Resources and Decision Making', and follow the step-by-step process outlined for Natural Hazards. Explain to the participants that the hazard/s have been pre-identified in relation to assessing two (2) key areas of the CBA enabling environment, 1) the absence and or restriction of access to needed resources, and 2) the absence of, or non-equitable participation in decision making processes.

To help characterize the hazardous event and vulnerability/ impact, ask participants to visualize/ reflect on what natural and social hazards they could prevent if they had equal access to different forms of resources, e.g. knowledge, information, natural resources, and or fair representation, if they were the person in power. In the vulnerability column, the impact can be stated as what happens when they don't have access to knowledge and information resources, natural resources, and fair representation etc.

Step 11

Continue on to 'Actions Taken to Reduce the Impact' and 'Capacities that Supported the Action', and 'Result of the Action' columns as noted in previous steps.

Further questions

- As ACTIONS TAKEN TO REDUCE THE IMPACT of hazards, have the RESULTS caused changes at the level of family and or society... even environmental changes? If so, how and why?
- What ACTIONS TAKEN TO REDUCE THE IMPACT have best contributed to building community resilience; and why?
- What CAPACITIES are lacking that could contribute to handling better hazardous conditions?

Tool briefing

Risk reduction development services profiles provide information related to development services communities, local government agencies, and community based organizations can access in support of climate change adaptation. Profiles are developed from I-CVCA information organized into hazard statements that include a specific climate related hazard, a need for action, and a perceived capacity development need. Profiles developed include 1) scope of relevant capacity development service provided to reduce specific climate change impacts and vulnerabilities, and 2) stakeholder relationships between 'community' and relevant development services providers.

Tool objectives

- ✓ To investigate development services CBA stakeholders have access to
- ✓ To identify gaps in development services needed to support CBA activities
- ✓ To acquire descriptive and qualitative baseline information to measure change from

Materials

- ✓ 3 sheets of chart paper, approximately 0.75m x 1.5m each, for every hazard statement investigated (2 sheets are to be taped together, the third sheet remains separate)
- ✓ 25 - 30 circles, approximately 10cm in diameter of varied colors for each hazard statement investigated
- ✓ Tape, scissors, and several colored markers

Facilitation time: 1½ - 2½ hours

Facilitation

Step 1

Recommended is a group of 16 – 20 participants balanced between male and female, youth, adults and the elderly, and stakeholder groups etc. It is also recommended that the tool be repeated with local government agencies and other development service providers working in the target area. Start the process off by working with a small group of stakeholders reviewing briefly I-CVCA outputs, e.g. tools presented in handouts S14.4, S14.5, and S14.6. Place focus on where significant losses are occurring as a direct result of climate related hazards. From the review, develop a series of hazards statements (2 or 3). It is recommended that prioritized hazards are included. Each hazard statement should be composed of the following:

- **A hazard** - either natural, cultural, and or societal in context
- **A need for action** - focused on addressing a specific vulnerability/ losses as a result of a hazard impact
- **A capacity development need** – focused on a request to build specific capacities/ fill capacity gaps to lower climate change vulnerability

Examples of hazard statements:

- A. Lack of capacity to meet water needs economically during flood and drought cycles outside of rice production needs
- B. Lack of capacity to lower the impact of drought on home based food production systems to ensure food security throughout the year
- C. Lack of capacity to access development services appropriately, e.g. micro-finance institutions, livelihood technologies, and natural resource management representation
- D. Lack of capacity to participate/ engage in natural resource management initiatives capable of improving and sustaining local livelihood strategies and family nutritional needs

Step 2

Prepare colored circles (many). On these circles, community stakeholder groups and/ or development service providers names will be written, e.g. NGOs – yellow, local government – blue, and community based organizations – yellow, etc. Start the investigative process by introducing the tool objectives, process, and how the output will be used.

Step 3

Clarify the 'Hazard Statements' with the participants and revise if needed. In reference to each hazard statement, ask participants to name key stakeholders and stakeholder groups that might have the ability to address the capacity development need identified in the hazard statement. Allow participants to brainstorm the stakeholders, and write each on a colored circle. Once completed, ask participants to remove the less important stakeholders in relation to addressing the hazard statement. This will help focus the information gathering process and analysis.

Step 4

Arrange the 'stakeholder circles' in a big circle. It can be helpful if similar types of stakeholders/ colored circles are placed next to one another. At the center of the big circle, a stakeholder groups will be placed as follows:

- If facilitating this exercise with community level stakeholders as the focal interest, a circle maked 'village/ community' should be placed in the center of the big circle
- If you are facilitating this exercise with local government stakeholders as the focal interest, a circle maked 'villages/ communities' should be placed in the center of the big circle
- If you are facilitating this exercise with provincial level stakeholders as the focal interest, a circle maked 'municipalities' should be placed in the center of the big circle

Step 5

Start defining the relationships between those stakeholders in the outer circle with the stakeholder/s placed at the center of the big circle. You can also do this across stakeholders in the outer circle. Define the relationship according to quality, frequency of contact, and then direction of communication most often undertaken as a single line (see Figure 1).

Hazard Statement: The lack of capacity to....

Lines:

Frequent _____
Sometimes - - - - -
Seldom
Relationships:

Good _____
OK _____
Challenging _____

*Arrowheads can be used to indicate the direction of dialog.

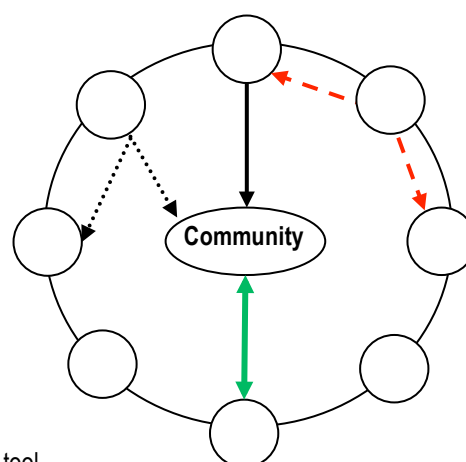


Figure 1 Sample layout of the stakeholder relation and services profile tool tool.

Step 6

Along the relationship lines, ask participants to write down what development services the stakeholder provides the community/ communities/ municipalities as appropriate.

Step 7

The next step is to move to the Power Pyramid portion of the risk reduction services profile tool. Start by making a duplicate set of all stakeholder circles in use (this also includes the circle at the mindle of the relationship map and service profile map). Afterwards, take a large sheet of paper and draw a triangle/ pyramid (big), and write the corresponding hazard statement at the top as a reminder to the participants. Ask participants to consider 'what stakeholder has the most influence/ power to address the hazard statement and create a positive outcome?' For the stakeholders with the most influence, their circles should be placed at the top, and others downward accordingly (Figure 2).

Hazard Statement: The lack of capacity to...

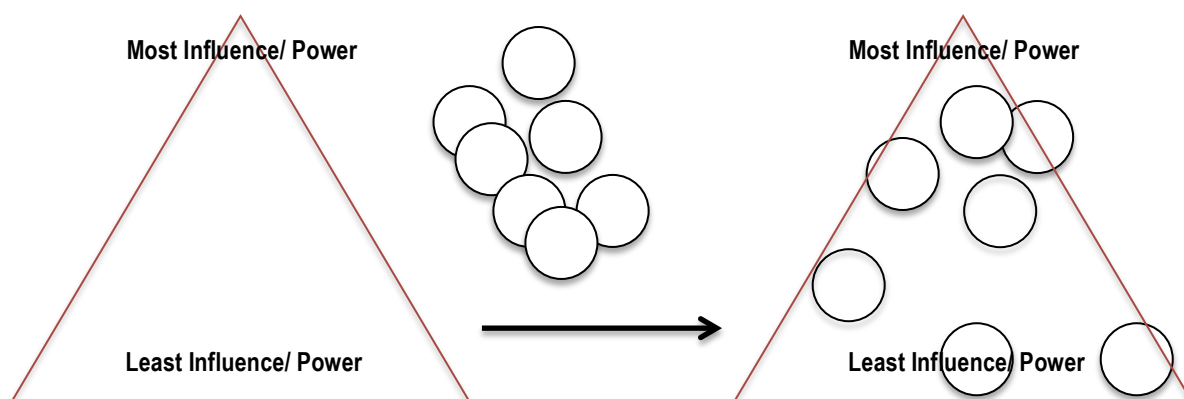


Figure 2 Sample layout of the power pyramid map in relation to addressing a hazard statement.

Step 8

Using the output of the two tools, facilitate a focused group discussion with the participants by simply asking why they have placed each stakeholder where they have on the pyramid, and what capacities they think this stakeholder has to help lower vulnerability to the related 'hazard statement', and what capacities they have to cooperate with potential CBA implementing partners.



Figure 3 Example of a stakeholder relationship and development services profile map (left), and a power pyramid map (right), that makes up the I-CVCA risk reduction development services profile tool.

Guidance notes

- For CBA project designers and implementers, information gathered helps to design CBA initiatives via knowing what stakeholder capacities and relationships can be harnessed, supported, and if needed, developed to improve CBA efforts.
- Both tools together (the stakeholder relationship map and service profile, and the power pyramid map), outline clearly where capacities are amongst stakeholders, an idea of organizational mandates, and where capacities and influence can be found to promote a CBA response. Matching this information gathered to that of other I-CVCA tool outputs also outlines what is working respective of climate change coping and adaptation support, what is not, and where gaps in support are.

Tool briefing

The gender division of labor (GDL) tool is the first of a four-part tool process that makes up the Gender Role Support (GSR) tool. The GDL tool investigates three (3) areas of rural men and women's lives: 1) productive work, 2) reproductive work, and 3) community work. This information is used to understand differences in workloads, responsibilities, and areas of influence with a view to 'measuring' equitability between men and women's roles in the family and society. Understanding this from a view of labor enables community members (women and men) and external planners to understand how a CBA project should be designed, who should be involved and the differential impact on women and on men that might take place.

Tool objectives

- ✓ To assess the gender division of labor amongst women and men according to their roles in 3 spheres, 1) productive, 2) reproductive, and 3) community/ civic roles
- ✓ Gain an understanding of 'burdens' and 'inequities' amongst assessed groups and to note where and if support is needed to allow for equitable participation in CBA efforts
- ✓ To acquire quantitative and descriptive baseline information to measure change from

Materials

- ✓ 3 sheets of chart paper, approximately 0.75m x 1.5m each, taped together to form a rectangle
- ✓ Tape, and several colored markers

Facilitation time: 1 - 1½ hours

The GDL tool can be used as a stand-alone investigative tool when such data is needed or awareness about equality in family and community roles is to be built. The tool can be used in a group format; not recommended to be used in mixed male and female groups. For awareness building purposes, mix group analysis of outputs can be conducted afterwards.

Facilitation

Step 1

Prepare a working matrix on a large sheet of paper, allowing for needed space for information, as well as keeping this well organized (see Table 1 and 2). Form two (2) groups of participants, a group with 16 – 20 males and a group of 16 – 20 females that will be facilitated separately from one another. Start by introducing the tool objectives, process, and how the output will be used.

Step 2

Review the following working definitions and provide examples to the participants:

- **Productive Role:** The production of goods and services for consumption and trade, e.g. farming, fishing, labor etc. Productive work can be paid or unpaid work.
- **Reproductive Role:** The care and maintenance of the household and its members including bearing and caring for children, food preparation, water and fuel collection, shopping, housekeeping, and family health care.
- **Community Role:** The collective organization of social events and services, e.g. ceremonies and celebrations, community improvement activities, participation in community groups and organizations, community trainings, and local political activities, etc.

Table 1 Sample table layout of the gender division of labor tool – women's roles.

Women's Roles					
Productive Role		Reproductive Role		Community Role	
Activity	Time Spent hrs. /day	Activity	Time Spent hrs. /day	Activity	Time Spent hrs. /month

Table 2 Sample table layout of the gender division of labor tool – men's roles.

Men's Roles					
Productive Role		Reproductive Role		Community Role	
Activity	Time Spent hrs. /day	Activity	Time Spent hrs. /day	Activity	Time Spent hrs. /month

Step 3

For each role type, have participants name the types of activities they do under each. Do not enter these in the table. Following the listing, have the participants either group similar activities together (and give these a group name) or prioritize the most important, e.g. top six, for further investigation. The aforementioned is done so to save facilitation time and reduce data collected to a workable and meaningful amount. Transfer the 'groupings' or 'top priorities' to the matrix accordingly.

The next step is to record how much time is spent on each activity per day, or week, or month, i.e. sometimes it is more practical to define time spent on community roles by the month. Community. Try to record all time spent for each role in the same format. This will help make comparative measurements.

When the data matrix is complete, with the participants, check for total times/ day/ week/ month to see if the information is realistic. Often, times are exaggerated and render the data useless. Revise if needed.

Step 4

Finish the activity with a focus group discussion that include both men and women groups. The following questions are recommended:

- What benefits do women and men each receive from productive, reproductive and community work, and from the use of resources?
- What constraints does the division of labor place on men and women respective of employment and or capacity development opportunities?

Further questions

- How would the implementation of a CBA project affect the division of labor within targeted communities, and how would the division of labor affect a CBA project?
- Would an 'intended CBA project' reinforce or challenge the existing division of labor? How could negative consequences be avoided?

I-CVCA tool: GRS - Roles, assets, and development services (RADS)

Handout

S14.8b

Tool briefing

The Roles, Assets, and Development Services (RADS) tool is the second of a four-part tool process that makes up the Gender Role Support (GRS) tool. The RADS tool is not intended to have a climate change focus, rather it is intended to build awareness and facilitate a discussion around family and community resilience as a whole. The tool investigates assets and development services needed to fulfill productive, reproductive and community roles; who has access and control over current assets and development services, and how development services can be enhanced and capacity gaps filled.

Tool objectives

- ✓ To understand 'vulnerability' in the context of family and society respective of women and men, their roles and how these are being supported, or not
- ✓ Identify inequalities in access and control respective of livelihood, social assets, and development services that support men and women's roles
- ✓ To identify capacity gaps/ barriers towards fair role support between men and women
- ✓ To acquire descriptive and qualitative baseline information to measure change from

Materials

- ✓ 8 sheets of chart paper, approximately 0.75m x 1.5m each, taped together to form a square
- ✓ Tape, and several colored markers

Facilitation time: 2 - 2½ hours

The RADS tool was designed to target women, as they have been identified as 'the most vulnerable' to climate change, yet it can be used with both male and female groups for comparative purposes. This tool can be used as a stand-alone investigative tool when such data is needed or awareness about equality in family and community roles is to be built. The tool can be used in a group format; not recommended to be used in mixed male and female groups. For awareness building purposes, mix group analysis of outputs can be conducted afterwards.

Facilitation

Step 1

Prepare a working matrix on a large sheet of paper, allowing for needed space for information, as well as keeping this well organized (see Table 1). Form two (2) groups of participants, a group with 16 – 20 males and a group of 16 – 20 females that will be facilitated separately from one another. Start by introducing the tool objectives, process, and how the output will be used.

Step 2

Review the following working definitions and provide examples to the participants:

- **Productive Role:** The production of goods and services for consumption and trade, e.g. farming, fishing, labor etc. Productive work can be paid or unpaid work.
- **Reproductive Role:** The care and maintenance of the household and its members including bearing and caring for children, food preparation, water and fuel collection, shopping, housekeeping, and family health care.
- **Community Role:** The collective organization of social events and services, e.g. ceremonies and celebrations, community improvement activities, participation in community groups and organizations, community trainings, and local political activities, etc.
- **Assets:** These can be financial, human, natural, physical, and social in context. They are 'things'

that help people fulfill their roles in life.

- **Development services:** These are services that NGOs, civil society organizations, community based organizations and government agencies provide communities to develop, e.g. training, financial assistance, schooling and health care, etc.

Table 1 Sample table layout of the role, assets, and development services tool.

Activities	Assets to be Effective					Development Services to be Effective					Focus Group Discussion			
	What	Access		Control		What	Access		Control		Support Enhancement	Capacity Gaps to Fill		
		M	F	M	F		M	F	M	F				
Productive Role:														
•														
•														
•														
•														
Reproductive Role:														
•														
•														
•														
•														
Community Role:														
•														
•														
•														
•														

Step 3

Building from the Gender Division of Labor tool (Handout S14.8a) transfer the priority activities to the new matrix table under their respective roles. It is recommended that the activity list be reduced to the top (4) four and or those activities most important to bring positive change to, e.g. fairness and equity amongst men and women. Once the list of activities is entered into the table, continue the assessment by working across the table matrix for each role, i.e. complete the productive role 'activities' to 'the focus group discussion' before moving on to the next role (reproductive) etc. The following is a guide to facilitating the matrix:

- **Assets to be Effective – What:** Participants should think of this as a wish list, e.g. what assets do they need to do the activity in the best possible way and or to achieve the best possible outcome? Note, if the list has many small details, it is recommended to put these into a common group and name it. Then move across the table using the grouping name for reference to other columns.
- **Assets to be Effective – Access and Control:** Do participants have access to the 'what/ asset'? Note that some participants may have access to the asset, and some may not. Try to get a general consensus, and or identify the characteristics of those that have and those that do not have access to the asset, e.g. they may be from a poor portion of the community, widows, single mother and or part of the youth. To fill the table, participants can simply agree if men or women have access to the asset, and is so, who has ultimate control over how the asset is used, i.e. decision making power. Mark with a check mark. *(If neither male or female have access to the asset, then no check mark is needed under 'control', however, participants can be asked 'if they had access to this asset, who would control it?)*
- **Development Services to be Effective – What:** Participants should again think of this as a wish list, e.g. what development services do they need to do the activity in the best possible way and or to achieve the best possible outcome?
- **Assets to be Effective – Access and Control:** Do participants have access to the development service indicated? Note that some participants may have access to the service, and some may not. Try to get a general consensus, and or identify the characteristics of those that have and those that do not have access to the service and ask why? To fill the table, participants can simply agree if men or women have access to the service, and is so, who has ultimate control over how the

service is accessed and ultimately used, i.e. decision making power. Mark with a check mark. *(If neither male or female have access to the service, then no check mark is needed under 'control', however, participants can be asked 'if they had access to this service, who would control it?')*

- **Focus Group Discussion – Support Enhancement:** For the development services marked 'access', the question to ask is how can the access to this development service be enhanced? This may be considered in terms of fair and equitable access, affordable access, and or access backed by support, e.g. training that comes with support to apply the training etc.
- **Focus Group Discussion – Capacity Gaps to be Filled:** Recommended is to look back at the development service column and identify what development services needed are not available. The next step is to facilitate a conversation around ideas as to how to obtain these. Participants should be encourage to think beyond just asking service providers to deliver what they want, and to come up with ways that they could use their own capacities to fill the gap, e.g. starting a micro-lending service within the community, developing a farmer-to-farmer learning system led by farmers that are applying new technologies, and or visiting neighboring communities to learn from their experiences, etc.

Step 4

Finish the discussion by asking participants to identify what 'activities' they have listed have been impacted by changes in climate and or weather patterns, and by other hazards/ disaster events. Information gathered along the identified 'activity' line is key to understanding the adaptation capacity of the targeted group and social barriers that need to be overcome to create an enabling environment for climate change adaptation and or disaster risk reduction.

Further questions

- What has been the nature of women's (and men's) participation in development programs/ projects within the community?
- What has been the nature of benefits women (and men) receive as a result of noted development programs/ projects within the community?
- To what extent have women (and men) been active in programs/ projects, policy development, and implementation of noted development programs/ projects within the community?

Tool briefing

The Dependency and Influence (DI) tool is the third of a four-part tool process that makes up the Gender Role Support (GRS) tool. The DI tool can be focused in two (2) ways, 1) on investigating an enabling environment for climate change adaptation, and 2) on investigating barriers to positive social change. In the context of CBA, the tool is designed to identify barriers towards role support, define power relationships and areas of influence over decision-making processes. As much as this tool can be informative, it can also be used to create awareness and open space for dialog regarding inequities between roles performed and benefits gained.

Tool objectives

- ✓ To understand how women and men depend on, and are influenced by stakeholder groups, the reasons for this dependency and influence, and outcomes
- ✓ To define current power relationships and areas of influence over decision-making processes
- ✓ To create awareness and open space for dialog regarding inequities between roles performed amongst differentiated groups and benefits gained
- ✓ To acquire descriptive and qualitative baseline information to measure change from

Materials

- ✓ 4 sheets of chart paper, approximately 0.75m x 1.5m each, taped together to form a square
- ✓ Approximately 100 or more 5cm X 10cm papers/ index cards, 20 colored circles, tape, pencils for each participant, and several colored markers

Facilitation time: 2½ - 3½ hours

The DI tool was designed to target women, as they have been identified as 'the most vulnerable' to climate change, yet it can be used with both male and female groups for comparative purposes. This tool can be used as a stand-alone investigative tool when such data is needed or to help build awareness around inequalities and justice. The tool can be used in a group format. However, it is not recommended to use the tool with mixed male and female groups. For awareness building purposes, mix group analysis of outputs can be conducted afterwards.

Facilitation

Step 1

Prepare a set of stakeholder circles, i.e. copied from those identified in the conduct of the risk reduction service profile (see Handout S14.7). Form two (2) groups of participants, one with 16 – 20 males and another with 16 – 20 females. Each group will be facilitated separately, but in the same way. Start by introducing the tool objectives, process, and how the output will be used.

Step 2

Follow by drawing a circle in the middle of the prepared chart paper square. In this square, place a title that reflects the group, e.g. women, women farmers, etc. Indicate to the participants that this inner circle represents them. Place the prepared set of stakeholder circles around the inner circle. Ask participants to think about what stakeholder groups, development agencies, government agencies or individuals etc. influence their lives, or that they depend upon (see STEP 3&5). Additional named circles can be added at this time. Now ask the participants to eliminate those named stakeholder groups, development agencies, government agencies or individuals etc. that have minimal influence on their lives, or they have minimal dependency upon. Recommended is that no more than six (6) named circles are left on the chart paper. Thus, focusing only on those that have a clear and significant impact on the lives of the participants. See Figure 1 for an example of the final working layout of the tool.

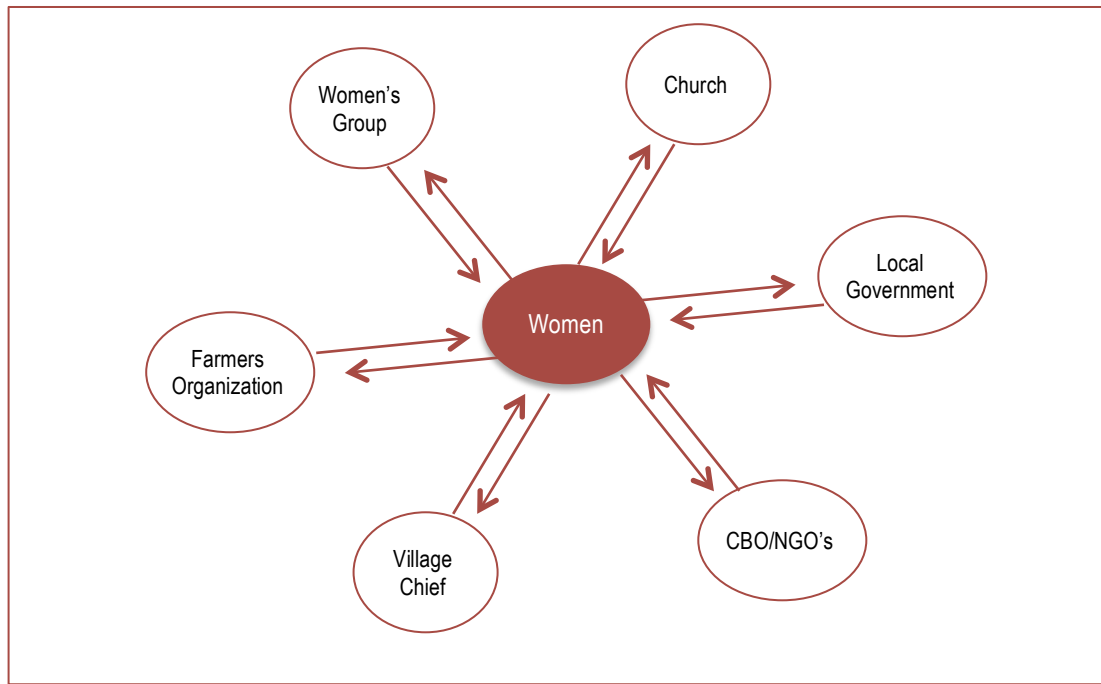


Figure 1 Sample Dependency and Influence tool layout.

Step 3

Explain to the participants what is meant by the word 'influence'. Give practical examples of people being influenced and how they can influence others:

- Example: You are part of a women's group that has access to a NGO for trainings. A few stronger members in the group ask the NGO for a specific training to be conducted. However, this is not the type of training that will benefit you, rather, just those few stronger members. You go along with the recommendation without saying anything, and the NGO conducts the training requested.

Follow by asking the participants to consider 1) how those named in the outer circles influence their lives, and 2) how they influence those named in the outer circle. Allow 15 – 20 minutes for open discussion.

Step 4

For each named circle (stakeholder) in the outer circle, participants are to answer two questions:

- 1) I/ we influence this 'stakeholder' by....
- 2) This 'stakeholder' influences me/ us by...

Answers to each question are to be written on an index card/ small piece of paper and then placed along the appropriate line (see Figure 2). Arrows show the direction of influence. Questions can be answered by each participant individually. However, if participants would like to form several small groups to answer each question, e.g. with those they feel most comfortable with, this is fine. Small and short group discussions (5 minutes) tend to yield more open and honest answers.

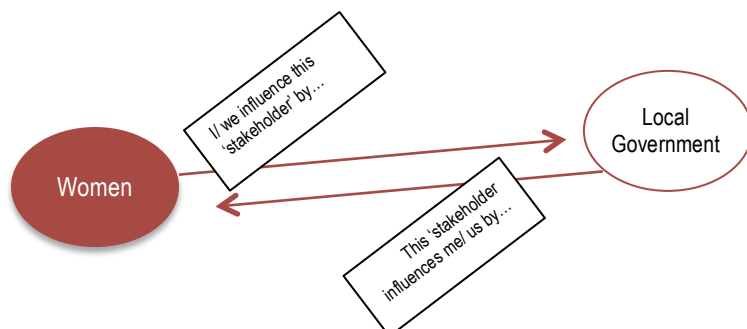


Figure 2 Partial example of the placement of index cards outlined in Step 4.

Step 5

Explain to the participants what is meant by the word 'dependency'. Give practical examples of people depending upon others:

- Example: Because we don't have access to technical framing skills, when the dry season is extended just a few weeks, we depend on the local government for food relief supplies.

Follow by asking the participants to consider how they depend on those named in the outer circles. Allow 15 – 20 minutes for open discussion.

Step 6

For each named circle (stakeholder) in the outer circle, participants are to answer two questions:

1. I/ we depend on this 'stakeholder' for....
2. This 'stakeholder' depends on me/ us for...

Answers to the question are to be written on an index card/ small piece of paper, and then placed along the appropriate line (see Figure 3). Arrows show the direction of dependency. If previous work was done using several small groups, this should be continued, and with the same grouping. (Note: it is best to use a different color index card than that used for 'influence'.)

Allow participants to individually review all statements made. They can take time to discuss these, and then asked them to circle which influences and dependencies they think are 'unwanted'. It is recommended that this be done individually. This should be followed by a focus group discussion on 'why' cards circled are unwanted dependencies and influences.

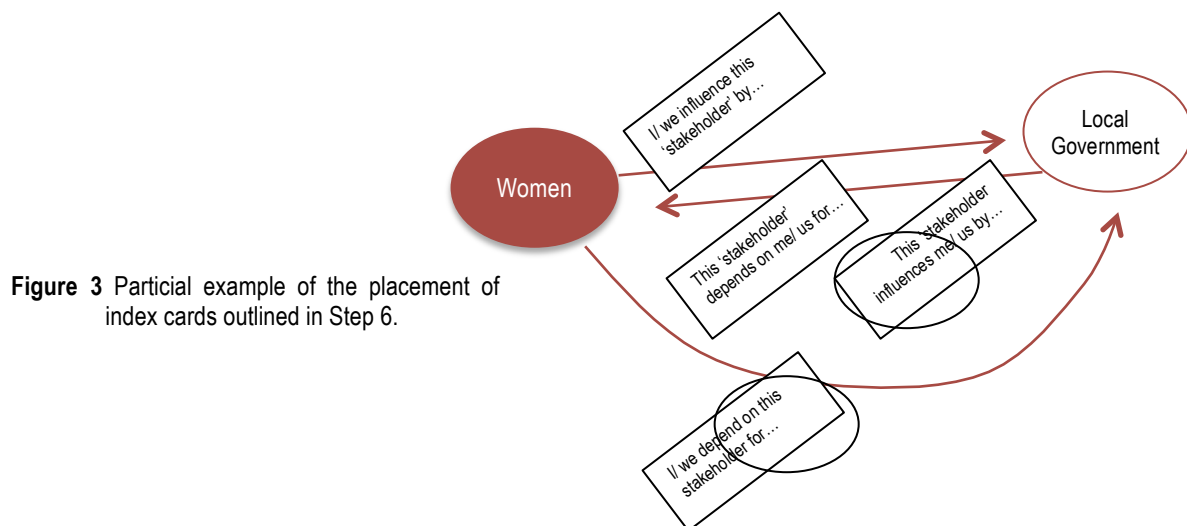


Figure 3 Partial example of the placement of index cards outlined in Step 6.

Further questions

Social dimensions of power

- What kinds of power do you have over other people?
- What kinds of power do other people have over you?
- What are the benefits of power for those who use it over others?
- What are the costs of power for those who are subjected to it?
- What can be done, as women (or men), to challenge and change others' use of power over us?
- What can be done, as women (or as men), to change the way we use our power over others?

Influence and an enabling CBA environment

- What influence do you have/ stakeholder group has over the flow of information, goods and services into and out of your community?
- What influence do others have over your ability to access the flow of information, goods and services in and out of the area?
- What influence do you have over the type of livelihood you pursue?
- What influence do others have over the type of livelihood you can access?

- What influence do you have over decisions involving migration and or accessing non-farming sources of income?
- What influence do others have over your decisions involving migration and or accessing non-farming sources of income?
- What influence do you have over your choice to access education/ training, self-help groups, government departments, banks, NGOs and or social networks?
- What influence do others have over your choice to access education/ training, self-help groups, government departments, banks, NGOs and or social networks?
- What influence do you have over the use of water, land, and or other natural resources?
- What influence do others have over your use of water, land, and or other natural resources during scarce times?



Male youth and their local leaders discussing unwanted influences and dependencies in their lives – Gender Role Support – Dependency and Influence tool, Nissan Island, Papua New Guinea. (Photo by Robert W. Solar)

I-CVCA tool: GRS – Assessing potential for positive change (APPC)

Handout S14.8d

Tool briefing

The Assessing Potential for Change (APPC) tool is the fourth of a four-part tool process that makes up the Gender Role Support (GRS) tool. The APPC tool is used to recap other GRS tool outputs. The tool encourages participants to reflect on how they exert influence on others, and how certain dependencies may result in unwanted conditions. Through facilitation, participants have the opportunity to discuss and assess the potential for need changes within the community and amongst stakeholder groups to create a fair and equitable enabling environment for CBA to occur.

Tool objectives

- ✓ To help participants understand and build their awareness on current barriers to achieving balance and equality between men and women, and or local stakeholder groups
- ✓ To help participants identify key areas where positive change is needed in order to 1) bring about a balance of power between men and women, and or stakeholder groups, and 2) build a fair and equitable enabling environment for climate change adaptation to occur
- ✓ To assess the potential for positive change to occur

Materials

- ✓ Handout S15.8c (DI tool) output
- ✓ Tape, 20+ 5cm X 10cm papers/ index cards, and several colored markers

Facilitation time: 1½ - 2 hours

The APPC tool was designed to target women, as they have been identified as 'the most vulnerable' to climate change, yet it can be used with both male and female groups, and or differentiated stakeholder groups for comparative and awareness building purposes. It is not recommended to use the tool with mixed male and female groups, unless the tool is being used with differentiated stakeholder groups comprised of a mix of male and female members. For further awareness building purposes, mix group analysis of outputs can be conducted afterwards.

Facilitation

Step 1

Prepare an overview of the DI tool output (see handout S14.8c) in reference to unwanted dependencies and unwanted influences. Working with the same group of participants that completed the DI tool, introduce the APPC tool objectives, process, and how the output will be used. It is recommended that the DI tool output be posted as a reference for the participants.

Step 2

Following the review, the facilitator should ask participants the following:

- What motivates people to use their influence?
- What motivates people to resist influence of others, e.g. from individuals to stakeholder groups?
- What prevents people from breaking away from unwanted dependencies?

The facilitator should help participants consider a wide range of responses, e.g. relationships, customs and cultural norms, access to economic opportunities, to participation in community life, etc. The facilitator should write key responses on individual cards using key words expressed by the participants and place these on a surface where they can be seen. Responses can be positive and or negative in context.

Step 3

The next step is to determine the potential for positive change. Ask participants to review the posted index cards and circle statements/ situations that they think need to change. Following, ask participants to look at the circled responses, and then ask:

- Are some changes harder or easier to implement?
- Would some changes have a bigger impact than others, and be more important to do?

Step 4

Explain to the participants that each circled statement/ situation will now be analyzed in terms of being very easy, easy, difficult, and very difficult to change. To do this, the facilitator should draw a path way as shown in Figure 1. Following, ask participants to place index cards with circles drawn on them along, and under the pathway as appropriate.

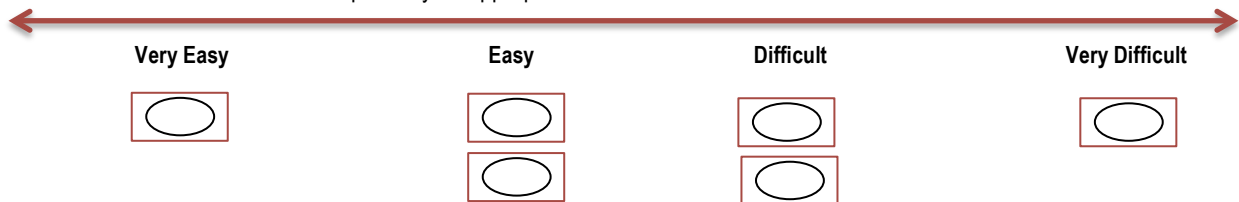


Figure 1 Example of a change pathway layout as explained in Step 4.

Step 5

Following, ask participants to discuss and identify which changes they think are most important to make. Help participants illustrate their choices, write below the change pathway 'important', and above the pathway 'most important'. When participants have discussed their choices, the facilitator can invite them to move the index cards as appropriate. See Figure 2 for an example.

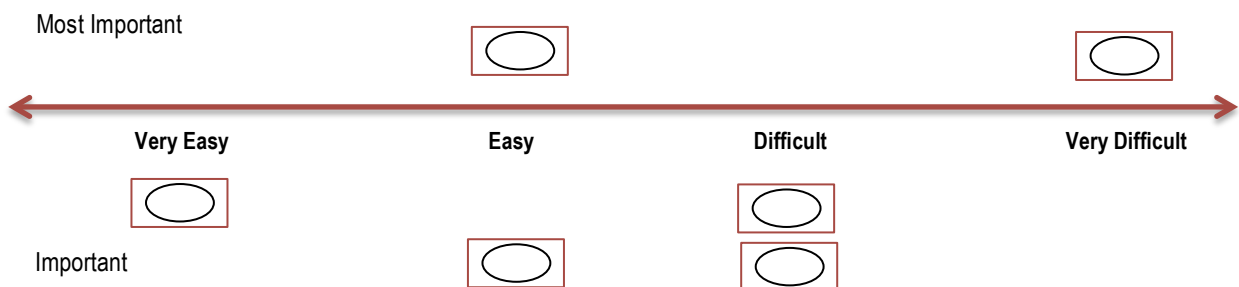


Figure 2 Example of a change pathway layout as explained in Step 5.

Step 6

To conclude the exercise, the facilitator can ask the participants the following questions:

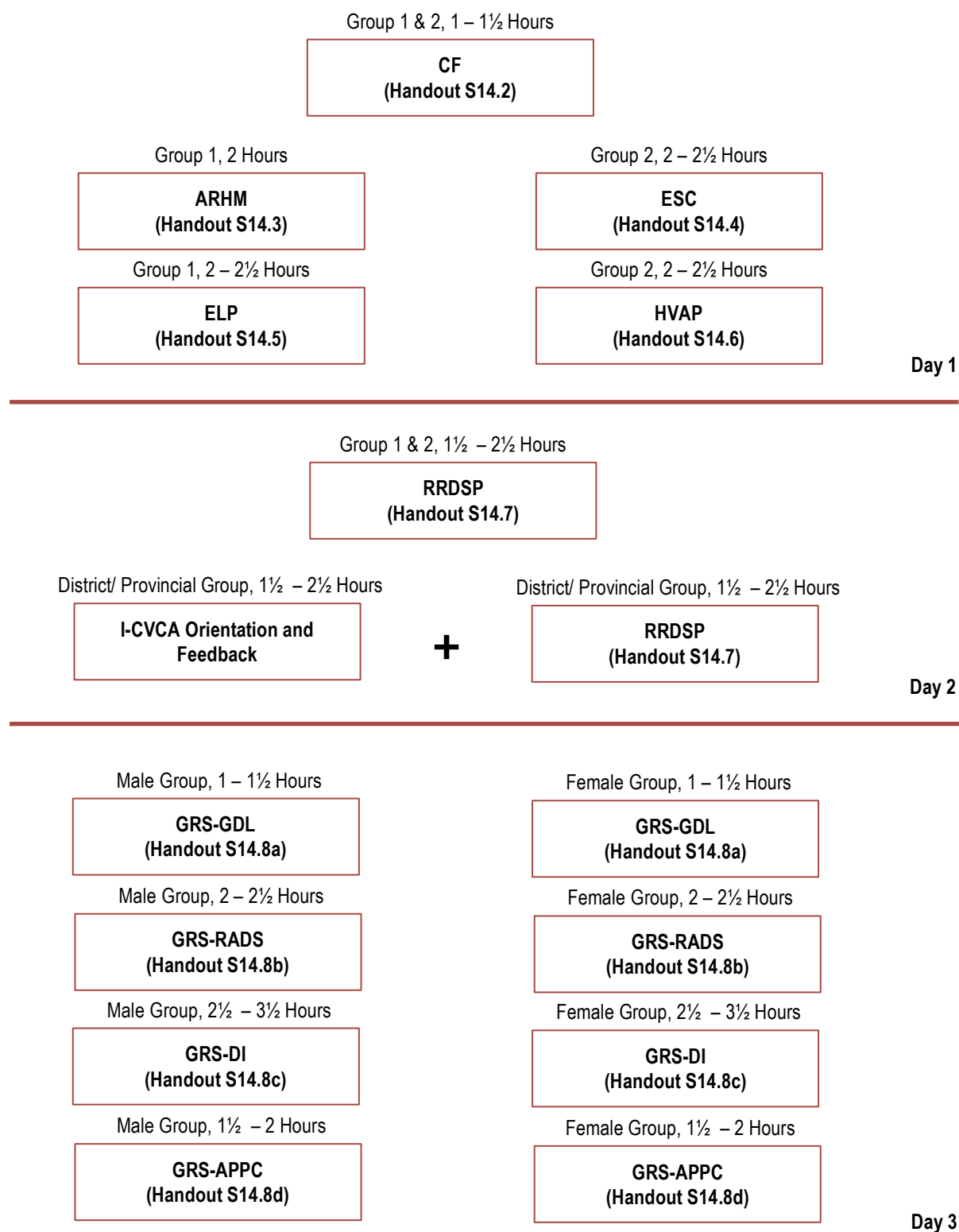
- Who needs to be involved in the changes, e.g. men, women, other stakeholders?
- What support is needed to make these changes?
- What have you learned from this exercise?
- How will you use this information?

Further questions

- How would the implementation of a CBA project be affected by needed changes that are very important, yet, very difficult to achieve?
- If an intended CBA project would attempt to address circled statements/ situations, what negative consequence may occur, and how could these be avoided?

Sequencing of the I-CVCA field assessment

Learning aid SLa14.1



Preparing for a I-CVCA field assessment

Learning aid SLa14.2

Prior to conducting any form of assessment it is important to gather as much background information about the target area as possible. This would include information on the context of rural development at the national level, e.g. modes of natural resource management, structure of governance, to the context of climate change vulnerability. Background information related to the natural, physical, economic, social, political and cultural landscape of the targeted area is also needed. In-depth knowledge regarding the aforementioned is not required, however, the more familiar with the target area, the more effective facilitation of investigative tools and focus group discussions will be.

It is a must that all potential participants understand the purpose of the I-CVCA prior to formal activities. This may entail conducting awareness/ knowledge building events prior to conducting any assessments. Also important to note is that the quality of assessment outputs aligns with the level of care taken to select the 'right balance' of participants. For example: villagers, community leaders, to community-based organizations, civil society and local governance representatives, and having a gender, social, economic, and sectoral balance amongst the group. Facilitators should also know well the assessment process, e.g. information to be gathered and the tools used to gather this, and participants/ stakeholders groups required for each investigative process. Tables 1, 2, 3, 4, and 5 can be used as an orientation and or check listing to needed I-CVCA information (set at a minimum). Facilitators can chose from the many assessment tools covered in Module 4 to identify the 'tool/ information gather process', and decide if requested information is a priority or not.

Table 1 Checklist for assessing ecosystem performance and people's needs.

Investigative Elements	Tool/ Information Gathering Process	Priority	
		Yes	No
Extent and type of natural systems in use for livelihood purposes			
• Types of ecosystems/ habitats under human use in the chosen area			
• Distribution of ecosystems/ habitats and their governance			
• General condition of habitat constituents			
• Habitat use and governance in relation to local livelihood activities			
Ecosystem/ habitat performance			
• Dominant natural assets in use within given ecosystems/ habitats			
• Number of households dependent on natural assets listed for 1) consumer purposes, and 2) direct user consumption			
• User rate of the natural assets listed for livelihood and subsistence purposes			
• Maximum sustainable yield of natural assets in use			
• Identification of ecosystem/ habitat components providing protection from natural hazards			
Livelihood vulnerability			
• Rate of inputs into habitats to maintain production and or extraction levels – physical, chemical, human, and or financial in nature			
• Harmful natural resource extraction practices and ways of maintaining productivity			
• Habitat destruction and or alternative use of habitats other than being in its natural state			
• Invasive species			
• Pollution			
• Access to natural asset and benefit sharing governance			
Livelihood dependence on provisional ecosystem services			
• Provisional ecosystem services listing			
• Natural resources harvested by the household for selling and or trade purposes			
• Seasonal variation of provisional ecosystem services			
Impacts on human well-being resulting from losses in ecosystem services			
• Impact on natural resource dependent livelihoods (household and community level)			
• Impact on health and safety (individual, household, community)			
• Impact on social relations (individual, household, community)			
• Impact of ‘freedom of choice’ (individual, household, community)			
• Impact on government expenditure, e.g. maintenance of food and human security			

Table 2 Toolbox checklist for assessing hazards and mapping livelihoods.

Investigative Elements	Tool/ Information Gathering Process	Priority	
		Yes	No
Nature of climate and non climate induced hazards			
• Types of hazards experienced			
• Location of hazards			
• Scale and intensity of hazards			
• Timing of hazards			
• Hazard development			
• Frequency or probability of the hazard's occurrence			
• Who and or what are most vulnerable to given hazards			
• What livelihoods or livelihood assets are most vulnerable to given hazards, and to what extent			
Hazard impact			
• Geographical areas affected by a 'climate change' shock/crisis			
• How geographic areas have been affected (e.g. hectares of agricultural land destroyed, estimates of tons of production lost, numbers of cattle killed, forest areas destroyed, physical property destroyed, formal and informal trade destroyed, and value of these losses etc.)			
• Groups of people affected by hazardous events			
• Hazard impact on livelihoods			
• Hazard impact on ecosystems			
• Hazard impact on human well-being			
Hazard responses			
• Actions taken to reduce the impact of hazards, results, and potential outcomes			
• Contribution of adaptation to building community resilience			
• Climate change adaptation planning and response implementation capacity gaps			

Table 3 Toolbox checklist for assessing ecosystems, governance, and development services.

Investigative Elements	Tool/ Information Gathering Process	Priority	
		Yes	No
Ecosystem governance			
• Policies in place to govern ecosystem/ habitat use, e.g. traditional law, mainstream policies, by-laws etc.			
• Stakeholders involved in the governance of ecosystems/ habitats, their roles, responsibilities, and returns			
• Individual or groups 'RIGHTS' over the use of ecosystems, and knowledge of such			
• Issues prevalent in the use of the ecosystems and their resources and services			
• Root-problem-causes to 'issue-bases' and barriers that exist to overcoming these			
Development services and ecosystem governance institutions			
• Key actors involved in sustainable development initiatives in the area, their mandates, services offered, and initiatives taken (past and present)			
• Key actors involved in natural resource management initiatives in the area, their mandates, services offered, and initiatives taken (past and present)			
• Climate change mitigation, adaptation, and/ or disaster risk reduction responses taken in the area (past and present)			
• Relationships and cooperation amongst stakeholders and development services providers (DSPs)			
• DSP institutional strengths, weaknesses, opportunities, and threats in place respective of addressing CBA issue bases			
Cooperation mechanisms to support a CBA enabling environment			
• Existing learning mechanisms for stakeholder groups and or multi-stakeholder groups			
• Existing knowledge, systems, structures, and policies, skills, and attitudes etc., to facilitate cooperation			
• Existing inclusive participatory process to facilitate multi-stakeholder project development and implementation			
• Incentives to promote and sustain cooperation			
• CBA capacity gaps			

Table 4 Toolbox checklist for assessing the underlying causes of vulnerability.

Investigative Elements	Tool/ Information Gathering Process	Priority	
		Yes	No
Local government and community			
• Identification of social groups most vulnerable to climate change			
• Extent of participatory planning process at the community and local government levels			
• Extent of women's participation and or other marginalized groups in household and community decision-making processes			
• Dynamics of access to and control over critical livelihoods resources and development services			
• Influence and dependency respective of access to livelihoods resources and development services			
Groups, households and the individual			
• Dynamics of cooperation between men and women, and or stakeholder groups and those that are marginalized in addressing community challenges			
• Extent of access to information, skills and services amongst men and women, marginalized groups and that of organized stakeholder groups			
• Social, political or economic influences and dependencies that make particular people more vulnerable than others			

Table 5 Suggested guidance/ review/ planning table to be completed respective of tool/ process selected for the conduct of a community based vulnerability, and adaptation capacity assessment.

Assessment Tool/ information gathering process	Stakeholder Involvement	Featured Information to Obtain	Output and Use	Sequence of Implementation at the Field Level	Facilitator/s
■	■	■	■	■	■
■	■	■	■	■	■
■	■	■	■	■	■
■	■	■	■	■	■
■	■	■	■	■	■
■	■	■	■	■	■

Objectives

- ✓ Understand how to move from a climate vulnerability and capacity assessment phase to a multi-stakeholder planning phase for climate change adaptation.
- ✓ Understand how and where in the adaptation assessment and planning process to bring together stakeholders and gain preliminary consensus on adaptation actions.
- ✓ Understand in principle the importance of including collaborative partnership building action in adaptation planning.

Facilitation

Step 1

Introduce the session's objectives and a brief overview of handouts S15.1, S15.2, and S15.3 content through an organized PowerPoint presentation. The session introduction should also include the process the facilitator will use to deliver the session. Start the session by presenting handout S15.1, Figure 1. Highlight the learning process to-date, i.e. covering 'scope and organize', and 'assess'. Then introduce 'Plan' and the components put forth as a fluid process to adaptation planning:

- Establish adaptation goals and priorities
- Identify and evaluate adaptation strategies
- Create an initial adaptation plan for broader consultation
- Further assess stakeholder capacities vis-à-vis adaptation plan delivery
- Create an enabling environment for adaptation partnerships

Step 2

Starting with handout 15.2, present key content through a PowerPoint presentation. Highlight the key messages:

- Adaptation goal setting must be realistic and doable. Most important is to set goals that consider livelihoods and ecosystem services as a single element. Note that for the rural poor, natural resources are key to sustaining livelihoods as well as an adaptation asset.
- Adaptation planning has a strong focus on climate related hazards, but also needs to focus on the drivers of climate change vulnerability, e.g. social and economic marginalization.
- The use of locally developed 'Hazard Statements' and adaptation solutions that address root problem causes are essential to addressing climate vulnerability for those most vulnerable.

Step 3

Continue the session with handout 15.3; presenting a brief overview of the content through a PowerPoint/ chart paper presentation. The handout and accompanying learning aids put forth a lengthy step-by-step process that is needed to 1) derive doable solutions, 2) develop a tentative action plan that surfaces roles and responsibilities to deliver adaptation solutions, and 3) a process of consultation and collaboration that brings stakeholders together in the development of an informed adaptation plan. At the field level, to deliver the process, multiple meetings and workshops are needed. Use learning aid SLA15.1 as a guide to present the process.

Tools and processes detailed in handout S15.3 are common and adaptable. It is recommended that each be reviewed in detail. The facilitator should prepare/ have access to previous session handouts as they are referred to in the handout. This will remind participants where concepts and information is being generated from and feeds into the planning process. For example, where and how hazard statements are derived, to the identification of capacities and capacity gaps.

Learning aids SLA15.2 and SLA15.3 can be used to provide more detail to the planning process outline.

Step 4

Introduce learning aid SLa15.2 during the 'Understand capacities' section of handout 15.3. This learning aid aims to help participants understand more about 'capacity', and how capacities can be identified. The learning aid should be reviewed. Important to note:

- The process is used to help community groups and stakeholder groups identify their capacities that may or may not be able to contribute to a climate change adaptation response. To list all capacities needed to deliver an adaptation response, it may be necessary to consult external sources.
- The tool mirrors a training-needs-analysis process, and is effective in identifying adaptation response capacity gaps.

Step 5

Introduce learning aid SLa15.3 during Step 5 of handout S15.3. Begin by introducing the concept and process of Appreciative Inquiry. Have participants discuss what each of the following statements may mean in terms of collaboration and partnership building:

- Discovery and Clarity - focus on positive strengths among us
- Enhancing Ability - what do we see as needs
- Shared Awareness - what situation do we share
- Destiny and Delivery - moving forward with positive actions and through reflection

Following the discussion, review the Stakeholder Reflection and Partnership Building process as stated. It is also recommended to have participants reflect on the questions posed in each matrix and role play/ share differing answers to each question from the view of different stakeholders, e.g. local women's group member, community leader, non government organization (NGO) rural development worker, to government representatives etc.

Step 6

End the session by reviewing the sequential process of adaptation planning put forth in handout S15.3. As an exciting option, challenge participants to outline the planning process depicted in Figure 1. Participants should also describe the tools used, and the benefit of using each, through the various stages of the planning process noted in Figure 1.

Materials

- ✓ PowerPoint presentation covering handouts S15.1, S15.2, S15.3, and learning aids SLa15.1, SLa15.2, and SLa15.3
- ✓ Relevant handouts and learning aids, chart paper, markers and tape

Time
3hrs

Overview

Climate change adaptation planning processes are similar to planning processes that would occur, for example, in the development of a rural livelihood or community forestry initiative. First, knowing as much about a situation as possible to able the development of targeted investigative processes, i.e. an initial scoping assessment, and then organizing of an assessment team to facilitate further efforts. For 'adaptation' initiatives, the next step is to design and deliver a participatory assessment. A wealth of tools and processes have been put forth in Sessions 12, 13 and 14 for guidance. At this stage, adaptation planning tends to be more complicated than other development planning processes in that focus is placed on mitigating and adapting to the impacts of climate related hazards, and on social, environmental, and economic barriers to rural development. For this reason, adaptation planning must begin and stay focused on the 'climate related hazard'. Noted in Figure 1 is an overview of processes that lead to adaptation planning.

Session 15 content focuses on a participatory adaptation planning process, one that starts with placing emphasis on hazards, and integrates with proven rural development planning tools.

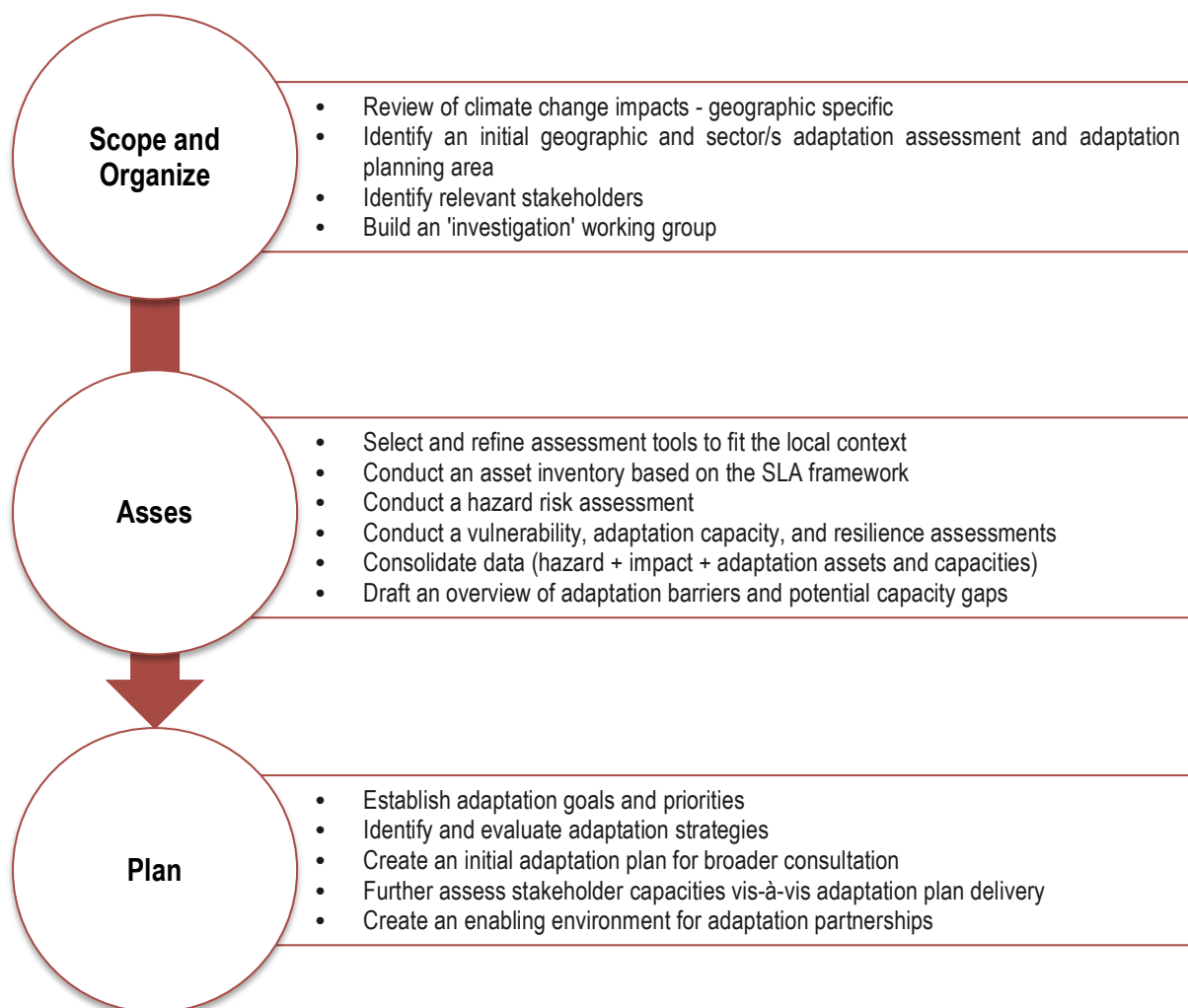


Figure 1 Overview of a sample climate change adaptation project development and planning process.

3 Point adaptation goal setting

1

Adaptation goal setting should be a phased process. First setting capacity building goals at a level to stabilize losses from current climate change impacts, afterwards consideration can be given to adapting to future climate change scenarios. Recommended is to prioritize locally, and on at least two key areas of adaptation, 1) addressing direct threats to livelihood productivity, and 2) addressing threats to the stability of ecosystem services (see handout S12.5 for assessment tool). Other areas of consideration can be health and safety, etc.

2

When setting adaptation goals, important to keep in mind is that many climate change related impacts and the 'losses' that have occurred are a result of low adaptive capacity. Contributing factors are 'development barriers', for example, gender, wealth, land tenure insecurity, knowledge (see handout S10.2 for a review of influences that shape adaptation strategies and results). Thus, adaptation goal setting, and planning, must also consider the driving forces behind climate vulnerability to differing social values and interest, i.e. going beyond dealing with physical hazards.

3

Adaptation goal setting also needs to consider higher levels of direction and process setting, e.g. goals, and adaptation strategies considered should align with national development plan, and national climate change responses and supporting policies. By doing so, local level planning is more likely to gain support from societal structures and processes that have the potential to influence local level adaptation and resilience building efforts (see handout S10.1 for review of key concepts).

Focus on development planning principles

Regardless of the nature of the threat, climate induced or something else, the root problem cause of a given threat and/ or development barrier must be addressed to achieve adaptation goals.

In the context of the I-CVCA tool, 'risk reduction development services profile' (see handout S14.7), barriers to climate change adaptation were taken in the context of **Hazard Statements** – a combination of a climate related hazard, and a prioritized need for action through capacity development. As a recap:

Hazard statements are composed of:

1. **A hazard.** This can be either a natural, cultural, and or societal hazard etc. in context
2. **A need for action.** This focuses on addressing a specific vulnerability/ losses from hazard impacts
3. **A capacity development need.** This focuses on a request to build specific capacities or fill perceived capacity gaps, for example, the development of a livelihood asset base, to policy advocacy skills, etc., to lower climate change vulnerability.

Planning for climate change adaptation must go beyond identifying an adaptation response, e.g. increasing water storage, as a capacity building element. The response should also take into consideration why 'water storage' has not kept up with a stated need. This is the importance of developing **Hazard Statements**, statements that can then be analyzed through the use of a **Problem Tree** tool (the hazard statement is placed at the top of the problem tree) to find the root problem cause (noted at the bottom of the problem tree) of the vulnerability – be it technical, social, and or economic in nature etc.

What are the strengths to using Hazard Statements for adaptation planning?

The most obvious strengths to using Hazard Statements for rural adaptation planning is that they adhere to the local context and needs – this is where they are developed from. In doing so, a bottom up approach is established. This also means that 'solutions' to root problem cause should also be developed at the local level as a starting point.

Strategy Identification

Once Root Problem Causes (RPCs) to climate change vulnerabilities are identified via the use of hazard statements and a 'problem tree' assessment, solutions to solve these can be identified. To do this, a simple 'creative problem solving' tool can be used:

Step 1

Take the ROOT PROBLEM CAUSE/S and convert this to a PROBLEM STATEMENT by adding to the RPC... 'In what ways might we do/prepare/improve etc....' Following, participants should reflect on the PROBLEM STATEMENT and ask themselves...

- ✓ Will the statement lead to a lot of ideas?
- ✓ Is the statement a question 'you' want to find ideas about?
- ✓ Is it clear who the owner of the statement is, and is it accurate?
- ✓ Is it value free? (Not too many limiting criteria)
- ✓ Is it brief and concise?
- ✓ Is it attractive, fun, and or worth working with?

... and make revisions as appropriate.

Step 2

Once the problem statement has been agreed upon, participants are to start brainstorming solutions. At this time it is important for the facilitator to review all vulnerability and adaptation assessment outputs with participating stakeholders. This will help the participants to discuss further their current capacities, and capacity gaps in relation to the root problem causes to climate change impacts and vulnerabilities. This will also help focus participants on the development of realistic solutions that could be within their reach. It is advisable to have the participants analyze their solutions as follows:

Ask participants to place their 'solution' on an index card and within a drawn matrix as illustrated in Figure 1, by asking... is this a usual way to solving a 'problem' like this, or is it something new? And, is this solution doable or not if current capacities and resources are enhanced within reach?

Suggested solutions

- 1.
- 2.
- 3.
- 4.
- 5.

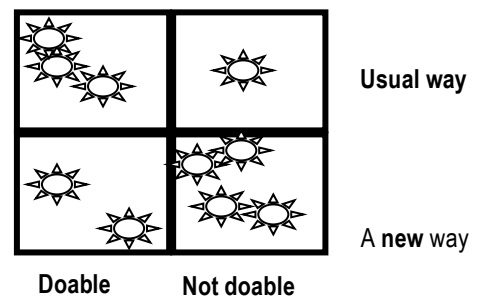
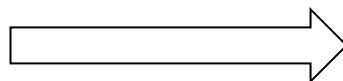


Figure 1 Process to test climate change adaptation solutions for do-ability.

Helpful hints

- ✓ If there are too few NEW ideas – ask participants to return to the solution table and think some more;
- ✓ Eliminate the SOLUTIONS that are Not Doable;
- ✓ Sometimes a 'Usual' solution can be moved to 'New' via changing the approach; and
- ✓ When participants feel they have a good set of 'probable' solutions proceed.

Step 3

Defining roles and responsibilities to the SOLUTIONS. Work only with the SOLUTIONS THAT ARE DOABLE, and define the needed ROLES, RESPONSIBILITIES, and RESOURCES needed to implement the solutions (see Table 1). As part of Rights Based work, it is important to surface what Rights Holders and Duty Bearers EXPECT by fulfilling their roles. If expectations are not realistic, or not met, multi-stakeholder participation decreases, and most likely the climate change adaptation response fails to meet local level expectations.

Table 1 Simplified-planning matrix for roles, responsibilities, and needed resources to implement 'probable solutions'.

Problem Statement:						
Solutions	Activities Needed	Types of ROLES Needed	RESPONSIBILITIES Needed	Needed Resources	Output*	Short-term Outcome**
#1 -						
#2 -						
#3 -						

* Output: Refers to direct results of an activity or a series of activities, e.g., number of trained women, number of trees planted, length of water pipes installed, etc.

** Short-term outcome: refers to intermediate changes which result from various outputs, e.g., changes in soil fertility, changes in income, to changes in vulnerability, etc.

Understand capacities

If those involved in the adaptation planning process are not fully familiar with the term 'capacity' and or capacity building, it may be advisable to review the concepts in the context of Table 1 outputs before moving to Step 4. Refer to learning aid SLa15.2 for an adaptable learning process to discovering 'capacity'. The output of the exercise can be used to further refine Table 1 by adding needed activities or resources to fill capacity gaps based on identified solutions.

Step 4

The next step is to look deeper into the capacities and relationships of the main stakeholders to deliver the most probable SOLUTIONS identified, e.g. activities, roles and responsibilities, and level of resources available.

Referring to handout S14.7, hazard statements and a power pyramid tool are used to identify which stakeholders are most important and/ or have the most influence over resolving a chosen hazard statement. Information from this tool can help guide a stakeholder capacity and cooperation assessment. To conduct the assessment, it is recommended to only use the four most important stakeholders needed to implement chosen solutions (as identified through the Risk Reduction Development Services Profile tool – see handout S14.7)). This will help keep the analysis simple and doable. See Table 2 for the assessment matrix.

Table 2 Stakeholder capacity and cooperation assessment matrix.

Most probable solution #1:				
Stakeholder	Strengths	Limitations	Opportunities	Risks

Step 4.1 Ask all stakeholders to write down on index cards and place with a prepared Table 2 matrix, capacity strengths and limitations akin to the specific stakeholder and the implementation of the solution, and opportunities and risks that may come about in relation to the stakeholder's involvement in implementing the solution.

Step 4.2 Identify what 'stakeholder/s' is best to fill outlined Roles and Responsibilities noted in Table 1 – Step 3. All participants should understand at this point, commitments are not being asked for; only possibilities are being looked at.

Step 5

Identify modes of cooperation. What is important to gain from the conduct of the stakeholder analysis is to identify ways to harness strengths of one stakeholder to overcome weakness of another, and how to harness opportunities to overcome risks. This can be done by improving modes of cooperation and partnership amongst stakeholders in the implementation of the chosen climate change adaptation response (see learning aid SLa15.3). To do so, this requires knowing the following (at the least):

- Whose strengths can help in addressing other's weaknesses
- Do the right stakeholders have the capacity to fulfill their potential ROLE and or RESPONSIBILITIES
- Do capacities need to be built, or can a shift in Roles/ Responsibilities fill the gap
- Do strengths/ capacities listed range from technical skills to economic, social, and political elements
- Are asset inputs for the needed solution (Financial, Human, Natural, Physical, and Social) realistic when compared to the returns expected from fulfilling ones Roles and Responsibilities

The output of Step 5 should be a revised, and or more detailed version of Table 1 (see Step 3). As an example, delivery dates for each activity can be added, and or the activity base can be divided into 5 sections, each defining a community adaptation asset building activity, 1) human, 2) natural, 3) financial, 4) social, and 5) physical (see handout S10.1 - A Sustainable Livelihoods Approach perspective).

Note: Adoption into programme/ project design

It is important to note that 'program/project planning' mirrors 'adaptation planning'; how different organizations/ institutions go about this process has much to do with the organization/ institution's identity. However, the intersection of knowledge and outputs derived from field-based investigations must be prioritized in the organization/ institution's formal planning processes.

Strategy evaluation

For more advance project and programme planners, reflecting on and organizing outputs from Step 3 to 5 into a modified Theory of Change many be useful in evaluating and fine tuning an adaptation plan. See Figure 2 for a sample layout).

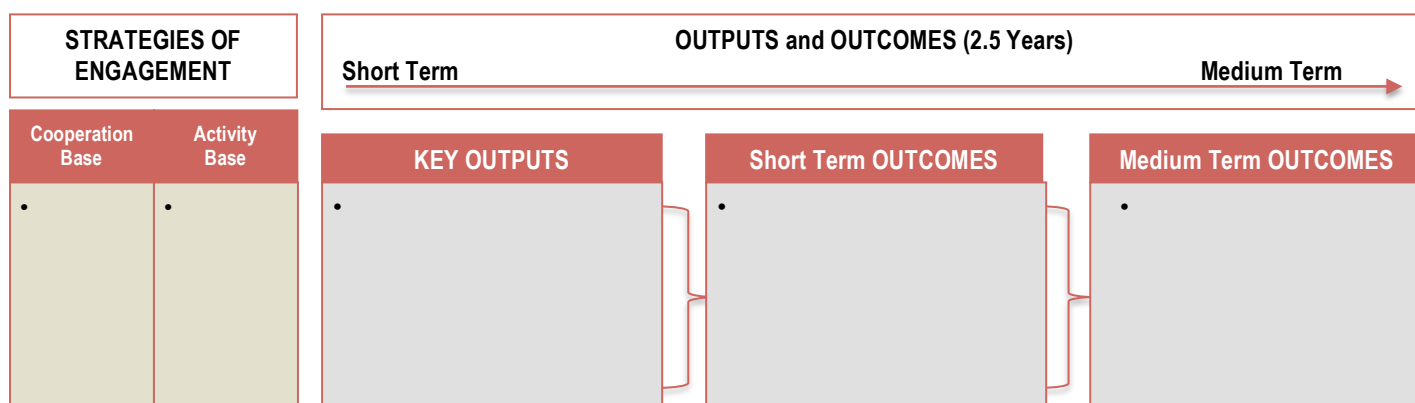


Figure 2 Sample layout of an adaptation Theory of Change for project/ program design reflection.

Key evaluation guide questions:

- Stakeholders have the ability and mandate to cooperate as stated for the delivery of the activity base
- All activities delivered will give the following outputs
- Outputs are adequate enough to meet all short term outcomes as expected
- Short term outcomes are adequate enough to meet all aspects of medium term outcomes expected
- Expected medium term outcomes will lead to agreed adaptation goals

Stakeholder consultation and multi-stakeholder planning

Learning aid SLa15.1

Even though good solutions to address root problem cause to climate change vulnerabilities can be derived at the community level, often these solutions require other stakeholders to become part of the solution building process, e.g. Development Service Providers (DSPs). DSPs have key climate change adaptation capacities, however, they may also have limitations, even capacity gaps. DSPs also have their own agendas, and may not be in line with adaptation capacity building needs. Nonetheless, DSPs need to be engaged in adaptation planning processes, and the timing and the 'how to' integrate stakeholders into this process is important. To do so responsibly, and staying true to a bottom up approach, a parallel consultative process should be considered (Figure 1).

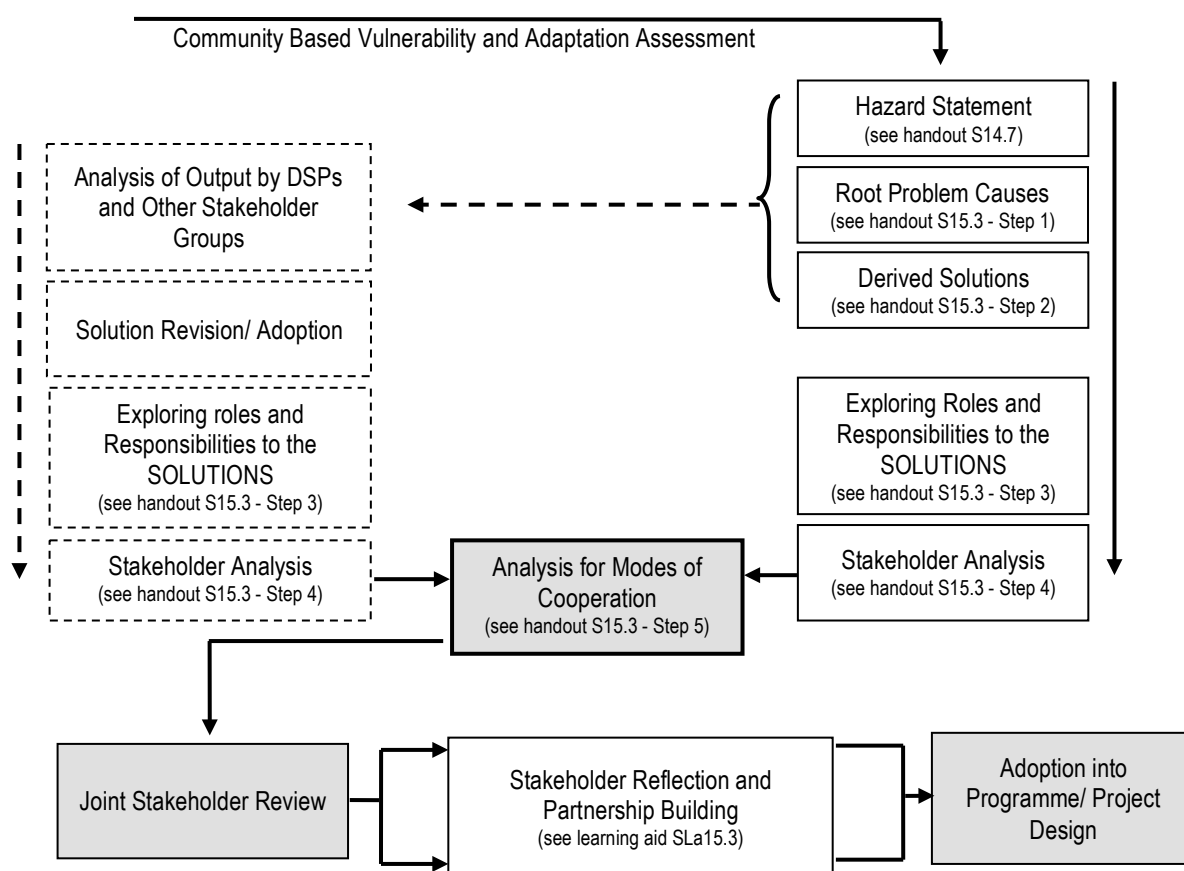


Figure 1 Suggested local level stakeholder consultation and adaptation process for adaptation planning.

Understanding your adaptation capacities

Learning aid SLa15.2

The term 'capacity' can be confusing to many, and often means something very different among differing stakeholder groups. Within the development sector, capacity generally means 'ability' or 'capability', e.g. the capability of individuals, groups, organizations, institutions and societies to perform core functions, solve problems, and to define and achieve objectives. As such, the concept of 'capacity' can be generalized as, 1) the capability to act, 2) the capability to generate development results, 3) the capability to relate, 4) the capability to adapt and self-renew, and 5) the capability to achieve coherence. Together, these capabilities enable a human system to create development value. This development value can be stated as:

- Identity and Empowerment - to be
- System Efficiency – to manage
- Collective Ability - to do
- Potential – to relate

A key mistake in analyzing stakeholder adaptation capacities is that often the focus is placed on technical capacities, e.g. the building of an irrigation system, and to a lesser extent on how the system would be socialized, managed and governed to meet adaptation goals. To take a broader approach to identifying capacity gaps, particularly with development service providers, following is a fun, yet effective and participatory way to help an organization/ Institution/ local community define their capacities to deliver climate change adaptation responses sustainably.

The process

Step 1

Define each stakeholder group/ organization as a human system to create development value. To do so, conduct a brainstorming activity using Meta cards stating briefly:

- ✓ What the 'group' visions as an adaptation goal (**to be**)
- ✓ What the 'group' does (**to do**) in the context of projects and programs
- ✓ How the 'group' manages itself (**to managed**) in the context of the systems and processes it uses
- ✓ How the 'group' relates to others, e.g. partnerships, collaboration, and intentions (**to relate**)

HINT: Use the body of an individual to organize the activity. To be – cards placed around the head, to do – cards placed around the legs, to manage – cards placed around the heart, and to relate – cards placed around the hands. This activity can be done in groups from a practicum perspective, or by organization as an actual output.



Step 2

With the information produced in STEP 1, move this information into chart form. Note that '**to be**' should be an adaptation goal and be placed within each chart to remind the organization of what it aspires to accomplish. 'Chosen Adaptation Solutions' remain the same in all charts.

To Be:		Climate Change Adaptation	
To Do... a list of current projects, and or activities.	Current Capacity Strengths (to do)	Chosen Adaptation Solutions	Capacities Needed to do the Solution

To Be:		Climate Change Adaptation	
To Manage (systems)	Current Capacity Strengths (to manage)	Chosen Adaptation Solutions	Capacities Needed to Manage the Solution

To Be:		Climate Change Integration	
To Relate	Current Capacity Strengths (to relate)	Chosen Adaptation Solutions	Capacities Needed to Relate the Solution

Step 3

With the charts complete we can now define the **CAPACITY GAPS**. Information derived can then be used to inform the development and delivery of a climate change adaptation capacity development plan.

To Be:		Climate Change Adaptation	
To Do... a list of current projects, and or activities.	Current Capacity Strengths (to do)	Chosen Adaptation Solutions	Capacities Needed to do the Solution
To Be:		Climate Change Adaptation	
To Manage (systems)	Current Capacity Strengths (to manage)	Chosen Adaptation Solutions	Capacities Needed to Manage the Solution
To Be:		Climate Change Integration	
To Relate	Current Capacity Strengths (to relate)	Chosen Adaptation Solutions	Capacities Needed to Relate the Solution

The differences between these two columns are your **CAPACITY GAPS**. Add needed capacity development activities in to the adaptation plan (refer to handout S15.3 – Step 3).

Recommended time to complete the step-by-step process with stakeholders – ½ - 1 day.

Appreciative reflection and partnership building

Learning aid SLa15.3

"...Don't get me wrong. I'm not advocating mindless happy talk. Appreciative Inquiry is a complex science designed to make things better. We cannot ignore problems—we just need to approach them from the other side."

David Cooperrider (2000)⁶⁷

Any form of participatory approach to development can generate better results if, instead of engaging directly with opposing opinions and or conflicting interests, stakeholders can be given time to jointly reflect on how to take an initiative forward, and together. However, experiences reveal that multi-stakeholder participation often encounters challenges that ultimately create barriers to progress. For example:

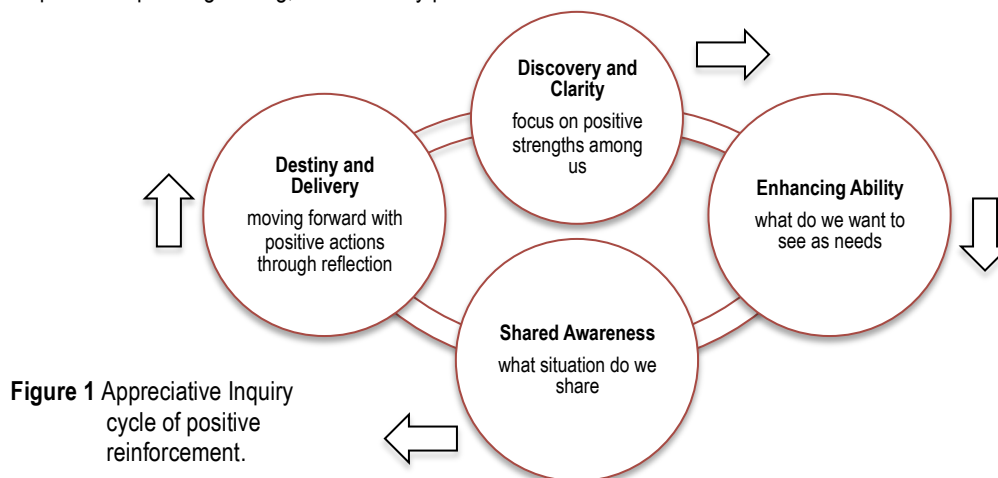
- Conflict of interests and priorities among different stakeholders
- Stakeholders blaming each other for failure
- Tendency of powerful stakeholders to dominate
- Difficulty in challenging the status quo of some stakeholders
- Difficulty in listening to traditionally marginalized stakeholders
- Difficulty in negotiating with diverse stakeholders with varying and or conflicting interests

Appreciative Inquiry (AI) is a fresh approach to examining and reflecting on human interactions, and on what people actually communicate to each other. Appreciative Inquiry poses the challenge of rethinking human experiences to better capture a vision of pathways to the future. It is a methodology that brings to the core all the positive ideals of human thinking, captures and highlights these with affirmations of what people and society are capable of. Cooperrider & Whitney (2000) characterizes each of the terms in Appreciative Inquiry as:

'Ap-pre" ci-ate — v., 1. valuing; the act of recognizing the best in people or the world around us; affirming past and present strengths, success, and potentials; to preserve those things that give life (health, vitality, excellence) to living systems. 2. To increase in value, e.g., the economy has appreciated in value. Synonyms: VALUING, PRIZING, ESTEEMING, and HONORING.'

'In-quire' (kwir) — v., 1. the act of exploration and discovery. 2. To ask questions; to be open to seeing new potentials and possibilities. Synonyms: DISCOVERY, SEARCH, SYSTEMATIC EXPLORATION and STUDY.

Taken together, Appreciative Inquiry is a process of investigation that uses optimism and hope, and highlights attitude changes for the better. The process uses a four-phase cycle viewed in continuum in which the Discovery to Destiny phases lead to partnership strengthening, reinforced by positive reflections.⁶⁸



⁶⁷ Cooperrider, D.L. (2000). "Positive Image, Positive Action: The affirmative basis of organizing." In David L. Cooperrider, eds., *Appreciative Inquiry: Rethinking human organization towards a positive theory of change*. USA: Stipes Publishing.

⁶⁸ Cooperrider, D. L. & D. Whitney. (2000). "A Positive Revolution in Change: Appreciative Inquiry". In David L. Cooperrider, eds., *Appreciative Inquiry: Rethinking human organization towards a positive theory of change*. USA: Stipes Publishing.

As part of the climate change adaptation planning process (see learning aid SLa15.1), all stakeholders should take time to reflect on planning outputs, especially on suggested roles and responsibilities, i.e. stakeholder reflection and partnership building. Often stakeholders accept roles and responsibilities thinking that these can be done in isolation or would not be impacted by those given to other stakeholder groups, groups that may differ in power, capacity, or intent. Thus, if climate change adaptation responses require capacities and cooperation from multiple stakeholders, best is to investigate how such can be done through a non-confrontational process.

The process

Step 1

30 Minutes: The stakeholder reflection and partnership building process starts by asking each stakeholder group how they feel about their designated roles and responsibilities that have come from the adaptation project planning phases. For example, what they feel they can do well and why. This is a group discussion amongst all stakeholders together. Following a short period of sharing, each stakeholder group will then work on a series of questions to answer and share with other groups in plenary sessions.

Step 2

90 Minutes: Each stakeholder group is taken through the Appreciative Inquiry cycle of positive reinforcement via a series of questions organized as shown in the matrices below. As a warm up exercise, a group facilitator asks the participants to discuss how they feel they can contribute to developing and sustaining good cooperation with other stakeholder groups to be involved in the proposed adaptation project. Afterwards, the facilitator is to introduce participants to Matrix 1, and note the GOAL stated above the questions. As a group, each question posed is to be answered and recorded, and to be shared in the first plenary.

Matrix 1

GOAL: Building Strong Partnerships for Successful Climate Change Adaptation				
As a stakeholder, what do you think your role could be in the <i>PARTNERSHIP</i> ?	How can your <i>ROLE</i> be strengthened?	What could limit your <i>ROLE</i> in the <i>PARTNERSHIP</i> ?	How can these limitations affect a good <i>PARTNERSHIP</i> ?	What <i>POSITIVE ACTIONS</i> can we take to ensure a strong <i>PARTNERSHIP</i> ?
Discovery and Clarity	Enhancing Ability	Shared Awareness		Destiny/Delivery

Note: The group facilitator is to record *POSITIVE ACTIONS* shared by other stakeholder groups, and to present these at the start of Step 3.

Step 3

90 Minutes: After the 1st plenary, stakeholders are to come back together in their previous groups and continue with Matrix 2 in the same way as they did for Step 2 – Matrix 1. The group facilitator should place in clear view all *POSITIVE ACTIONS* suggested in the plenary by the different stakeholder groups. With this information, they can proceed accordingly.

Matrix 2:

GOAL: Building Strong Partnerships for Successful Climate Change Adaptation			
In what way will the suggested <i>POSITIVE ACTIONS</i> affect your stakeholder group?	In what way could you contribute to the achievement of the goal?	If you undertake this role, what would your responsibilities be to the <i>PARTNERSHIP</i> ?	What support and capacity development do you need to fulfill your responsibilities?
Discovery and Clarity	Enhancing Ability	Shared Awareness	Destiny/Delivery

Step 4

After the stakeholder groups have completed Matrix 2, outputs are to be shared in a 2nd plenary. Naturally, stakeholder groups should be ready to provide clarifications and to answer questions. Facilitators should allow time for all participants to review outputs after the plenary, and ask participants to highlight key recommendations to incorporate into an 'adaptation programme/ project design'.

Recommended time to complete the step-by-step process with stakeholders – ½ - 1 day.

END



ADAPTATION KNOWLEDGE PLATFORM



Secretariat

ADAPTATION KNOWLEDGE PLATFORM

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