BOOK 3

Enhanced LGU Guidebook on the Formulation of Local Climate Change Action Plan

(Process Guide)

Enhanced LGU Guidebook on the Formulation of Local Climate Change Action Plan (LCCAP) Book 3

Printed and bounded in Manila, Philippines.

ISBN: 978-971-0576-82-1

Published by:

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Department of the Interior and Local Government
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Message

We, in the Department of the Interior and Local Government (DILG), through the Local Government Academy (LGA), present this Enhanced LGU Guidebook on the Formulation of Local Climate Change Action Plan (LCCAP), Books 3 & 4. These two volumes shall serve as the Guidebook on how to build local and practical LCCAPs as well as the toolkits that will be used in planning for climate change.

In the past several years, our country has experienced robust economic growth, and the outlook for future developments remains bright. However we cannot ignore the onset of climate change and its potential to disrupt the future we have been tirelessly and carefully building.

Our vision of our country's future is to have communities where people enjoy "Matatag, Maginhawa at Panatag na Buhay" (resilient, comfortable and peaceful life), as expressed by Ambisyon 2017. To achieve these goals, we have to address issues on climate change and mitigate its effects at the local level.

May this guidebook serve as a valuable tool to help our local government units in preparing their respective local climate change action plans.

I commend LGA for partnering with the Climate Change Commission (CCC) and United Nations Human Settlements Programme (UN-Habitat) in helping our country pave the way for an adaptive and resilient future.

We are born to adapt to the most difficult scenarios. We, the Filipino people, are a resilient race. While we are vulnerable to the perils that climate change presents, we have in our hands the power to mitigate its destructive effects. To do so requires us to be proactive in our national and local planning to be used side by side with sound climate science.

CATALINO S. CUY
Officer-in-Charge

Message

One of the Department's objectives is to help build local capacities for disaster preparedness and resilience. Local Government Units (LGUs) need to fuse good governance and science in making people and livelihoods resilient at all times against changing climates and the risks they bring to communities over time.

We cannot afford to ignore the lessons of science in understanding the risks we face as a result of exposure to changing climates and once triggered, the vulnerability of lives and property. It is not enough to 'plan to be prepared'. It is more important to be 'prepared over time'.

We need to understand the science of our ecology and appropriate into LGU systems, decisions, resources and capacities the short to long-term actions to make our lives and economic lifelines not only survive but thrive, despite the risks.

This is where good local governance matters. LGUs need to invest in building local capacities now to make communities resilient now and in the future. But first we need to know where we are at, to assess our exposure, risks, and vulnerability, as well as to define our baseline capacities. Then based on resources and vision, we craft what we need to do together, when and how, and agree on the results or conditions we wish to achieve.

This Enhanced LGU Guidebook on the Formulation of Local Climate Change Action Plans {LCCAP} Books 3 and 4 provides technical and governance directions on how to build adaptive capacities of LGUs and communities. Through the efforts of the Local Government Academy (LGA), in partnership with United Nations Human Settlements Programme (UN-Habitat) and the Climate Change Commission (CCC), we make this available to LGUs to help define their commitments and actions in pursuit of sustainable local development and make communities resilient at all times.

AUSTERE A. PANADERO
Undersecretary for Local Government

Message

We are facing a deeply troubling reality of climate change. This inescapable phenomenon is beyond our control but it does not prevent us from adapting to it and ultimately overcoming the effects it has on our daily lives.

While Climate Change is all-encompassing and inevitable, man can still learn to live with it with the aid of scientific and practical planning and interventions. With the multiplicity of plans posing a challenge to local government units, how can LGUs be expected to plan for and take action on climate change? Where does climate change fit in terms of an LGU's priorities? What other plans should include and address climate change?

As the training arm of the Department of the Interior and Local Government (DILG), the Local Government Academy (LGA) looks to empower LGUs to get ready for the continuous onset of climate change through its numerous programs and projects.

The **LGU GUIDEBOOK ON THE FORMULATION OF LOCAL CLIMATE CHANGE ACTION PLAN (LCCAP)** was introduced by LGA in 2014 to support LGUs in formulating the LCCAP and mainstreaming it into existing CLUP and CDP and other development strategies across all sectors.

This year, Book 1 of LCCAP Formulation was enhanced to strengthen LGA's advocacies and mechanisms in ensuring that both adaptation and mitigation actions are integrated in climate change plan.

The enhancement of the LCCAP is a joint undertaking of LGA and the United Nations Human Settlements Programme (UN-Habitat) under the Vertical Integration and Learning for Low Emission Development (V-LED) project funded by the German Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety and in partnership with Adelphi GmbH.

I hope that the Enhanced LGU Guidebook on the Formulation of Local Climate Change Action Plan (LCCAP) Book 3, will further guide LGUs in addressing the challenge of climate change.

MARIVEL C. SACENDONCILLO, CESO III
Executive Director
Local Government Academy

Preface

As the Philippines currently face intensified meteorological calamities due to climate change, there is an increased sense of urgency for the country to be more resilient. In 2009, RA 9729 or the Philippine Climate Change Act was enacted in recognition of the need for a more systematic and institutional approach to addressing the potential impacts of climate change. Since then, there has been a great shift to incorporate climate change as a critical aspect of long-term sustainable development. With this objective in mind, the Local Government Academy, together with the Climate Change Commission and UN-Habitat Philippines, has crafted this Enhanced Guidebook on the Formulation of the Local Climate Change Action Plan process.

This Guidebook primarily serves as a definitive guide for local governments, learning institutions, partner agencies and organizations involved in climate change capacity development for LGUs. The material builds upon the success of the first iteration of the Guidebook on Local Climate Change Action Planning and its accompanying Toolkit. It draws from the proven expertise of our partners, Climate Change Commission and UN-Habitat Philippines. It is further improved by the inputs from the participants of the series of Coaches' Training Program on Enhanced Local Climate Change Action Planning held in 2017.

It details the specific steps that LGUs must undertake in: (1) Crafting a local climate change action plan, (2) Specific planning scenarios, (3) Required local data and information, (4) Points of intersection with other key local plans, (5) Important planning considerations, (6) standard forms and tables, (7) references, and (8) other information needed for the crafting of an Enhanced Local Climate Change Action Plan.

The material incorporates the Climate Disaster Risk Assessment (CDRA) and Greenhouse Gas Inventory (GHGi). The former is a nationally recognized standard tool that helps LGUs objectively assess their locality's level of risk in terms of climate and disaster hazards, allowing for a more informed planning and decision-making process. The inclusion of the latter is part of the delivery of our country's commitment to the Paris Agreement on climate change through which LGUs are able to ascertain their carbon footprints, in order to formulate interventions to facilitate low emissions development in their locality.

With hope, this Guidebook is presented to our dear readers. We are optimistic that together we can band together as a nation of climate change adaptive LGUs with sustained and resilient development.

Acknowledgment

The Local Government Academy would like to extend its heart-felt gratitude and appreciation to the partners who have contributed in crafting this guidebook. Their contributions have enabled the delivery of a material that is truly responsive to the Climate Change Adaptation needs of the Philippines today. Through their efforts, various scientific and technical approaches and paradigms consistent with the national and international Climate Change Adaptation and Mitigation thrusts were pieced together in this Enhanced Guidebook.

We would like to thank UN-HABITAT Philippines for helping us craft the material through their V-LED Project. They have worked tirelessly hand-in-hand with LGA in streamlining and harmonizing the existing Climate Change Adaptation and Mitigation Initiatives into a definitive manual that LGUs can follow with confidence and assurance of quality. Additionally, their technical support during the conduct of a series of Coaches' Training for the Local Climate Change Action Planning is vital to its success.

We also express our appreciation to the Climate Change Commission for their collaboration and assistance in the conduct of the aforementioned series of Coaches' Training on LCCAP. Their support is truly instrumental for the success of these activities as they helped enhance and fine-tuned the contents of this guidebook.

The participants during the Coaches' Training on the Enhanced Local Climate Change Action Planning held during the second semester of 2017 have also greatly contributed to the finalization of this project. The involvement and active participation of DILG Bureaus, DILG Regional and Provincial Focal persons, Local Disaster Risk Reduction and Management Officers, members of the Academe, Civil Society Organizations, and regional representatives of select National Government Agencies have also proved crucial to making this material relatable and responsive to real-world needs.

Truly, this Enhanced Guidebook has been borne out of collaborative and consultative efforts, and is now offered to our country in the name of greater local resiliency and sustainability.

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Acronyms

AIP	Annual Investment Program
B-LEADERS	Building Low Emission Alternatives to Develop Economic Resilience and Sustainability
CBMS	Community Based Monitoring System
CC	Climate Change
CCA	Climate Change Adaptation
CCC	Climate Change Commission
CCET	Climate Change Expenditure Tagging
CCVRA	Climate Change Vulnerability and Risk Assessment
CDP	Comprehensive Development Plan
CDRA	Climate and Disaster Risk Assessment
CLIRAM	Climate Information and Risk Analysis Matrix
CLUP	Comprehensive Land Use Plan
DBM	Department of Budget and Management
DILG	Department of Interior and Local Government
DMAF	Disaster Management Assistance Fund
DRRM	Disaster Risk Reduction Management
ELA	Executive Legislative Agenda
GAD	Gender and Development
GAM	Goal-Achievement Matrix
GHG	Greenhouse gas
GHGi	Greenhouse gas inventory
HLURB	Housing and Land Use Regulatory Board
IEC	Information, Education and Communication
LCCAP	Local Climate Change Action Plan
LDIP	Local Development Investment Program
LDRRMP	Local Disaster Risk Reduction and Management Plan
LED	Low Emission Development
LEDS	Low Emission Development Strategy

LGA	Local Government Academy
LGPMS	Local Governance Performance Management System
LGUs	Local Government Units
LOO	Likelihood of Occurrence
LPRAP	Local Poverty Reduction Action Plan
M&E	Monitoring and Evaluation
MDFO	Municipal Development Fund Office
NCCAP	National Climate Change Action Plan
NDC	National Development Company
NFSCC	National Framework Strategy on Climate Change
NHTS-PR	National Household Targeting System for Poverty Reduction
OCD	Office of Civil Defense
OVIs	Objectively Verifiable Indicators
PAGASA-DOST	Philippine Atmospheric, Geophysical, and Astronomical Services Administration-Department of Science and Technology
PCCCA	Philippine Cities Climate Change Adaptation
PES	Payment for Environmental Services
PHF	Post Harvest Facilities
PPA	Program, Projects and Activities
PSF	People's Survival Fund
RCP	Representative Concentration Pathways
RIL	Reliance Industries Limited
RPS	Rationalized Local Planning System
SGLG	Seal of Good Local Governance
SOC	Severity of Consequences
SRES	Special Report on Emission Scenarios
SWMP	Solid Waste Management Plan
USAID	United States Agency for International Development
VA	Vulnerability Assessment

Part I
Introduction

The implementation of the Philippine Climate Change Act of 2009 (RA 9729), as amended by Republic Act No. 10174 on August 16, 2012, brought awareness of climate change issues and empowered local government units (LGUs) to act on those issues as they are on the frontlines, working with, and for their people. But in addressing climate change issues, the general welfare of the people must still be ensured and protected. Thus, climate change actions should be consistent with the development requirements and prospects of the locality.

What is a Local Climate Change Action Plan (LCCAP)?

The Local Climate Change Action Plan or LCCAP is the action plan formulated by the LGUs to address climate change concerns. The LCCAP focuses on both climate change adaptation and mitigation and describes how LGUs plan to respond to climate change and mainstream such into local development plans.

Through the concerted actions of the national government agencies, various instructions and guidance have been issued to complement RA 9729 as amended by RA 10174 and, at the same time, encourage and scale up climate change action planning at the local level. In 2014, the Department of Interior and Local Government-Local Government Academy (DILG-LGA) published the LGU Guidebook on the Formulation of LCCAP and, thereafter, the DILG Memorandum Circular No. 2014-135 on LCCAP Formulation, to guide and assist LGUs in formulating their LCCAPs.

Other initiatives were:

- Supplemental Guideline on Mainstreaming Climate Change and Disaster Risks in the Comprehensive Land Use Plan (CLUP) (2014) by the Housing and Land Use Regulatory Board (HLURB)
- Local Planning Illustrative Guide in Preparing and Updating the Comprehensive Development Plan (CDP) (2016) by the DILG
- Handbook on How to access the People's Survival fund (PSF) by the Climate Change Commission (CCC)
- Revised Guidelines for Tagger/Tracking Climate Change Expenditure in the Local Budget.

LGUs may use those other tools and resources that other agencies apply in similar efforts on mainstreaming climate change (CC) into the process of planning.

What is new in this guide?

Th Enhanced LGU Guidebook on the Formulation of LCCAP - Book 3 sustains the LGA's commitment to assist LGUs in preparing their local climate change action plans. This Guidebook aims to support LGUs in crafting LCCAPs that leads them to achieving sustainable development by ensuring socio-economic resilience while harnessing the emission reduction potentials.

This new publication is simple, easy-to-understand, and practical guide to the LCCAP preparation process that LGUs can follow, taking into consideration capacities (e.g. human, financial) and contexts (e.g. ecosystem, role in local development, development aspirations, etc.).

This Guidebook is the result of consultations and discussions with concerned national government agencies, LGUs, academic institutions, and other major stakeholders. It provides LGUs with information on the recent developments in climate governance, including: (a) integration of Low Emission Development (LED); (b) understanding the Climate and Disaster Risk Assessment (CDRA) espoused by the HLURB and the Vulnerability Assessment (VA); and c.) ratification of Paris Agreement by the Philippine Government in March 2017.

It will help LGUs define local priority actions for both adaptation and mitigation, including the introduction of the concept of climate change mitigation and providing guidance to LGUs in developing local LED strategies that can support the achievement of local development goals and priorities.

Book 3 can be used both as a general resource and as a step-by-step planning process, guided by four strategic planning questions. It is organized into modules and can be used in conjunction with many other available planning tools and resources.

What are the Features of the Enhanced LGU Guidebook on the Formulation of LCCAP - Book 3?

Building on existing Books 1 and 2 of the LGU Guidebook on the Formulation of LCCAP, issued by the DILG in 2014 and the Planning for Climate Change, published UN-Habitat in 2014, the Enhanced Guidebook:

- ◊ Features the CDRA modified to make it more relevant to the purpose of LCCAP;
- ◊ Integrates mitigation concept by introducing LED and how to conduct Greenhouse gas inventory (GHGi) inventory and accounting; and
- ◊ Introduces mitigation actions to reduce GHG emissions (co-benefits) as well as CC actions which can be both adaptation and mitigation in nature to guide LGUs in defining options to reduce their risks.

Who should use this guide?

- **LCCAP Core Team** who have basic knowledge in climate change and the desire to address it. The Enhanced Guide recognizes that the core team will come from different disciplines—territorial/developmental or urban planning, disaster risk reduction, civil engineering, local economic development, etc.);
- **Professionals** working in the larger field of urban land management and social development (e.g. Civil Engineers, Architects, Environmental Planners, etc.);
- **Non-government professionals, civil society groups, donor agencies and private sector organizations** who individually and collectively support LGUs in managing climate change impacts, vulnerabilities, and risks; and
- **Academe** such as state colleges and universities and higher education institutions or groups working in the field of urban planning and climate change. Also those who provide capacity building and training services in school and in the LGUs.

POLICY ANCHORS AND PLANNING FRAMEWORK

The national government developed a comprehensive and integrated National Climate Change Action Plan (NCCAP) in November 22, 2011, which describes the country's adaptation and mitigation goals as well as the action areas consistent with the National Framework Strategy on Climate Change (NFSCC). The NCCAP and NFSCC underscore the importance of mainstreaming climate change actions—adaptation and mitigation—into all national and local plans and strategies.

The Local Government Code mandates LGUs to develop two major plans: a) CLUP which is spatial and long-term, and b) CDP which is multi-sectoral and medium-term. All other plans, such as the Local Disaster Risk Reduction and Management Plan (LDRRMP), Local Poverty Reduction Action Plan (LPRAP), Solid Waste Management Plan (SWMP), including the LCCAP, are all derivative plans of the CLUP and the CDP. Figure 1 on the next page shows the illustrative presentation of rationalized planning system in the country and presents how plans are related and interconnected. the illustrative presentation of rationalized planning system in the country and presents how plans are related and interconnected.

To better understand how and where the LCCAP is integrated into the planning system, three diagrams (figures 1-3) are presented. These diagrams illustrate: a.) how LCCAP is situated in the Rationalized Planning System (RPS) of the Philippines; b.) the different LCCAP planning scenarios; and c.) the process of deriving from or mainstreaming LCCAP to the two mandated plans—CLUP and CDP.

A. Situating the LCCAP in the Rationaled Planning System

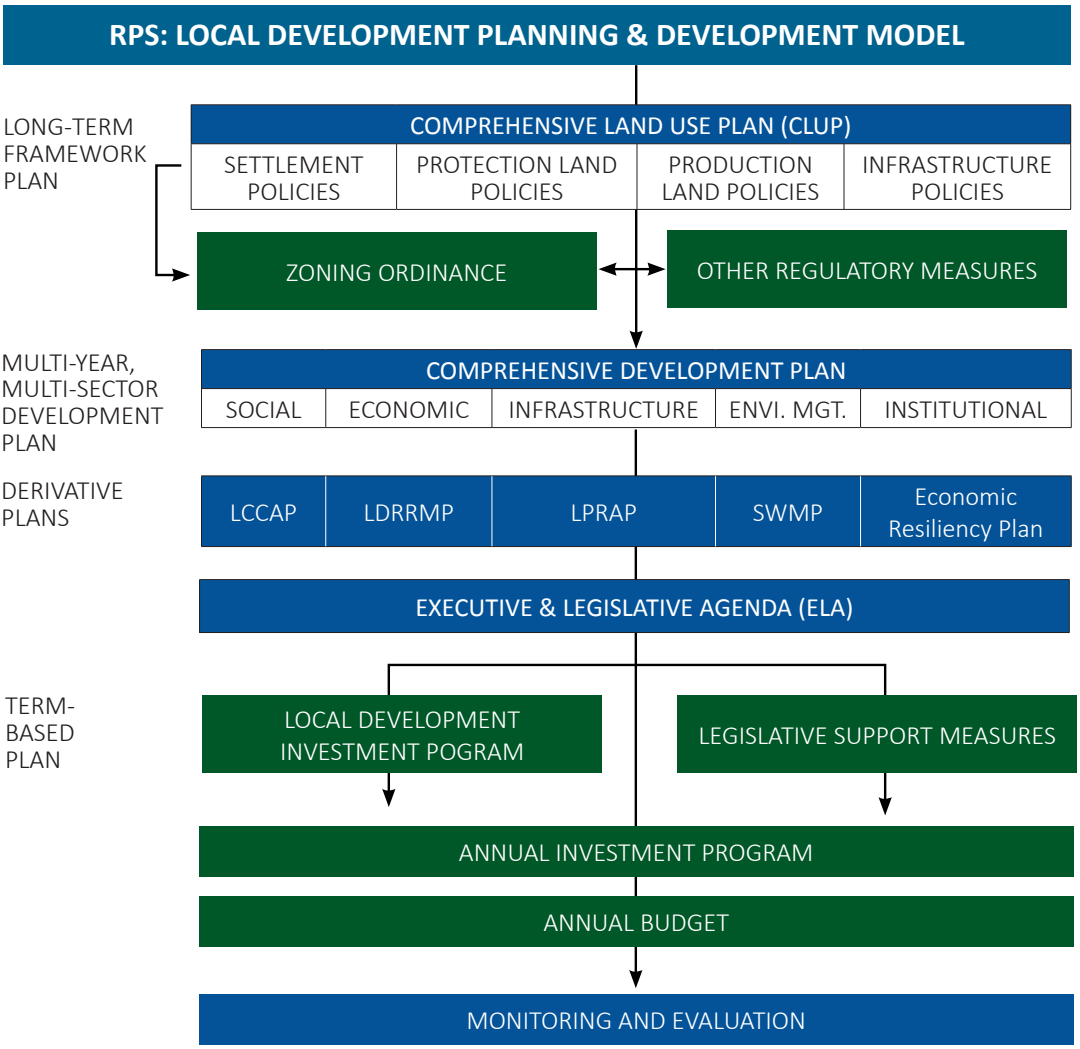

Figure 1. Situating the LCCAP in the Rationalized Planning System

Book 1 advocates the use of different approaches so LGUs can incorporate the climate change action plan into existing programs, projects, and strategies that the locality is already implementing for CDP and CLUP. Integrating LCCAP in the mandated plans can result in sufficient budgetary allocations since they are integrated in established plan implementation instruments such as the Local Development Investment Program (LDIP) and the Annual Investment Program (AIP).

The LCCAP can be derived from the CDP and CLUP formulation process as a thematic focus across the planning steps and areas of the CLUP and CDP.

B. LCCAP Planning Scenarios

Book 3 acknowledges the DILG Illustrative Guide for CDP Preparation (published in 2016) which puts the LCCAP as a derivative plan in three planning scenarios. In recognizing the capacity and preparedness of the LGU to formulate the LCCAP, a fourth scenario is provided with the LCCAP as a stand-alone document. The process and outputs in the fourth scenario will be used to update the CLUP and CDP, making it a part of the existing planning process and system.

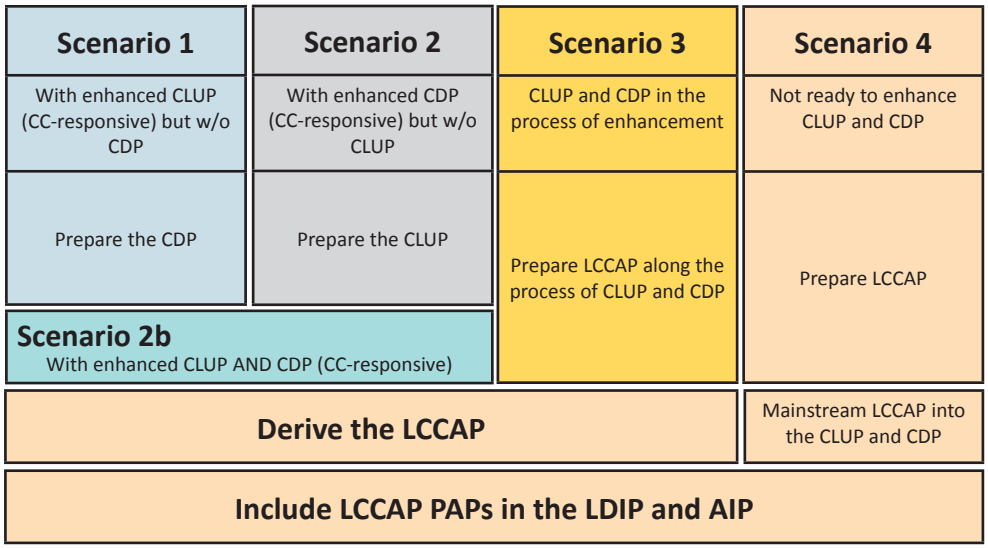

Figure 2. LCCAP Planning Scenarios

It is important to ensure that LGUs must first establish their respective planning scenarios before proceeding with the steps indicated in the Modular Framework of Book 3.

Figure 3 shows how an LCCAP can either be derived from the two mandated plans or prepared as a stand-alone document, and later mainstreamed into the CDP and CLUP when LGUs are not yet ready to prepare a Climate Change Adaptation (CCA) or Disaster Risk Reduction Management (DRRM) compliant CLUP and/or CDP. No matter where the LGU finds itself in the scenarios above, this enhanced guidebook leads the LGU to go through the whole process in LCCAP formulation and derive the outputs expected from the nine steps to satisfy the minimum requirements or achieve more.

C. Deriving from or mainstreaming LCCAP to the CDP and CLUP plans

LCCAP Process Diagram

STEPS	CDP Process	Enhanced LCCAP Process	CLUP Process
1	Revisit Existing Plans and Review LGU Vision	Step 1: Getting Started Step 2: Stakeholders and Participation	Step 1: Organize Step 2: Identify Stakeholders
2	Analyzing LGU Situation CDRA	Step 3: Risk and Vulnerability	Step 3: Analyze the LGU Situation
3	Setting Sectoral goals, objectives and targets	Step 4: Goals and Objectives Step 5: Option Identification Step 6: Option Assessment Step 7: Implementation	Step 4: Set the Vision Step 5: Set the Goals and objective Step 6: Determine development Thrust, Spatial Strategies Step 7: Prepare the land use Step 8: Prepare and ZO Step 9: Conduct public hearing Step 10: Review, adjust Step 11: Implement the CLUP and ZO
4	Identifying PPAs, legista-tions, CapDev requirements		
5	Investment Programming		
6	Budgeting		
7	Implementation	Step 8: M and E Step 9: Adjust and modify	Step 12: M and E
8	M and E		

Figure 3. LCCAP Process Design

The process diagram shows the steps in the development of the CDP and CLUP and how a corresponding LCCAP can be mainstreamed. If the LGU has already completed its CDP before creating the LCCAP, it should identify which part of the CDP process may be used to kick start LCCAP formulation. The same goes with the CLUP.

LCCAP Planning Framework

Book 3 retains the four modules in Book 1, namely:

Module 1 – Getting Ready for LCCAP Formulation
Module 2 – Data Gathering, Assessment and Analysis
Module 3 – Planning, Prioritization, and Budgeting
Module 4 – Monitoring and Evaluating the LCCAP

What is different is the inclusion of the four strategic planning questions:

(1) What is happening?
(2) What can we do about it?
(3) What matters most?
(4) Are we doing it right?

The questions guide LGUs through the nine planning steps, helping them to:

1. analyze current situation;
2. identify stakeholders;
3. conduct climate vulnerability and risk assessment and perform GHGi;
4. identify key LCCAP objectives and priorities and develop low emission development strategies;
5. list down tasks needed to be accomplished;
6. decide on options of appropriate actions;
7. strategically implement action plans;
8. monitor and evaluate performance and viability; and
9. modify plans as needed.

The framework with the four planning questions and the nine steps is illustrated in Figure 4.

Another addition to Book 3 is the GHGi or the formulation of LEDS as part of Module B.

The new LCCAP Planning Framework emphasizes how LCCAP formulation is not a linear process. Instead, LGUs can revisit any step as new information becomes available, new stakeholders become involved, or other circumstances change.

Figure 4: LCCAP Planning Framework

Process and key consideration in developing the LCCAP

Book 3 guides LGUs to work through the process to design, implement and monitor an LCCAP. The approach proposed in this guidebook intends to assist the LGU in formulating its goals (what it needs to do), establishing its purpose (why it needs to do it) and choosing the method that best work for its needs (how they are going to do it) using the Planning for Climate Change Cycle.

To help the LGU visualize and understand the process, the book contains examples they can study as well as templates they can modify and pattern to their localities. There are also links to tools and resources in the book that can help them with their planning.

It is important to note that there is a wealth of valuable resources/references that are complimentary to this guide. LGUs are encouraged to review and incorporate those resources into their own planning process wherever and whenever appropriate and found more useful.

PART II

Outline and Content of a Basic Local Climate Change Action Plan

What should an LCCAP cover and contain? This part contains an outline and checklist of basic LCCAP content that LGUs can refer to. The outline and checklist are just a references that LGUs can build upon and expound on to respond the specific needs of their localities. More detailed information is required to illustrate complex socio-economic activities and action plans that take into account climate change risks and vulnerabilities. The outline below is based on an updated DILG Memorandum Circular No. 2014-135 that already included recent developments in climate change, particularly the country's ratification of the Paris Agreement and other relevant government directives and priorities.

For purposes of harmonization, the enhanced guidebook adopts CDRA being advocated by the HLURB as a methodology to update and/or formulate a CCA/DRRM-responsive CLUP. To accomplish the multi-sectoral coverage, enhancements/ modification of CDRA are introduced in Module B, Step 3A (Please see Annex 1).

When using the guidebook, it is important to go through each section as these are the necessary steps that will help the LGU create relevant and viable LCCAP. Sections 1 and 2 let you analyze your locality's geographical and economic profile against the impact of climate change and look into the risks and vulnerabilities you are facing, the opportunities you can leverage on, and the current controls and initiatives you already have in place. Based on this analysis, you can then formulate your action plan following the guidelines presented in Section 3. After which, Section 4 takes you through the process of how to create a program or project, detailing the target sector, beneficiaries, time frame, possible cost, and partners in mind. Lastly, Section 5 explains how LGUs can monitor and evaluate their programs.

Below is a more detailed description of the different sections:

LCCAP Sections
(if preparing a stand-alone plan)

Section 1: Background

This section will provide a brief summary of the LGU profile highlighting important information and details about the LGU. It should be able to also explain briefly how this plan relates or will relate to the CLUP and CDP as well as the Executive Legislative Agenda (ELA).

Key Content:

- Geographic/location information
- Demographic trends
- LGU classification and its economic base
- LGU development vision, mission, goals and
- LCCAP time-frame
- Key responsible person or office to contact/coordinate for concerns relating to the LCCAP

Section 2: Climate Information and Situational Analysis

This section will provide information on "what is currently happening and is projected to happen" in the LGU given the impacts of climate change. As the basis for the adaptation actions to be presented in Section 4.1, this section will provide summaries and description of the vulnerabilities, risks, and opportunities due to climate change the LGU is confronted with both now and in the future. In view of the mitigation related actions that will be outlined in Section 4.2 , this section should present the scope and key findings from GHGi and, if not yet available, state the reasons for having or not having a GHGi inventory activities.

The LGU may also use the template in Book 1, should they decide to do so.

Key Content:

2.1 Vulnerabilities, Risks, and Opportunities

- Summary description of what type of climate-related hazards and issues (vulnerabilities & risks) the LGU is currently facing (considering the plan period) and details why it is vital to address them based on sound analysis of impacts to:

  o People/Population
  o Basic Services (education, health, water and sanitation) and Infrastructure
  o Economic Activities and general development of the LGU

- Relevant tables and graphs to present quantitative data of the sectors and sub-sectors affected by the climate-related hazards and issues.

- An illustration/mapping of where this current climate issues, hazards are happening in the locality

- Summary description of what type of climate related hazards and issues the LGU will face in the future and provide the analysis as to why and when actions should be initiated

- An illustration/mapping of where this future climate issues or hazards are happening or manifesting impacts in the locality

2.2 Emissions and current GHG emission reductions efforts

- When available, the summary of GHG accounting results and explanation of the scope for the accounting. State the reasons for having and not having a GHG inventory activities during the planning period of the LCCAP

- Summary of current GHG emission reduction efforts based on the current AIP and LCCAP

- The explanation which sectors the LGU see lowering emissions is possible vis-à-vis local economic activities, other relevant sector development plans (e.g. transport, energy, industry, etc.) and as indicated in the LDIP

Section 3: Objectives of the Plan

This section should present the goal/s of the LCCAP and how such relates and is/are aligned with the local development goals presented in the CLUP and CDP/ELA. It should likewise present the detailed objectives of the LGU, given the details presented in Section 2 above.

Key Content:

- Development Goal (review and or restatement of the LGU development goals)
- Objectives of the LCCAP (these are objectives of CC actions that would support or are crucial elements for the achievement of the LGU Development Goal/s and objectives)
  - o Adaptation Objectives
  - o Mitigation Objectives

Section 4: Programmes, Projects, & Activities (PPAs) and Policy Requirements

This section would present and explain the Programmes, Projects and Activities of the LGU given the LCCAP objectives. The PPAs should explain all the details (e.g. title of the action, target sector & no. beneficiaries, where the action would take place, timeframe of implementation, indicative cost, potential partners) of every PPA.
Key Content:

- Project brief of each adaptation PPA
- Project brief/explanation of each mitigation PPA or LEDS strategy and the key areas of focus
- Policy requirements for the actions
- Summary of climate change related PPAs with indication cost
- Medium-term LDIP with adaptation and mitigation options reflected in the CCET
- AIP with adaptation and mitigation options reflected in the CCET

Table 1. Description of different LCCAP sections

Section 5: Monitoring and Evaluation

This section provides details of the monitoring and evaluation (M & E) plan of the LGU based on the PPA details showing how results and accomplishment will be monitored, evaluated, and reported to appropriate government agencies. It should also indicate the person responsible for monitoring the plan, the time frame involved and the budget and explanation of the needed resources.

Key Content**:**

- Filled up M&E template
- Recommendations on how CDRA results will enhance the Ecological Profile of CDP and sectoral studies of CLUP and other thematic plans- e.g. GAD, LPRAP, other plans

Appendices:

- List of LCCAP team (leadership and members)
- CCVRA matrices
- Results of GHGi inventory (if included in the assessment)
- Exposure Maps
- Vulnerability Maps
- Risk Maps

Adaptation, Mitigation and their Co-Benefits

The integrated approach for climate actions involves two main areas: adaptation and mitigation. The NCCAP and NFSC-Chave outlined the overall principles and agenda for adaptation and mitigation actions in the country from 2011 to 2018. As stated in the Climate Change Act of 2009, the goal of a country's climate actions is to ***"build the adaptive capacity of communities and increase the resilience of sectors and natural ecosystem, and optimize the mitigation opportunities towards sustainable development."*** LGUs play an important role in achieving said goal as they are the ones that put policies in place, set the priorities, implement, and bring about impacts on the ground. It is therefore crucial for LGUs to have a clear LCCAP that covers both adaptation and mitigation actions and results in social, economic, and environmental gains for the LGU and its people in the short-term and long-term.

In Book 1, and in many interventions provided to LGUs, adaptation and climate change resilience have been the highlight and the key focus.

Adaptation is defined as "changes in processes, practices, and structures to moderate potential damages or to benefit from opportunities associated with climate change" while ***climate change resilience*** refers to the "capacity of people, organizations, and systems to prepare for, respond to, recover from, and thrive in the face of hazards, and to adjust to continual change"[1] .

[1]Planning for Climate Change, UN-Habitat 2014

Book 3 introduces the concept of—climate change mitigation—and discusses the different ways that LGUs can plan and include it in LCCAP in the context of adaptation actions.

Mitigation involves actions to reduce greenhouse gases by source or to enhance their removal from the atmosphere by "sinks". An example is waste management, which reduces greenhouse gas via the implementation of the 3Rs: reduce, reuse, recycle. An example of GHG mitigation action through "sinks" is the planting of more trees by reforestation or greening projects. Trees and plants are natural carbon sinks as they absorb carbon dioxide for photosynthesis. While adaptation is the priority, identifying and optimizing mitigation opportunities is essential in resilience building and achieving sustainable development. LGUs, therefore, should both consider adaptation and mitigation when crafting LCCAP, especially if it enables them to achieve local development goals and targets.

Below are examples of local actions that deliver both adaptation and mitigation benefits, with adaptation resulting in building resilience and mitigation resulting in lowering or sequestering greenhouse gas emission.

Consistent with the government's results-based management approach in delivering services and promoting development in the country, adaptation and mitigation actions should be clear on the results they want to achieve. Adaptation measures should specify the activities as well as provide information on "who and how many of people will benefit," "where it would be implemented," and "what are indicative costs for the action," after considering the results of a specific analysis and action planning that were undertaken.

Planning for mitigation actions generally entails specifying the volume or amount of GHG emission that will be abated from the effort. As such, LGUs should have an inventory of GHG emissions in the to be able to measure the results of their actions against a baseline. While it might be difficult for some to conduct the GHG inventory, it does not mean, however, that LGUs can no longer pursue mitigation-related actions. LGUs may start by defining its low-emission development strategy (LEDS). The local LEDS may include specific activities and/or policies that will be implemented by the LGU as part of its LCCAP. For example, while LGUs don't have a baseline of the emissions coming from the waste sector, hence the difficulty in targeting the GHG reduction from the said sector, LGUs may include in the LCCAP a strategy that "lowers LGU emissions from waste generation" and identify as part of their actions the following: sustained implementation of 3Rs campaign at the household level; developing local policies that will promote waste management (e.g. banning plastics); and, even the conduct of further analysis of GHG generated from the waste sector.

Part 3 of this guide further elaborates on the process of how LGU actions for climate change adaptation and mitigation/ LEDS may be defined and prioritized accordingly.

Below are some illustrations showing how adaptation strategies also make positive contribution to mitigation objectives.

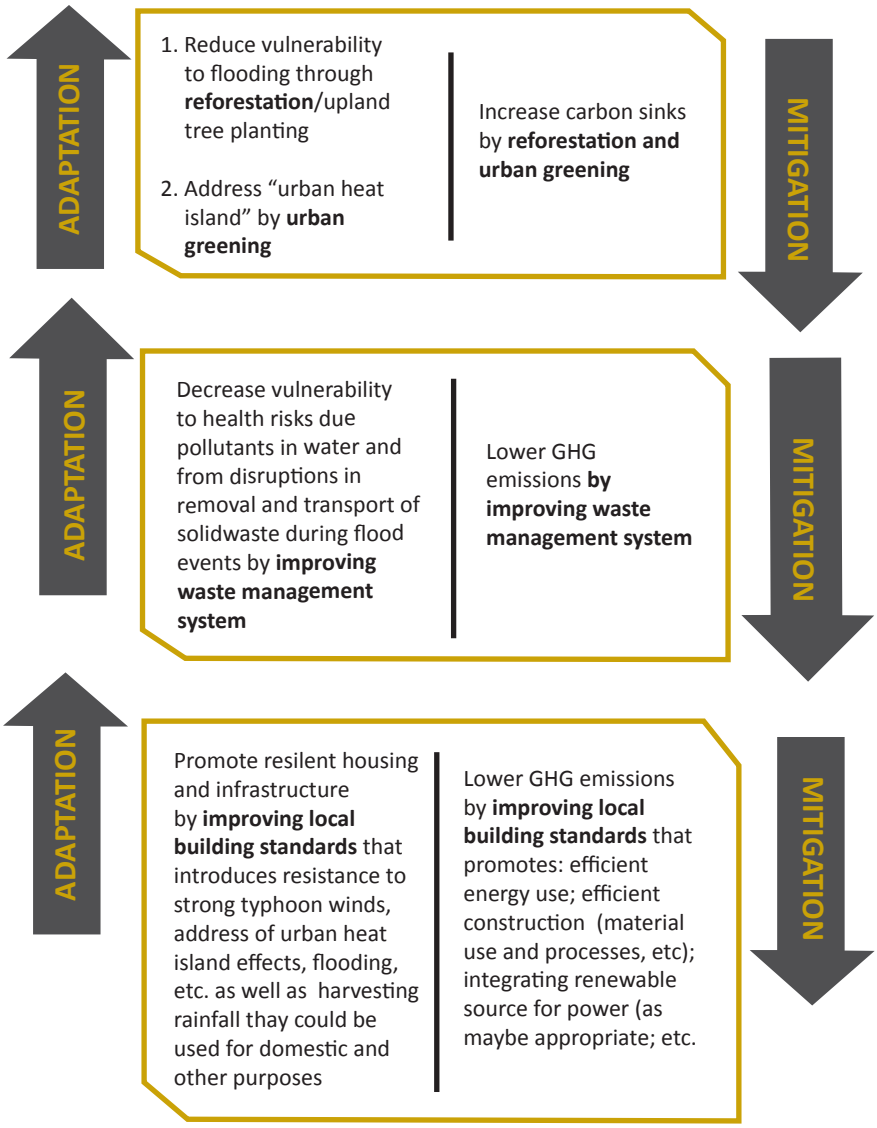

Figure 5. Positive Contribution of Adaptation Strategies

Co-Benefits of Climate Change Actions

In addition to going through adaptation and mitigation measures in local climate action planning, the "**co-benefits approach**" is an equally important concept for LGUs to consider in LCCAP formulation. The "co-benefits approach" underscores the fact that development and climate actions are mutually reinforcing and compatible.

Co-benefits are intentional and/or unintentional added benefits from a particular action or measure. In climate literature, the term used and its definition tend to vary depending on the focus, process, or intention of the action being developed. Figure 6 below presents three streams from which co-benefits may be considered in view of LCCAP formulation. Streams A and B below were covered in adaptation and mitigation discussion earlier.

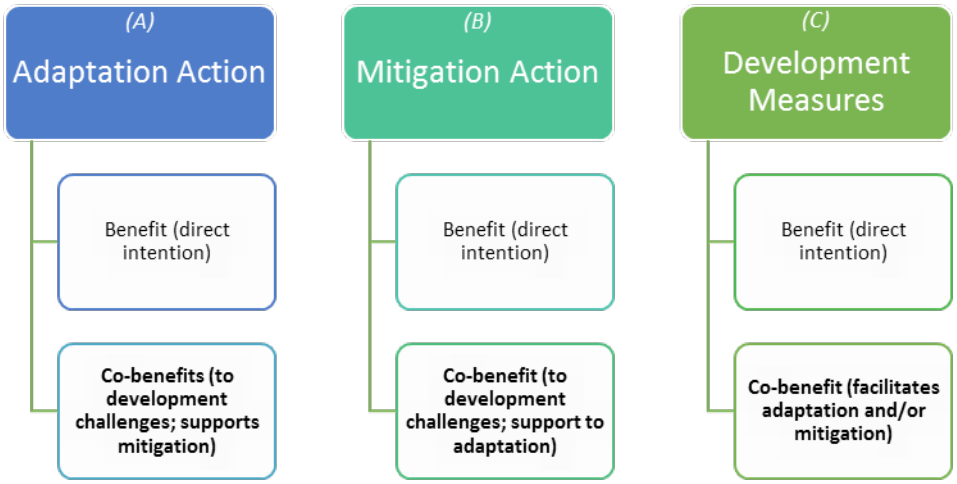

Figure 6: Three streams of Co-benefits of Climate Change Actions

Understanding and using the co-benefits approach in the context of Stream C in Figure 6 is relevant to national and local development planning. In a developing country, government plans are focused on achieving sustainable development with the priority to address existing gaps and challenges. However, achieving development gains at the national and local level will always be a challenge and may become more difficult if no action on climate change is done considering that the changes in climate itself and its negative impacts may exacerbate existing conditions and undermine efforts. Looking into adaptation and mitigation co-benefits from development actions makes sense towards achieving sustainability. This approach provides a more integrated and comprehensive process in planning for development. The “Climate Change Mainstreaming” promoted by DILG to local governments is aligned with this co-benefit approach.

It is a reality that dealing with climate change within the development frame is challenging given the local government's competing priorities and considering other factors that limit their actions such as gaps in available capacities including, resources, knowledge, technology, etc. That is why it is in this reason that the approach to having climate actions as entry points to support and contribute to development becomes more important and relevant.

Part III
Formulating the LCCAP

Part III is all about the steps in developing an LCCAP. It is organized around four modules that answer four strategic planning questions. Each module covers a specific planning question and requires LGUs to work through each of the nine (9) steps in order to answer the questions that feed responses into the LCCAP outline in Part II. Each step builds on the previous one in this modular framework planning process.

Each step in the Guidebook contains the following sections:

- Why is this Step important?
- What are the Tasks?
- What are the Tools?
- What are the expected outputs?

The details of the planning tools are found in an accompanying document, the Enhanced LGU Guidebook on the Formulation of Local Climate Change Action Plan – Book 4. Facilitators Toolkit. Additional supporting tools and supplementary information and resources (guides, web sites, sample LGU outputs of specific steps) are provided in the Appendix. Furthermore, a Book 5, which strengthens the importance of multi-level governance approach in the formulation of the LCCAP, defines the role of the province, and the mechanisms for reviewing the acceptability of the LCCAP.

The tables and documents that are produced as the LGU goes through the Guidebook are a record of the LGU's process and decisions. The tables and templates to be filled out or the documents to be developed from Step 1– Step 9 are progressive: information generated in one step informs the steps that follow.

It is expected that through the modules, the process will facilitate completion of an LCCAP that contains climate-responsive programs, activities, and projects (PPAs) with clear timeframes and monitoring and evaluation plan.

Module A:

Getting Ready for LCCAP Formulation

This module introduces LGUs to the formulation process and helps them set the stage—what they need to look into, how it can be communicated, who can be the partners, and who will be the working team. It answers the question "What is happening?" in the LCCAP planning framework and serves as the foundation for the LCCAP formulation process.

It involves two steps.

Step 1: Getting Started directs them to look into their current profiles as well as the available data on their current and future projects and plans. They should also be able to determine possible hindrances and existing gaps in the formulation process as well as the most effective method to enjoin other stakeholders.

Step 2: Stakeholders and Participation guides LGUs in identifying the core team who will be working on the project and the stakeholders and institutions that can provide support.

Here are key questions per step that can better guide LGUs in completing Module A.

Step	Key Questions
1. Getting Started	1. What are the available data that LGUs can use? Who can help LGUs provide the data gaps? 2. What possible gaps and limitations can an LGU encounter in the LCCAP formulation process? 3. How can LCCAP be better communicated to decision-makers (i.e. Local Chief Executive and Local Sanggunian Members))?
2. Stakeholders and Participation	1. Who needs to be involved and who will lead? 2. What institutions can support and how? 3. Who is going to help train and coach the LCCAP core team? How can the province support the training and coaching?

Table 2. Key Questions of Module A, Steps 1 & 2

STEP 1: GETTING STARTED

Why is this Step important?

Setting LCCAP formulation in motion requires appropriate approach and adequate time and resources. LGUs must be able to understand scientific and technical information and evaluate its capacity and resources. This step will help LGUs understand the planning requirements and determine the appropriate approach in integrating LCCAP into mandated plans like CLUP and CDP.

What are the Tasks Involved?

Getting started with the LCCAP planning process involves:

Task 1.1 Orienting and drawing commitments

Task 1.2 Organizing the LCCAP Core Team

Task 1.3 Initiating the planning process

Task 1.1 Orienting and drawing commitments

To start the process, it is suggested that the Local Development Planning Office or the Local DRRM Office initiates the LCCAP formulation. The said office shall be the lead in organizing a general orientation on climate change, wherein participants must be able to familiarize themselves with the LCCAP formulation process, review existing climate actions in local development plans, and identify the resources required to formulate the LCCAP. Target participants are members of the Local Development Council and Sanggunian. Ideally, the decision makers should also be involved such as the Mayor, Vice Mayor, and members of the City/Municipal Council and the department heads. If the budget allows, all Barangay Captains must also be invited as well as representatives of different sectors of the locality.

Task 1.2 Organizing the LCCAP Core Team

After engaging the decision makers, a core team is formed to begin working on the LCCAP. Part of the team's task is to revisit the LGU's visions and check if the local plans are still linked and complementary to said vision and their goals are relevant to or might be affected by climate change.

Task 1.3 Initiating the planning process

Building the core team and getting the members' commitment are necessary to identify who will be responsible for seeing through the completion of the LCCAP. The core team shall initiate the planning process, define their planning scenario and develop their work plan considering the four planning questions and the steps in this guide or other assistance that they are receiving for LCCAP formulation. The development of the work plan involves scoping of the LGU vision and goals for LCCAP, conducting reality check, and finding gaps. Background information from existing development plans and other LGU document s shall also be prepared.

If the LGU has already formulated an LCCAP, this step can be used to review the said plan and check if updating is required. However, if you are just getting started, then you may use the following tools to complete this step.

What are the Tools?

TOOL 1-A Setting the Mood and Drawing Commitments
TOOL 1-B Situating the LCCAP in the LGU Plans: Process Check/Guide
TOOL 1-C Revisiting the LGU Vision

These tools are found in the Facilitator's Toolkit (Book 4).

What are the Outputs?

The following outputs should be produced:

1. Executive Order creating the core team
2. LCCAP formulation work plan
3. Brief summary of the LGU profile highlighting important information and details about the LGU

a. Geographic/location information
b. Demographic trends
c. LGU classification and its economic base

STEP 2: STAKEHOLDERS AND PARTICIPATION

Mobilizing stakeholders is a key element to improved governance as it builds local ownership and commitment to development activities and processes. In the LCCAP, mobilization of stakeholders is not only crucial in gathering information, building consensus and conclusions, and identifying practical solutions but also in delivering and implementing response actions.

Why is this Step important?

The success of LCCAP formulation depends largely on the commitment of political leadership and the continued engagement of local stakeholders. Building ownership and commitment is linked to the entire LCCAP process, from initiation to monitoring to evaluation. Identifying the important stakeholders, understanding their concerns, looking into possible contributions to climate change planning process and implementation actions they may bring to the process, and even the risk that they may pose are important considerations for LCCAP development.

What are the Tasks Involved?

This Step involves the following tasks:

Task 2.1 Identification of stakeholders, and analysis and mapping of their interests;

Task 2.2 Training of the LCCAP Core Team

What are the Tools?

TOOL 2-A The Stakeholders Analysis and Mapping tool

This will help identify the offices, institutions, and individuals who will be involved in the LCCAP formulation and implementation, along with their interest, capacity, role, and influence on the planning process. Said analysis is crucial especially in terms of obtaining the necessary scientific and technical information needed in the formulation and implementation process.

TOOL 2-B Training Plan for Organization and Training of Core Team

Apart from the tool mentioned, the following activities may be conducted such as getting an external consultant or inviting group of experts on climate change planning to improve the participation and the engagement of stakeholders in the LCCAP formulation process and to conduct the training for the members of the LCCAP core team. Additional topics and examples may be added as training facilitators or consultant may see fit.

Sample session guides and worksheets are included in Book 4.

What are the Outputs?

The following outputs should be produced:

1. List of stakeholders that will be involved in the planning and implementation of the LCCAP.

   They will be categorized by:

   a. Direct contribution to the success of LCCAP planning,
   b. Implementation and advocacy,
   c. Potential obstruction they can pose to the process

2. Documentation of trainings conducted during the preparatory stage

Module B

Data Gathering, Assessment and Analysis

This module guides LGUs on how to gather data, assess locally-relevant climate change information, and analyze which ones are important and should be used as basis for identifying local climate change actions. It aims to support LGUs to (1) further understand climate change and its potential impacts to their locality, and (2) identify key issues, challenges, and opportunities relative to climate change that they should address in view of their development objectives.

STEP 3: CLIMATE CHANGE INFORMATION AND ASSESSMENT

Step 3 involves the most number of tasks and processes in LCCAP formulation. Thus, it is divided into two components for better comprehension and to ensure that it will result in covering information that will lead to both adaptation and mitigation actions. Explained in this Step are the critical information and analysis of "what is currently happening and what is projected to happen" that will support LGU to make informed decisions when taking action on climate change.

Component A: Risk and Vulnerability and Risk Assessment requires LGUs to conduct detailed and thorough data gathering and analysis for assessing risks and vulnerabilities associated with the projected changes in seasonal mean rainfall and temperature patterns, climate extremes such as number of dry days, number of extreme temperature days, frequency of extreme rainfall events which may trigger hydro-meteorological hazards (e.g. floods, rain-induced landslides), and potential changes in global mean sea levels which may affect local coastal inundation patterns. It uses simple ratings and computations based on a set of criteria in the Climate and Disaster Risk Assessment (CDRA) so LGUs can better assess where they are now in climate change adaptation, what and where they should focus on, and when the plans should be implemented.

Component B: GHGi and review of current mitigation actions, on the other hand, reviews the LGU's emissions and current GHGi emission-reduction efforts and considers those aspects in the formulation of LCCAP, particularly in defining their low emission development strategies (LEDS).

The table below presents the key questions and elements in Section 2 of the LCCAP that will be responded to by planning step in this module:

Step 3	LCCAP
Component A: Climate Change Vulnerability and Risk Assessment (CDRA)	Key Questions: 1. What are the Vulnerabilities, Risks, and Opportunities of climate change in your community? 2. What types of climate-related and natural hazards and issues (vulnerabilities & risks) is your LGU currently facing? 3. What are the issues that need to be addressed, considering the plan period, and why they are important based on the sound analysis of impacts of climate change to: a. People/Population b. Basic Services (education, health, water and sanitation) c. Infrastructure d. Economic Activities and general development of the LGU 4. Where in the locality are these climate change issues and hazards happening and are projected to happen? (illustration/mapping) 5. What type of climate related hazards and issues will the LGU face in the future? (summary description) 6. Why and when should action be initiated? (analysis report)
Component B: GHG inventory and review of current mitigation actions	Key Questions: 1. What are the GHG emissions and current emission reductions efforts of your LGU? (summary of current GHGi emission reduction efforts) 2. What are the GHG accounting results and the scope for the accounting? 3. What are the reasons for having and not having a GHGi inventory? 4. What are the planned activities during the planning period of the LCCAP? (inventory) 5. Which sectors can lower emissions in the context of local economic activities, other relevant sector development plans (e.g. transport, energy, industry, etc.) and even the country's National Development Company (NDC) if LGU is familiar and could relate/localize?

Table 3. Key Questions of Module B, Step 3

It should be noted that if LGUs have an updated CLUP, CDP and LDIP wherein climate change is already incorporated, the answers to the questions in the table above may then be derived from those documents to fill up the corresponding LCCAP Section that the module covers.

Component A: Climate Change Vulnerability and Risk Assessment

Why is this Component important?

Component A leads to an assessment of the impacts of climate change to the socio-economic conditions of the people, the spatial and physical conditions that exist in their communities, and the development plans and activities across all sectors. It will use the CDRA process guide but with some enhancements to the process to capture the multi-sectoral context of the LCCAP. The LCCAP core team and other stakeholders however may use other risk and vulnerability assessment tools but must ensure that appropriate sections in the LCCAP are responded to. The LGU should also decide on the scope and scale of its vulnerability and risk assessments and should aim for the level of detail that meets its resource and information needs.

Once a decision has been made that climate change poses significant impact and risks and that adaptation and mitigation actions are needed to manage those risks and take advantage of possible opportunities, assessments are carried out to provide essential information to inform the subsequent components of the LCCAP process: planning; implementation; and monitoring and evaluation.

What are the Tasks involved?

The tasks of this Component include the enhancements to the CDRA process such as the introduction of sectors and sub-sectors in the ecosystems as areas for analysis to strengthen the link of the LCCAP with the local mandated plans. A simplified method in using indicators and in computing were also included. Below is a diagram of the tasks in Step 3a:

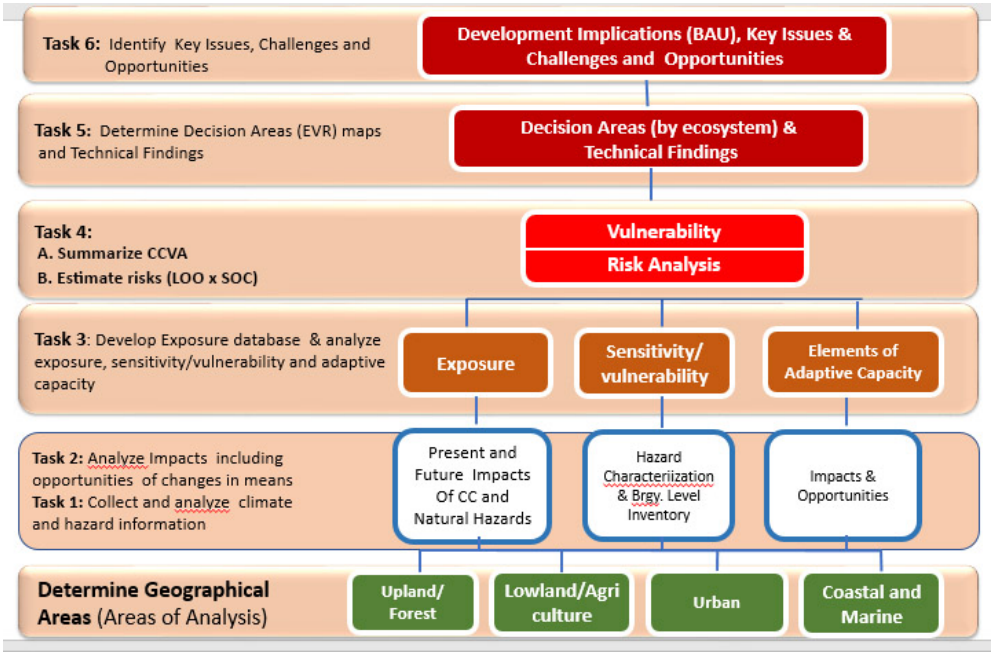

Figure 7. Component 1 and corresponding tasks to complete the CDRA

In preparation for Component 1, the core planning team should have completed the steps and corresponding tasks in Module A and have reviewed all relevant references such as CLUP, CDP, ELA, Ecological Profile, Sectoral Studies, CBMS, and results of other research studies that are available. The team should also be ready with the climate change information and hazard maps from neighboring/contiguous LGUs.

Task 3A.1 Collect and analyse climate and hazard information and previous disasters

1.1 This task involves gathering information on climate change projections for their respective localities. Observational data and characterizations of future climatic conditions, such as changes in temperatures, rainfall and frequency of extreme weather events are essential to the assessment of climate change impacts and climate change action planning. The LGUs can partner with organizations who have undertaken activities contributing to the development and dissemination of data and scenarios such as PAGASA for climate modelling, scenarios and downscaled climate change projections.
Table 4 shows an example of an accomplished CLIRAM for Salcedo Eastern Samar using the RCP.

Example of the filled up CLIRAM for Agriculture in Salcedo

CLIRAM:Projected Changes in Seasonal Temperature in the Mid-21st Century (2036-2065) for Eastern Samar relative to 1971-2000

Season Col 1	Scenario Col 2	Range* Col 3	Projected Change Change in ℃ Col 4	Projected Change Projected Seasonal Mean Col 5	Information about patterns of Col 6	Potential Impacts Col 7	Adaptation Option Col 8
December-January-February (DJF)	Moderate Emission (RCP4.5)	Lower Bound	1.0	**27.1**	Coldest season	• Impotent livestock/crops • Livestock disease • Ice Ice effect • Fish Kill • Decrease in yield /production	• Conduct Climate Field School to make farmers more resilient to climate adversities • Provide EWS for agriculture • Provide insurance to farmers
		Median	1.1	**27.2**	27.1 to 27.7		
		Upper Bound	1.6	**27.7**			
Observed baseline = 26.1℃	High Emission (RCP8.5)	Lower Bound	1.3	27.4			
		Median	1.5	27.6	27.4 to 28.0		
		Upper Bound	1.9	28.0			
March-April-May (MAM)	Moderate Emission (RCP4.5)	Lower Bound	1.0	28.7			
		Median	1.2	28.9	28.7 to 29.4		
		Upper Bound	1.7	29.4			
Observed baseline = 27.7℃	High Emission (RCP8.5)	Lower Bound	1.4	29.1			
		Median	1.6	29.3	29.1 to 29.8		
		Upper Bound	2.1	29.8			
June-July-August (JJA)	Moderate Emission (RCP4.5)	Lower Bound	1.0	29.3			
		Median	1.2	29.5	29.3 to 30.1		
		Upper Bound	1.8	30.1			
Observed baseline = 28.3℃	High Emission (RCP8.5)	Lower Bound	1.4	**29.7**	Hottest season		
		Median	1.7	**30.0**	29.7 to 30.5		
		Upper Bound	2.2	**30.5**			
September-October-November (SON)	Moderate Emission (RCP4.5)	Lower Bound	1.0	28.7			
		Median	1.2	28.9	28.7 to 29.5		
		Upper Bound	1.8	29.5			
Observed baseline = 27.7℃	High Emission (RCP8.5)	Lower Bound	1.4	29.1			
		Median	1.5	29.2	29.1 to 29.9		
		Upper Bound	2.2	29.9			

* upper: 90th percentile; median: 50th percentile; lower: 10th percentile

Table 4. CLIRAM: Projected Changes in Seasonal Temperature in Mid-21st Century (2036-2065) for Salcedo, Easter Samar (Agriculture Sector)

Characterize hazards and produce hazard maps based on the results of task 1.1 above. This task entails a) identifying hydro-meteorological hazards that affect the sectors and sub-sectors; and b) analysing the hazards in terms of location, scale, strength, magnitude and intensity. The hazard characterization will be done using a modified tool from HLURB-CDRA matrix found in (mention location of too). Hydro-meteorological hazards are the main focus of the analysis because the plan being developed is on climate change. However, if the non-climate hazard is exacerbated due to climate- and weather-related events, then it should be likewise considered in LCCAP formulation.

[1]Down-scaled projections are model-derived estimates of future climate in the locality. It is developed using climate scenarios of plausible future conditions based on the best-available science. In 2011, PAGASA released regional and provincial climate change information using the Special Report On Emission Scenario or SRES (Philippine Climate Projections, February 2011, MDGF 1656). It must be noted that the SRES developed by the IPCC has been improved by thhahae same group and released the Representative Concentration Pathways (RCPs) for the Fifth Assessment Report (AR5). It is expected that PAGASA will soon make available RCP-based projections for use of LGUs. Whichever is used by LGU in LCCAP formulation, SRES or RCP based projections, it should be clearly stated and noted in the LCCAP.

1.3 Compile information and records of previous weather and climate-related disasters, if possible, within the last 30 years. The team may do archival research of records from libraries or agencies involved in disaster response like OCD, RED CROSS or even from national agencies and churches. They may also do archival research of news clippings of previous hazard/disaster events. In the absence of old records or data, they may conduct interviews or focus group discussion with the Senior Citizens group who can be asked to recall at the very least, the year when the hazard events happened and the areas affected.

1.4 Analyze climate change impacts and hazards of all the barangays per ecosystem to capture the common features of the area, the extent of exposure to similar hazard/s and the similar or shared impacts and opportunities from climate change. If data on the extent of exposure or susceptibility to a hazard is available per sitio or purok, it is best to do the analysis on that level.

Task 3A.2 Develop Impact Chain Diagram: Analysing climate change Impacts and Hazard to Multi-Sectors within the Ecosystem

For this task, the team will identify the direct and indirect impact of climate change that are foreseen in the LGU. Impacts should cover change in climate itself (i.e. increased in means, extremes and weather variability) and the hazards that may affect the LGU's population, settlements, critical point facilities, establishments and other sectors in each ecosystem. Note that impacts may lead to opportunities, such as more water/precipitation can encourage rainwater harvesting to be utilized for other purposes. This would provide a clearer view of impacts and specific hazards to different sectors within an ecosystem.

After identifying the impacts, the next task is to draw connections between projected changes in climate and their potential impact to natural and human systems, physical events, land uses, economic activities and other elements within the ecosystem. The climate impact chains are general cause-effect relations that describe how changes in climate can impact the sectors concerned.

Other LGUs structured the impact chain diagram into a table as show in the example below:

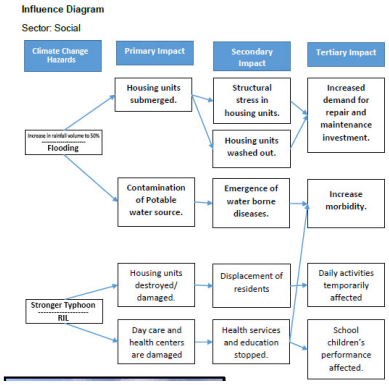

Figure 8. Sample impact Chain Analysis, Manolo Fortich, Bukidnon LCCAP 2015-2020

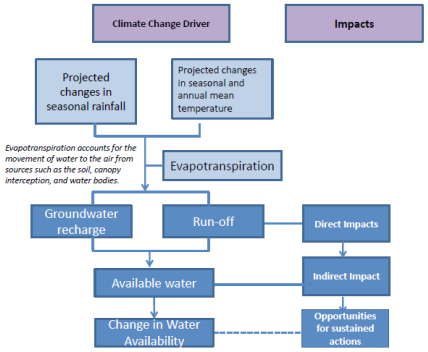

Figure 9. Sample impact chain analysis, deriving opportunities for actions

The team may also use a table to present its impact chain diagram:

Sector: Social

CC Driver	Primary Impact	Secondary Impact	Tertiary Impact
Flooding	Streets are submerged in water Roads and drainage system are damaged Lifelines and other infra structures are damaged Bridge approaches submerged in water School buildings submerged in water Health Centers are flooded Roads & bridges impassable Health workers are among the affected household Destruction of water, electricity, and	Disruption in Mobility of People and Goods Inaccessibility of goods and services Inaccessibility of services Disruption in mobility of people and goods Disruption of classes Disruption of health services delivery (supplies , equipments& records are damage) Delivery of relief services (food/water/medicines) takes time & much effort Non-functional health workers	Low Productivity/High prices of goods Malnutrition Inavailability of food supply/morbidity Low income/low production/low supply School participation attitude of the pupils affected/higher rate of drop outs/Poor quality of education/underemployment or unemployment Increase incidence of infectious diseases, severe or fatal complications of lifestyle related diseases (hypertension/diabetes) increase risk of epidemics Food/Water/Medicine scarcity causing panic, lawlessness, increasing

Table 5. Impact chain diagram of the Municipality of Tudela, Misamis Occidental

Task 3A.3 Organize the exposure database (including sensitivity assessment)

For this task, the Core Team must develop an exposure database or a set of data that describes the characteristics of the population, their living environment and places of economic activities and all other elements present in hazard zones that may be affected by the impacts of climate change. The information may also include analysis of past extreme events, GIS mapping and analysis, topographic surveys, and available information on climate change projects. These scientific evidence bases shall be used as input for determining the impact of future threats.

Once a database is developed, the Core Team will work on their respective areas/sector to assess the elements' level of exposure to climate induced threats and their sensitivity or degree to which they will be affected by or will be responsive to said exposure.

The final step under this task is to look into the abilities and resources of LGUs to prepare for and adjust to climate change and recover from or cope with their impact or what is called adaptive capacity. For an LGU, determinants of adaptive capacity may include a combination of both physical elements (infrastructure, material wealth, technology), and social/ institutional factors (human/social capital including information, governance/institutional strength). Sample indicators of the six elements are provided in the Toolkit- Facilitators Guide.

In summary, the following activities will be undertaken under this task:

- Defining the elements threatened by the impacts of climate change and the main climate change threats
- Determining level of exposure and level of sensitivity of elements
- Assessing ability and resources to respond to climate change, variability and extremes (adaptive capacity)

Below are sample outputs from LGUs who had implemented these activities:

EXPOSURE				SENSITIVITY / VULNERABILITY						ADAPTIVE CAPACITY				
Barangay	Residential Area (Hectares)	Barangay Population	Population Density per Hectare of Residential Area[1]	Percentage of Informal Settlers	Percentage of Population Living in Dwelling Units with Walls Made from Light to Salvageable Materials	Percentage of Young and Old Dependents	Percentage of Persons with Disabilities	Percentage of Households Living Below the Poverty Threshold	Percentage Malnourished Individuals	Access to Post Disaster Financing	PhilHealth Coverage	Household Financial Capacities to Relocate or Retrofit	Government Capacity to Generate Jobs	Government Resources
Barra	51.94	14,334	276	1.06%	0.84%	33.58%	0.7%	14.55%	0.61%					
Bonbon	11.34	2,698	238	3.13%	5.06%	34.31%	1.01%	35.86%	2.2%	There is willingness to relocate subject to assistance from the local government. There is also willingness to retrofit existing highly vulnerable structures but may take them medium to long-term.	Majority of non-residential structures/property owners have current property insurance coverage or have capacities to purchase within the short term. Majority of residential structures do not have property insurances	Alternative sites are still available within the municipality which can accommodate existing land uses if needed	Local government resources are very limited but funds for adaptation can be sourced from the regional and national governments or through public private partnerships.	Majority of non-residential structures can conform with added zoning regulations in the medium term. Majority of residential structures may have difficulties conforming to the added regulations and may take them medium to long term to conform to new regulations
Igpit	58.72	10,123	172	7.27%	1.75%	36.3%	0.7%	27.16%	1.06%					
Poblacion	14.53	3,690	254	4.06%	6.08%	32.24%	2.23%	21.29%	1.5%					
Taboc	12.75	2,918	229	4.45%	8.74%	35.67%	0.89%	31.29%	0.59%					

[1]Population Density per Hectare of Residential Area = Barangay Population / Residential area in hectares. This will be used to compute for the estimated population exposure depending on the area (in hectares) affected/exposed.

Table 6. Sample Exposure and Sensitivity Database for flooding (HLURB Supplemental Guideline, 2016)

Note 1: Data for exposure and sensitivity can be sourced from the CLUP, CDP, ELA, and other sectoral plans such GAD plan, CBMS, National Household Targeting System for Poverty Reduction (NHTS-PR), Economic and Revenue Generation Plan.

Note 2: Data to be used for assessing the adaptive capacity of the LGU can take off from the latest result of their Local Governance Performance Management System (LGPMS) and Seal of Good Local Governance (SGLG) assessment, as well as existing policies, programs, projects, services, and other assets in LGUs that are already designed to deal with existing or known risks.

Task 3A.4 Determining Vulnerabilities and Risks of ecosystems and multi-sectors to specific hazards

This task uses the combined outputs of Task 3 to conduct: (1) an analysis to determine the degree of their vulnerability; and (2) a risk analysis based on the likelihood of occurrence and intensity of the hazard, exposure, vulnerability, and adaptive capacity. The analyses will present "numeric scores" but accompanied by qualitative descriptions of the ratings given for a particular system.

Conducting a Vulnerability Analysis

The LGU's vulnerability to climate change is assessed by identifying the areas that will be affected by climate change and the degree by which these areas will be affected given its system's exposure to climate stimuli, the sensitivity of its system to these stimuli, and its adaptive capacity to adapt to climate change which is gathered in Task 3. To do the analysis, the LGU may either conduct a qualitative or quantitative vulnerability analysis depending on the type of information and amount of resources available for this kind of exercise. When using qualitative analysis, it is recommended for the LGU to describe why a high, medium or low rating was provided Vulnerability for a particular system; these qualitative ratings may also be converted into scores (Very high – 5, High 4-, Medium 3, Low – 2, Very low – 1).

In carrying out a quantitative assessment, the methodology should derive Vulnerability as represented by measures like: proportions, percentages, absolute numbers, or index scoring with appropriate references/indicators.

Conducting Climate Change Risk Assessment

The degree to which the changes in climate affect existing problems or leads to new problems have been determined in the vulnerability analysis. Now, the LGU will determine the level of risks it is exposed to by identifying probability and likelihood of occurrence of disasters relative to the decision areas and identifying the consequences of the climate change impact to the same. In doing this, the LGU may adopt/develop a scale for rating consequences of a risk and the likelihood of that happening. Once the LGU has identified the system/decision area that has been or will be impacted by climatic hazards, then the LGU now needs to rate (qualitatively) how that past event translated into a consequence. An example scale for scoring risk is provided in Toolkit-Book 4.

This process also provides an opportunity for the LGU to review its existing risk management strategies and check if they will be sufficient to protect previously affected systems from future occurrence of hazards.

ADAPTIVE CAPACITY DIMENSION	ADAPTIVE CAPACITY SCORE/LEVEL				
	5 (Very High)	4 (High)	3 (Moderate)	2 (Low)	1 (Very Low)
ECONOMIC WEALTH	• Funds or financial resources are enough/ adequate and available financial resources for assistance to ALL affected sector; • the people in the affected areas have their own resources to respond to a hazard	• have financial resources for assistance to AT LEAST 50% affected sectors • the people in the area have access to resources to respond to a hazard	• with limited financial resources for assistance TO AT LEAST 30% priority affected sectors • the people in the area have limited access to resources respond to a hazard	• have very limited financial resources for assistance ABOUT 15% of affected sectors • affected people have very limited access to resources to respond to a hazard	• no available financial resources for assistance to affected sector • affected people don't have their own resources to respond to a hazard
TECHNOLOGY	• there are equipment available for use and facilities to communicate directly with the people/sector affected	• there are some equipment for use and facilities to communicate with the affected people /sector	• limited equipment and facilities for assistance and communication	• very limited equipment and facilities for assistance	• very few facilities and equipment for use and communication with affected sector/people is difficult
INSTITUTIONS/	• LGU and community leaders are aware and could effectively	• LGU and community leaders are aware	• LGU and community leaders are aware but management	• few LGU officials and leaders are aware of the roles	• LGU officials are not fully aware of a hazard or

Table 7. Scoring Matrix Adaptive Capacity

Note: Rate the level of AC of each dimension using the scoring matrix; determine the gaps or the capacities that must be enhanced or improved

Category of Vulnerability	Vulnerability Score (TL / AC = RV)
High	4.1 - 5
Medium High	3.1 - 4.0
Medium	2.1 - 3.0
Medium Low	1.1 - 2.0
Low	<1 - 1.0

Table 8. Vulnerability Score and Equivalent Category

THREAT LEVEL	DESCRIPTIVE INDICATORS
Very High (5)	• > 50% and above of the exposed elements are sensitive to the hazard • Large numbers of serious injuries or loss of lives (more than 50%) or LGU to define what is large for the LGU – what % of exposed population • Regional decline leading to widespread business failure, loss of employment and hardship (systems collapse) • Major widespread damages and loss to environment and infrastructure, with progressive irrecoverable damage (100% replacement costs); (agriculture, fisheries, business, etc) • Local government services would cease to be effective (institutional dysfunction)
High (4)	• 31 - 50% of the exposed elements are sensitive to the hazard • Isolated instances of serious injuries or loss of lives (less than 50%) • Regional local economic development impacts and stagnation. Serious impacts on livelihoods (• Severe and widespread decline in the quality of life within the community. • Severe damages and a danger of continuing damage to infrastructure and environment. • Local government services struggle to remain effective and would be seen to be in danger of failing completely.
Moderate (3)	• 16 - 30% of the exposed elements are sensitive to the hazard • Small numbers of injuries involving the public. • Significant general reduction in livelihoods. • Isolated but significant instances of environmental and infrastructure damage that might be reversed with intensive efforts. • Local government services under severe pressure on several fronts.
Low (2)	• >5 - 15% of the exposed elements are sensitive to the hazard • Minor injuries to public. • Individually significant but isolated livelihood impacts. • Minor instances of environmental and infrastructure damage that could be reversed. • Isolated instances of government services being under severe pressure.
Very low (1)	• Appearance of a threat but no actual harm to public safety. • 2-5% of the exposed elements are sensitive to the hazard. • Minor impact on livelihoods. • No or insignificant infrastructure and environmental damage. • Minor instances of disruption to local government services.

Table 9. Degree of Impacts or Threats of Climate Change

Note: Rate the threat level by referring to these parameters (LCCAP Book 1)- with additional indicators related to CC.

The HLURB's Supplemental Guideline on CDRA provides the resulting risk scores/categories, and risk maps that provide a qualitative index of the various location of high risk areas in the locality. Risk scores reflect four possible scenarios. The team may refer to the figure below.

Table 3.41 Risk Score Matrix

Likelihood of Occurrence	Likelihood of Occurrence Score	Severity of Consequence Score			
		Very High	High	Moderate	Low
		4	3	2	1
Frequent or very likely (1-3 Years)	6	24	18	12	6
Moderate to likely (>3-10 Years)	5	20	15	10	5
Occasional Slight Chance (>10-30 Years)	4	16	12	8	4
Unlikely Improbable (>30-100 Years)	3	12	9	6	3
Highly unlikely, rare event (>100-200 Years)	2	8	6	4	2
Very rare event (> 200 years)	1	4	3	2	1

Table 10. Risk scores reflecting four possible scenarios

Source: Draft Reference Manual on Mainstreaming Disaster Risk Reduction and Climate Change Adaptation in the Comprehensive Land Use Plans, NEDA-UNDP, HLURB, 2012.

The sample table below should help the team in getting the estimation of risks, and help them in accomplishing the first five activities of the second part of Task 4:

Hazard: _____
System: _____
Sector: _____

Ecosystem / Barangay	Likelihood of Occurrence of the Hazard	SUMMARY OF OBSERVATION/ FINDINGS (refer to CCVA Summary)	Severity of Consequence	RISK LEVEL*
			(SCORE)	(Category)
Risk = Likelihood of Occurrence x Severity of Consequence= Risk Level				

Table 11. Risk Score and Category

Below is the sample summary table on vulnerability and estimation of risks that will be carried on to the next tasks.

Hazard: Flooding										
Area/ Ecosystem (Col 1)	Brgys (Col 2)	Summary of Findings (Col 3)			Degree of Impact/ Threat Level (Col 4)	AC score (Representing 6 dimensions, LGU Wide) (Col 5)	Vulnerability Score (Col 6)	Summary of findings, analysis (Col 7)	Risk level and category (Col 8)	Summary of findings, analysis (Col 9)
		Impacts	Exposure (Col 4)	Sensitivity						
Coastal	Barangay A	1. Residents affected	600 Individuals	30% Women 5% Elderly 30% Children 5% PWDs	4 = High	3 = Medium	1.3 = Low	Majority of the population is composed of women and children will be affected. Majority of houses are made of light materials. School buildings and health centers are old and in low-lying areas. Water will be affected by	18 = High	Barangay A has low vulnerability but in terms of return period of flooding, the risk is still high as it affects the population, infrastructure, and other services.
		2. Settlements damaged	160 Households	60% Houses made of light materials						
		3. School Buildings Damaged	1 Daycare Center 1 Elem. school	Both buildings are old (constructed before 1992)						
		4. Possible damages to RHU	1 RHU 1 Lying in Clinic	Both are 1 story building in low lying area						
		5. Possible Contamination of Potable water supply	30 level 1 50 level 2 20 level 3	Level 1: 100% contamination of water source Level 2: 30% damaged pipes Level 3: 100% old plumbing						

Table 12. Suggested format for CCVA & Risk Assessment

Sample Social Sector (1. Population, 2. Settlements, 3 Health Services, 4. Education Services, 5. Protective Services)

To the extent possible, the LGU may also prepare vulnerability and risk maps. After determining the extent/degree of exposure, sensitivity, and vulnerability of the system/sector, the team has the option to prepare vulnerability and risk maps by using the hazard map as base map. Ideally, an exposure map must also be done in Task 3 and would serve as basis in preparing the vulnerability and risk maps.

Below is a sample of exposure map done by the GIS team of Cagayan De Oro City:

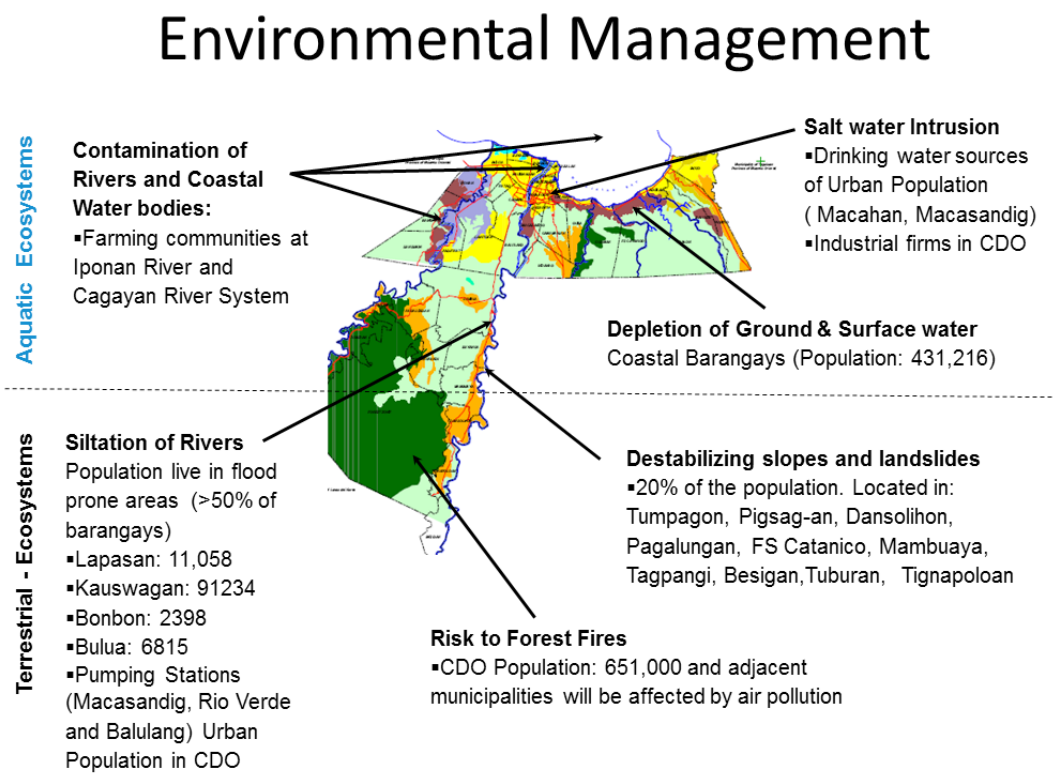

Figure 10. Sample exposure map prepare by Cagayan De Oro City as part of its output Under the Philippine Cities Climate Change Adaptation (PCCCA) project jointly Implemented by UN-Habitat and World Food Programme in 2012-2013

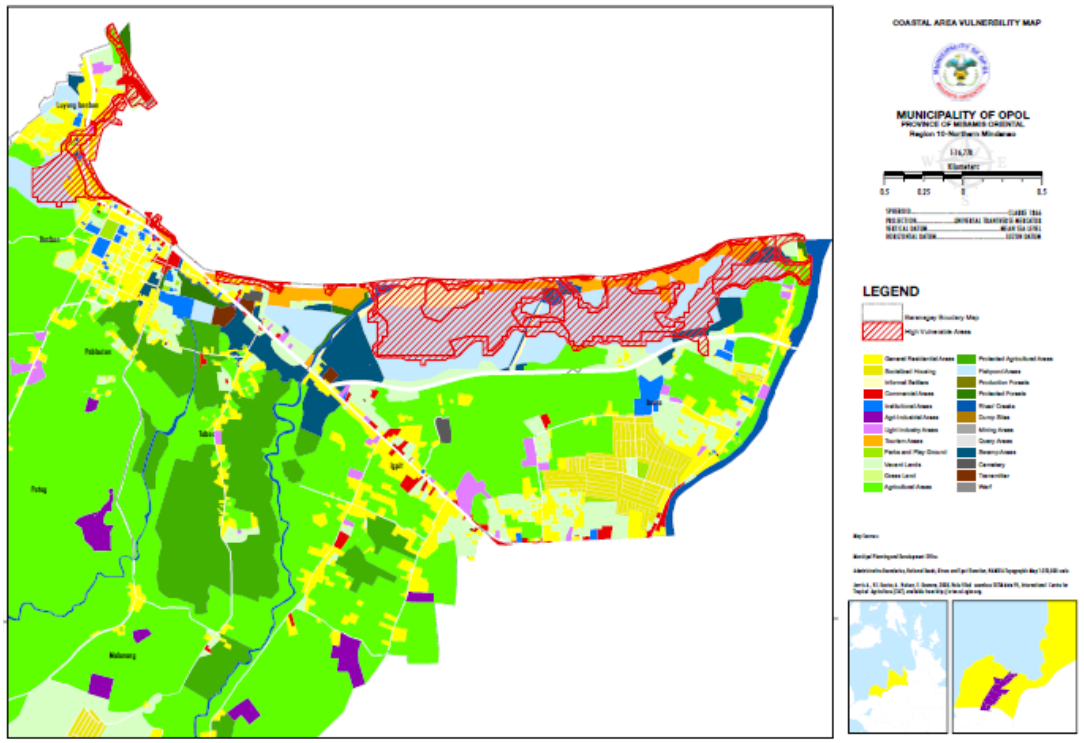

Figure 11. Sample vulnerability map in coastal area of Opol, Misamis Oriental as reflected In the Supplemental Guideline on CDRA process issued by HLURB in 2016

Task 3A.5 Determining decision areas based on technical findings

This task will determine decision areas based on technical findings. After all the sectors have completed the assessment of their ecosystem and sectors, the CORE TEAM can now meet as a group to conduct cross-sectoral analysis, determine decision areas based on their technical findings and identify development implications, key challenges, issues, and opportunities arising from climate change that must be addressed in the succeeding steps. Each of the assessment teams will now summarize and formulate their technical findings. The summary of technical findings must be done for each ecosystem/sector per hazard affecting the sector. By examining the levels of vulnerability of each of the affected system/sector, the team will select the major decision areas which are specific sites within the LGU where levels of risks and vulnerabilities are high and for which actions should be implemented.

Task 3A.6 Determine development implications, key challenges, issues and/or opportunities

Using the summary of findings, this task will identify the development implications, key challenges and issues as well as opportunities that the LGU will face as they address each type of climate-related hazards and their potential impacts to their locality. They should be able to provide an explanation as to what, why and when actions should be initiated. This task will lead to the initial list of policy interventions, PAPs and other actions that will be processed in the next module. Analysis at this point could be based on:

- the relationship of the challenges, issues, opportunities to the overall development goals of the LGU; and
- the extent to which the impacts will create hardships and deteriorate the quality of life of constituents and how they will undermine the current development efforts of the LGU should no action be done at all.

The table below shows an example of the outputs of Task 6.

Ecoystem: Urban
Hazard: Flooding

Decision Area (Barangay) Col (1)	Exposure Col (2)	Summary of Findings Col (3)	Implications (If no action is taken) Col (4)	Risk Score and Category Col (5)	Key Challenges and Issues, and Opportunities Col (6)
Coastal Barangay A	Low lying residential houses contiguous to a major river	50% (or 8,000 individuals) of the residents individuals are exposed to high susceptibility floods • Early warning systems are not yet in place • Roughly 44% of the population are below the poverty threshold; no capacity to relocate or implement structural improvements of private homes • LGU does not have enough resources to implement flood control measures	• Potential deaths and injuries due to the absence of early warning system and quality of houses • Significant government resources are needed for rescue and relief operations • Recovery assistance for affected residents cannot be provided from LGU budget, especially to restore destroyed homes and livelihoods	3 (High)	• Affected residents are the poorest in the LGU; high risk undermines poverty alleviation efforts of LGU, per CDP • Affected barangay also reflect poor performance in key social indicators (i.e., prevalence of malnutrition, low performance in school achievement tests, etc.) • There is an opportunity to introduce an integrated package of assistance that will reduce the risks of the communities, linked to incentives to adhere to household and community level risk-reduction measures.

Table 13. Key Challenges, Issues and Opportunities

The results of Task 6 are further processed in Module C as inputs not just to the LCCAP formulation, but may also be valuable for enhancing the CLUP, CDP, and sectoral plan.

The diagram below illustrates how Module 3 is undertaken.

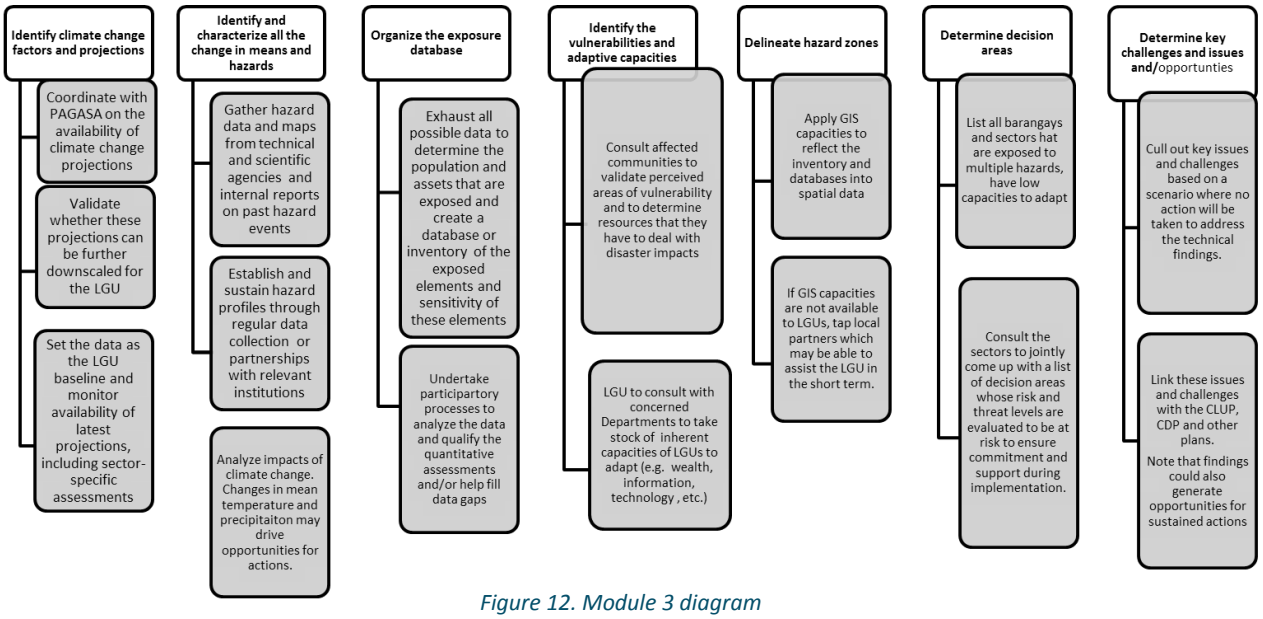

Figure 12. Module 3 diagram

What are the Tools?

The main methodology used is the CDRA with some modifications as explained above. While CDRA is multi-hazard, it is suggested that LGUs refer to climate projections, for purposes of the LCCAP. Other natural hazards maybe used in Local DRRM Planning. The tools below are critical in doing the CDRA.

TOOL 3A.1 - Climate Projections and Hazard Inventory. This tool is further subdivided into 4 parts and would require scientific information as follows:

TOOL 3A.1a - Climate Projections and Patterns of Change (requires data set of downscaled climate projections from PAGASA. The LGU may use the climate projections using SRES - Special Report on Emission Scenarios or the RCPs - Representative Concentration Pathways, whichever is available.

TOOL 3A.1b - Hazard Characterization: Hazard Maps and Data Sources

TOOL 3A.1c - Records of Previous Disasters

TOOL 3A.1d - Summary Hazard Matrix per Barangay (by Ecosystem)

TOOL 3A.2 - Impact Chain Diagram: Impacts of changes in means in precipitation and change in means in temperature can provide opportunities for development actions (e.g. consider cropping seasons to increase agriculture production, designing green buildings, etc.)

TOOL 3A.3 - Exposure Database (Exposure, Sensitivity & Adaptive Capacity & Risk Analysis (exposed elements, likelihood of occurrence and severity of consequence, sensitivity and risk level of each barangay by ecosystem)

TOOL 3A.4 - Organizing CC Vulnerability & Risk Assessment Summary

TOOL 3A.5 - Exposure, Vulnerability and Risk Mapping, determining key decision areas & Technical Findings

TOOL 3A.6 - Determining development implications, key challenges, issues and/or opportunities

The detailed processes of these tools are presented in the accompanying toolkit (Book 4).

What are the Outputs?

Upon completing this Component, users should have the following information/data sets:

1. A set of climate projections and its patterns of change that planners can use to determine future impacts of climate change what they need to prepare for and the opportunities they can take advantage of
2. Chronological account/records of previous disasters and cost of impact of hazards
3. Inventory/summary of the hazards affecting each barangay (by ecosystem)
4. Exposure database of each barangay, per hazard, showing the qualitative information of the affected population and sector, arranged/clustered per ecosystem. This will show the current situation of the affected people, elements, and sector, based on the observed patterns of change, socio-economic, and physical condition of the affected sector and elements
5. Map showing the location of the elements at risk and their vulnerabilities, preferably done through participatory mapping and validated by the affected sector

How is Step 3 Linked to Relevant LCCAP Section(s)?

The data sets and consolidated findings derived from Step 3a (CDRA) and 3b (GHGi) will serve as major inputs and basis for the Situational Analysis Section 2 of the LCCAP (Climate Information and Situational Analysis). Step 3 will provide information on "what is currently happening and is projected to happen" in the LGU, given the impacts of climate change. The summaries and description of vulnerabilities, risks, and opportunities generated in Step 3 will also directly link to Section 3: Objectives of the LCCAP as well as other subsequent Sections of the LCCAP such as setting the goals and objectives and identification of opportunities and policy options.

Component B: GHG inventory and Review of Current Mitigation Actions

GHGi is an accounting of the GHGi emitted to and/or removed from the atmosphere over a period of time. This component is part of the situational analysis in developing local climate actions. It responds to the planning question "what is happening" in the locality when it comes to local greenhouse gas emissions and mitigation-related activities.

Why is this Component important?

This component in local climate change action planning provides the basis for an LGU's mitigation actions and guidance in formulating low emission development strategies.
It aims to:

1. Improve LGU understanding of local GHGi emissions
2. Review/elaborate the LGU's current development actions that contribute to GHGi mitigation

With the knowledge, LGUs can align their mitigation activities or low emission development strategies with the national-level targets. National-local programming alignment can offer opportunities for LGUs to implement planned activities hand-in-hand with existing nationally-led programs and activities. It also support monitoring of achievement of priorities and targets as outlined in the NCCAP and the NDC.

While this Component is new in the context of the LGA LCCAP Guidebook for LGUs, there are LGUs that conduct GHGi as part of government and non-government piloting and demonstration efforts.

Pursuing this step will entail anticipating the following possible scenarios at the LGU level:

Scenario 1: LGU already conducted a community-level GHGi.

Scenario 2: LGU is currently conducting a GHGi during the formulation of the LCCAP.

Scenario 3: LGU conducted a GHGi but only at the entity level.

Scenario 4: LGU would like to conduct GHGi and include relevant activities as part of LCCAP.

Scenario 5: LGU does not want to conduct GHGi.

With or without a GHGi, this enhanced LCCAP guide encourages LGUs to define low-emission development strategies that a) support and complement the achievement of their development goals, and b) sustain their existing mitigation-related activities, which during the period of planning, are not tagged or labeled as mitigation activities yet.

What are the Tasks involved?

Task 3B.1 Conduct GHG Inventory

LGU-level GHGi development typically goes through a three-step process and task illustrated in Figure 1. The process is an abridged illustration of the process discussed in the "Community-Level GHGi for LGUs in the Philippines - User's Manual" adopted by the Climate Change Commission (CCC) from the Building Low Emission Alternatives to Develop Economic Resilience and Sustainability (B-LEADERS) Project supported by United States Agency for International Development (USAID).

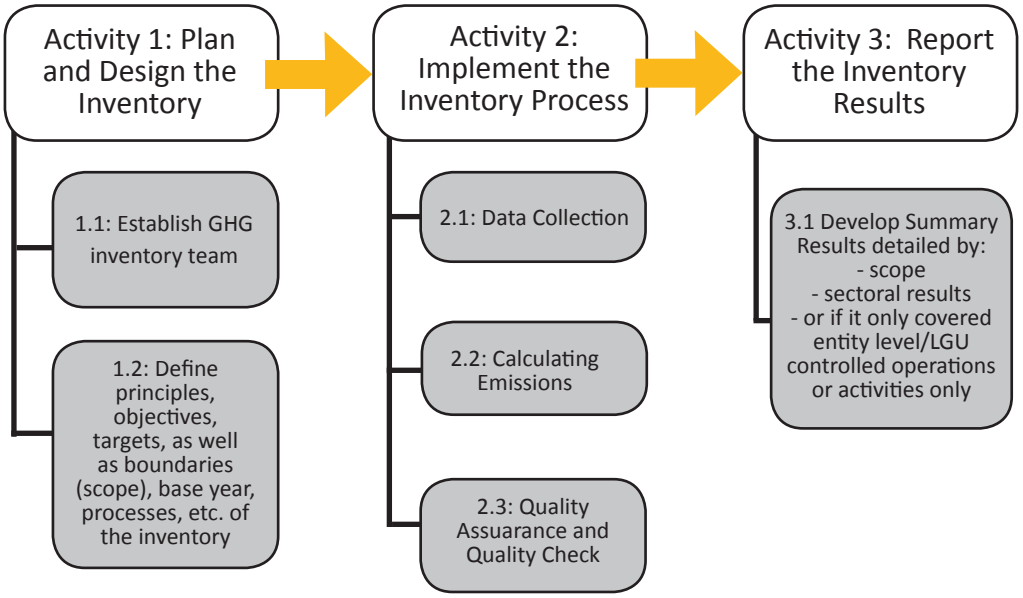

Figure 13. 3-step process of LGU-level GHGi

Given the figure above, the activities that must be undertaken depend on the following scenario:.

Scenario	Activities given the local scenario	Other considerations
Scenario 1: LGU already conducted a community-level GHG inventory.	1. Review the inventory results and the summary being presented 2. Include the summary table/s of the inventory along with explanations and notations needed in Section 2.2 of the LCCAP	- Consistency with approved technical details (e.g. emission factors should be ensured)
Scenario 2: LGU is currently conducting a GHG inventory during the formulation of the LCCAP	3. Define at what point the LGU is, in the process and proceed from there until the result/report is developed	- Inventory timing must be considered in view of the LCCAP formulation timelines
Scenario 3: LGU conducted a GHG inventory but only at the entity level	4. Review the inventory results and the summary being presented 5. Include the summary table/s of the inventory along with explanations and notations needed	- Probe if there is still a plan to do community-level inventory
Scenario 4: LGU would like to conduct GHG accounting and include relevant activities as part of LCCAP	Conduct the full process, from Task 1 to 3, and go through all activities per task	- Inventory timing must be considered in view of the LCCAP formulation timelines
Scenario 5: LGU does not want to conduct GHG Accounting	No need to go through the tasks and activities as in the illustration	- Probe if there is still a plan to do community-level inventory (for the next iteration of the LCCAP) - Must proceed to Task 2 of this Step

Table 14. Activities and other considerations to be undertaken depending on the scenario

Task 3B.2 Review current mitigation related initiatives

It is very likely that LGUs are already implementing mitigation-related activities which are not defined based on the local GHG inventory. Particular actions related to mitigation may be ongoing or are part of LGU policies, programmes, projects, and activities consistent with national laws like the Solid Waste Management Act (RA 9003), Renewable Energy Act (RA 9513), Clean Air Act (RA 8749), Clean Water Act (RA 9275), Revised Forestry Code (PD 705) and other related Executive Orders, the Local Government Code (RA 7160), etc. These projects are already tagged in LGU's AIP in view of the Department of Budget and Management (DBM), CCC, and DILG Joint Memo Circular 2014-01 and 2015-01 on CCET as well as the DBM Local Budget Memorandum No. 70 that requires LGUs to prepare AIP using a form that already includes CCET.

It is important to include existing activities on mitigation in the situational analysis of LCCAP so that mitigation efforts will be more strategic and will at least have a basis, especially when the objective is to reduce GHG emissions without an established baseline from a GHG inventory.

The review of "current mitigation activities" will focus on three references:
1. Current mitigation activities planned and outlined from the Local Development Investment Program (LDIP)
2. Mitigation activities indicated in the current LGU AIP and included the CCET
3. Mitigation activities from the current LCCAP

The figure below illustrates the tasks for each:

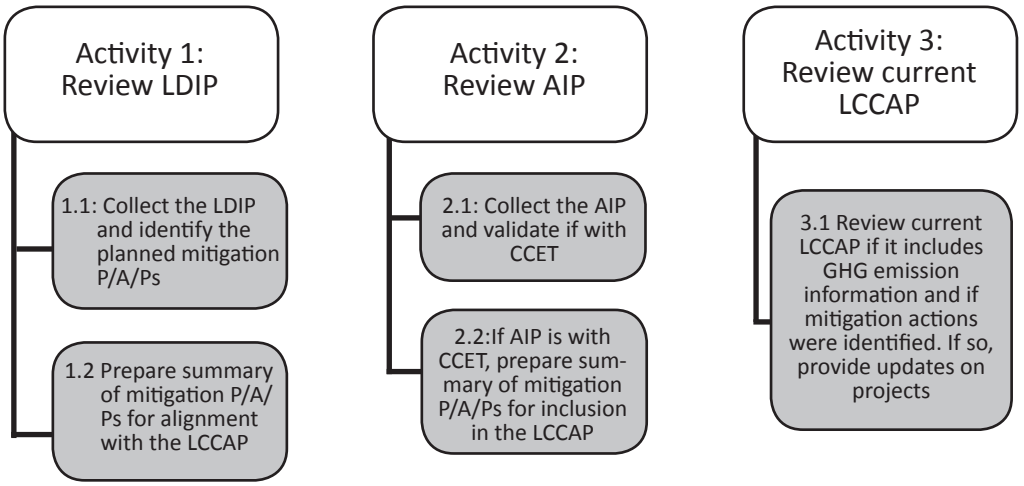

Figure 14. Tasks under the review of "current mitigation activities"

The main aim of the review is to understand the current level of actions being done by LGUs on mitigation. The present actions will likely indicate the current status of the LGUs in their:

1. Level of understanding of the importance and relevance of mitigation actions in their locality;
2. Interest to pursue climate mitigation and mitigation-related actions
3. Ability to link development plans and strategies with investments/resources

What are the tools and templates?

TOOL 3B.1a - Introduction to GHGi and Source Link to the "Community-Level GHGi for LGUs in the Philippines - User's Manual" (developed CCC with support from USAID)
This LCCAP enhanced manual promotes the use of the CCC-adopted "Community-Level GHGi for LGUs in the Philippines-User's Manual." But it also considers that some LGUs might have used other inventory tools/processes like the Global Protocol for Community-Scale Greenhouse Gas Inventories which are likewise consistent with the IPCC standards. What needs to be done in case another tool was used apart from the CCC adopted tool is to check for consistency in terms of scope, emission factors, baseline period, etc. Further elaboration on the "Community-Level GHGi for LGUs in the Philippines-User's Manual" is presented in Book 4 as TOOL 3B.1.

TOOL 3B.1b - Review and internal verification of GHG inventory
Use of this tool basically responds to activities outlined in Task 3B-1 in case: the LGU already conducted a community-level GHGi; LGU is currently conducting a GHGi during the formulation of the LCCAP, and, LGU conducted a GHGi but only at the entity level, or scenario 1, 2, and 3 respectively.

Tool 3B.2 will be used for the review of current mitigation activities. The tool intends to support LGUs in reviewing their current initiatives to see if there are mitigation-related actions being done minus the presence of a GHGi. It facilitates for LGUs improved appreciation and understanding that GHGi mitigation are relevant activities and are actually aligned with their development actions.

What are the Outputs and expected results?

At the end of Component B, the LGU should have the following information/data sets:

1. Summary of GHGi results and explanation of the scope for the accounting state the reasons for having and not having a GHGi during the planning period of the LCCAP (given the LGU scenario explained earlier);
2. Summary of current GHGi emission reduction efforts, based on the review of AIP and current LCCAP; and

3. An explanation on which sectors the LGU can lower emissions, considering medium-term investment plan (LDIP), private sector activities, and planned sectoral investments not necessarily devolved to LGU (e.g. transport, energy, etc.):

These outputs are expected to be presented in Section 2.2 of the LCCAP.

How is Step 3 Linked to Relevant LCCAP Section(s)?

The data sets and consolidated findings derived from Component A (CDRA) and Component B3b (GHGi) will serve as major inputs and basis for the Situational Analysis Section 2 of the LCCAP (Climate Information and Situational Analysis). Step 3 will provide information on "what is currently happening and is projected to happen" in the LGU, given the impacts of climate change. The summaries and description of vulnerabilities, risks, and opportunities generated in Step 3 will also directly link to Section 3: Objectives of the LCCAP as well as other subsequent Sections of the LCCAP such as setting the goals and objectives and identification of opportunities and policy options.

Module C

Planning, Prioritizing, and Budgeting

This Module comprises four (4) steps in LCCAP formulation. These steps are where climate change actions are identified, prioritized, and planned considering "what matters most" to the LGUs. The steps will use the results of the vulnerability and risk assessments as well as GHG inventory and mitigation actions review in Module B. To ensure the mainstreaming or deriving of actions from the local plans, this module asks LGUs to refer to their CLUP, CDP, ELA, LDIP, and AIP, depending on the planning scenarios discussed in the introduction of this guide.

In this module, the decisions made must be linked to the NCCAP for coherence and coordination. In terms of resources, this module guides LGUs in identifying capacities and available resources in LCCAP implementation.

If LGU-mandated plans are already enhanced and in the process of implementation, this module may be used to identify entry points for reviewing the goals/objectives of the current plans or enhancing them to include climate change adaptation and mitigation options, and, put forward necessary legislations in the ELA to address the requirements of the LCCAP.

This Module has four Steps:

Step	Key Questions
4. Review of Development Goals and Setting Objectives and Strategies for Climate Change Actions	1. Are current goals and objectives reflected in CLUP, CDP, ELA linked to or affected by climate change and on the results of analysis in Module B? 2. What are the objectives and strategies for adaptation? How are these new objectives aligned with the NCCAP? 3. Given the review of the mitigation actions (or GHGI if available), what objectives and strategies should be enhanced or developed?
5. Options Identification	1. What programs, activities, and projects in the CDP and LDIP are already responding to the CCA objectives? 2. What other adaptation options (PAPs) should be taken into consideration given the technical findings of the assessment? How can the mitigation considerations in the adaptation-related PAPs be harnessed or improved? 3. What strategies relevant to locally-appropriate mitigation action should be enhanced to support and complement the development agenda/actions in the CLUP, CDP, LDIP, and AIP?

6. Options Assessment	1. Are the options developed and prioritized through participatory process? 2. Are the options screened and ranked according to their urgency, necessity, or desirability? 3. Are options screened according to or using CBA, and MCA?
7. Implementation	4. Are the options (programs, activities and projects) tagged as CCET in the LDIP? 5. Are the options (programs, activities and projects) tagged as CCET in the AIP?Disaster Management Assistance Fund (DMAF) of the Municipal Development Fund Office (MDFO) a. Public Finance Mechanisms (GOP can set levies on GHG emitters, road and port users, shipping services, etc. to generate funds for climate change adaptation and LGUs may access such, when available) b. Payments for environmental services (PES) c. Other finance mechanisms 6. Are the options (programs, activities and projects) tagged as climate change expenditures (CCET) in the LDIP? 7. Are these options (programs, activities and projects) tagged as climate change expenditures (CCET) in the AIP? 8. Are these projects supported with project briefs?

STEP 4: REVIEW OF GOALS AND SETTING OF OBJECTIVES

The RPS and other LGU planning guidelines explain how goals, objectives, and strategies must be stated noting that "goals" are sectoral and broad statements, and "objectives" are more specific statements of targets and results. The same are expected in an LCCAP. The focus of Step 4 is on examining future development goals that are articulated in local planning documents and using the results of the technical analysis done in the previous Step to reflect on the LGU's priorities.

Why is this Step important?

This Step guides LGUs assess and review goals and objectives in local development plans through "climate lenses" and thus help LGU define the focus and direction of local climate change actions.

The results of the scientific analysis in Step 3 and the goals and objectives identified and/or enhanced in this Step will be used in identifying climate change options in succeeding steps.

What are the Tasks involved?

There are four tasks in this Step:

Task 4.1 Review current goals and objectives (from the CDP, ELA, CLUP and NCCAP) using as reference the key issues, challenges and opportunities analysed in Step 3 and check how climate change can affect their achievement.

Task 4.2 Align, to the extent possible, the enhanced goals/objectives with the goals of the NCCAP.

Task 4.3 Task 4.3 Derive indicators for each objective and check whether objectives

Task 4.4 Formulate LEDS

The LCCAP Core Team may opt to complete the review of goals and objectives in just one day or allow a time interval to process each output before proceeding to the next.

Task 4.1 Review current goals and objectives to check how climate change can affect its achievement

The first task is to conduct a three-hour to half-a-day workshop to review current development goals and objectives and check if they can respond to key issues and challenges that were determined in Step 3.

At the minimum, workshop participants should be the LCCAP Core Team; additional members from the sectoral/ functional committee may also be invited. Copies of the LGU plans such as the CDP, CLUP, and ELA (whichever are updated) and the NCCAP should be made available during the workshop.

During the workshop, the team shall go through the goals and objectives to check how climate change can affect their achievement and conduct a GHGi/current mitigation actions review. After the review, the team should discuss and agree if there's a need to: (a) retain the current goals/objectives stated in local plans; (b) enhance the current objective/s to make them climate-change-responsive; or (c) formulate new objectives.

In a scenario where the LGU is inclined to engage in mitigation activities, directly or through regular development projects, the formulation of LEDS Strategies should be defined as part of the first task. Local LED Strategies are specific approaches that LGUs will take to implement development activities that likewise lead to a cleaner and greener future. Once defined, LED strategies are expected to aid LGUs to consciously consider lowering GHGi emissions in implementing their activities in the locality.

Task 4.2 Align the enhanced goals/objectives with the goals of the NCCAP

This task entails the alignment of the enhanced goals/objectives with the seven goals of the NCCAP that prioritizes food security, water sufficiency, ecological and environmental stability, human security, climate-smart industries and services, sustainable energy and knowledge and capacity development.

If the LGU has budget for an external facilitator, then a local expert may be hired to guide the discussions. If not, the head of LCCAP Core Team may lead this task.

Task 4.3 Derive indicators for each objective

Objectives are typically defined using a descriptor of the change/improvement sought to be achieved (e.g. increase, decrease, improve, strengthen, etc.). For this task, LGUs are asked to define or derive objective indicators that further describe the change/improvement being targeted. The word "derive" is used for this task because it asks LGUs to come up with indicators considering the results of the assessments and analysis in Step 3. The set of indicators shall then be used as basis for developing options in the succeeding steps.

An indicator is "a quantitative or qualitative factor or variable that provides a simple and reliable means to measure achievement, to reflect changes connected to an intervention, or to help assess the performance of a development actor"[1]. Indicators need to be Specific, Measurable, Attainable, Relevant, and Time Bounded (SMART). LGUs should note that deriving indicators for the objectives are important not only for monitoring and evaluating activities but also because:

(1) It helps them to logically think about "what" is the variable or factor related to the objective that needs to change/ improve, "who or what" the target should be, "where" the change or action should take place, and "how much" changes/results would be achieved

(2) It will help in identifying climate change options, which is discussed as Step 5 in this LCCAP guide. There are different types of indicators that may be set depending on the objectives and on the availability of information. The LGU may identify different types of indicators such as input indicators; process indicators; output indicators; and impact indicators. For climate change action plans, using a combination of indicators is important considering that some actions may not necessarily deliver immediate impacts and could only be achieved over a long period of time.

Objective	CC Objective: Increase awareness of vulnerable Barangays in the municipality on climate change, adaptation, mitigation
Type of Indicator	**Sample Indicators**
Outcome/Impact Indicators	• Number of barangays oriented/trained • Number of barangay participants (male and female) oriented/trained • Change or % increase in awareness as measured through the pre and post-event evaluation tool
Output indicators	• Availability of Barangay baseline survey tool to measure community-awareness on CC concepts and climate actions at the community-level • Number Pre and Post IEC event survey results
Process indicators	• Number of IEC programs conducted • Percentage/Number of vulnerable barangays reached by IEC program/event
Input Indicators	• Number of materials produced for use Yearly Barangay Orientation/Dialogue on CC • Percentage of LGU funds allocated for CC IEC

Table 15. Examples of direct indicators which could be measured quantitavely

The above examples are all direct indicators or those which could be measured quantitatively. It should be noted that it is also possible to have qualitative indicators especially when the "variable or factor related to the objective" are qualitative in nature (e.g. governance, behavioral change, etc.) or when there is difficulty in gathering baseline data or information during the planning stage (e.g. GHGi).

Qualitative indicators could be derived through agreed "constructed scales". For example, the scale could be from Low to High where "High" is the best case scenario that may be achieved. In such instance, the planning team has to agree on a set of criteria or parameters for describing low progress, medium progress, and high progress, and set those as indicators. An example is presented in the figure below while the tool to be used for processing this is presented in Book 4, Toolkit 4-B2.

	Agreed Constructed Scale: • Low = Little change expected • Medium = Some change expected • High = Significant change expected
Objective	Contribute to GHG mitigation by improving solid and liquid waste management in the municipality. Possible change/results: • Low = No specific measurable result on mitigation, but GHG emissions from solid and liquid wastes generated in the municipality **is measured and known** through GHGI activities • Medium = **Some** activities that promote GHG emissions reduction from municipal wastes are implemented • High = **All** of the planned activities that promote GHG emissions reduction from municipal wastes are implemented
Indicators	(Derived after deliberation of the planning team and some expert judgement) **"Some** activities that promote GHG emissions reduction from municipal wastes are implemented"

Table 16. Constructed scales

LGUs should note that in cases where there is already an established method to measure areas of achievement (e.g. regular data gathered from CBMS, SGLG indicators, etc.) they don't need to develop new ones but use existing indicators to measure changes in the baseline relative to the objective.

[1] DAC Glossary of Key Terms in Evaluation, May 2002

Task 4.3 Formulate Low Emission Development Strategies

The government's commitment to achieve Sustainable Development Goals together with its ratification of the Paris Agreement makes it imperative to pursue Low Emission Development Strategies or LEDS in the country. LEDS are strategic approaches that contribute to building resilience and to decoupling economic and social growth from emission growth.

Generally, LEDS are nationally defined, are comprehensive, and are used as basis for policymaking and decision making in pursuit of a climate-compatible development growth. However, LGUs who are proactive and who seek to achieve direct benefit and co-benefits from pursuing local LEDS are encouraged to define their specific low emission development strategies. Having local LEDS will aid and support the identification of locally appropriate mitigation options or actions, which are the LGUs' crucial contributions and inputs toward achieving the country's Nationally Determined Contribution (NDC). It is thus logical for LGUs to identify and include LEDS in their LCCAPs.

In this task, the LGU, together with stakeholders, shall formulate its strategies when it comes to LED based on the results of the previous Steps and tasks. It could be done along with the workshops/activities under Tasks 4.1 and 4.2 if it is more practical. The task entails referencing to the objective indicators (Task4.3) to ensure development of a more purposeful and resolute strategies for low emission development.

What are the Tools?

Step 4 adopts the tools introduced in Book 1 of the LCCAP Guidebook with some enhancements.

TOOL 4-A Reviewing Current Development Goals and Objectives

This tool will check if current goals and objectives reflected in the CLUP and CDP or ELA already respond to the key issues, challenges, and opportunities identified in Step 3, or if there's a need to enhance or set new goals/objectives.

TOOL 4-B Aligning with the goals of the NCCAP.

This tool provides a simple process of checking if climate change objectives are aligned with the NCCAP.

TOOLS for Deriving Indicators for objectives

There are various tools provided in Book 4 (Toolkit for Facilitators) to guide LGUs in deriving indicators for each objective so they can be measured, compared and used to help assess climate change options.

TOOL 4-D Formulating Local LEDS

The tool presents a session guide to develop LGU LEDS. It contains further information and activities to be considered in developing local strategies that contributes to the countries mitigation pathway.

What are the Outputs?

At the end of this step, the LCCAP Core Team should have:

1. Goals and objectives that take into account the LGUs key issues, challenges, and opportunities and are responsive to a changing climate;
2. Derived indicators for objectives that are linked to climate change; and
3. Defined LGU low-emission development strategies.

How is Step 4 Linked to Relevant LCCAP Section(s)?

Step 4 will input to Section 3 of the LCCAP to show how the LCCAP goals relate to or are aligned with the goals in local development plans such as the CLUP and CDP/ELA. It should likewise present the detailed objectives of the LGU given the details presented in Section 2.

STEP 5. IDENTIFY OPTIONS

Planning for climate change actions stems from a good analysis of scientific and technical data to understand climate change impacts and opportunities for actions. Step 5 guides LGUs in reassessing options and strategies from existing plans to determine whether they are still relevant under a changing climate. In a scenario where current objectives are enhanced or new objectives are drawn, it is possible that new programs, activities, projects (PAPs), and policy options are generated or current PAPs are updated or identified. Such PAPs can be implemented in the immediate-term, in medium-term, or in the long-term, depending on the vulnerability and risks identified in previous steps.

Why is this Step important?

In this Step, the LGU is provided an opportunity to determine potential actions to address the impacts of climate change based on the results from the previous Steps. Based on these realities, the LGU will be able to identify possible options for adaptation and mitigation in the form of PPAs and policy regulations.

The list of options derived from this step shall be further reviewed and assigned corresponding time frames for their implementation.

Some LGUs may take a phased approach to implementation starting from capacity building or drafting of enabling policy or regulation of action for future discussions.

Generating options may result in clearly identifying “no or low regret” climate adaptation and mitigation actions. These actions are win-win in nature because whether climate change impact happens or climate change impact happens or not, it will still create positive benefits for the development of the locality.

What are the Tasks involved?

This step has two tasks:

Task 5.1 Determining the options available

Task 5.2 Organizing options according to time frame

Task 5.1 Determining the options available

Determining the options for adaptation and mitigation actions available to LGUs can be done by referring to sectoral PAPs reflected in the CDP, ELA or LDIP. To the extent that PAPs are responsive to key challenges and issues determined in the technical findings, LGUs may include them in the list of climate change adaptation and mitigation options. Whether the LCCAP is derived from the comprehensive plan or prepared as a stand-alone document, new list of options may be generated and will still be subjected to assessment and prioritization. Options consist of adaptation and mitigation actions covering programs, activities, projects, and appropriate or needed policies to implement and sustain the PAPs. This task may be done through a workshop with sectoral or functional committees. The LCCAP Core Team may also assign this task to responsible offices and, later, call a multi-sectoral meeting to review the outputs and ensure that these are responsive to the technical findings and implications. The worksheet to be used in this task is found under Tool 5-A in Book 4.

Example: Goal: Create a prosperous economy				
Decision Area	**Technical Finding**	**Implications**	**Objective**	**Potential Options**
Urban Ecosystem (Urban Area)	Roads susceptible toerosion and becomes impassable during floods	When not addressed immediately, critical point facilities will sustain long term damages and may result to more expensive replacement costs.	Ecological and Environmental Stability (NCCAP) To Improve road-infrastructure	- Install better drainage culverts (could be an opportunity for employment program for urban poor) -- Build dikes along the river -- “Low regrets” infra-structure upgrades (e.g. dikes, diversion channels, drainage systems) -- Capacity building for GIS team to update hazard maps -- Climate-proof exposed roads (e.g. raised road bed above flood level)
Example: Goal Promote community wellbeing				

Decision Area	Technical Finding	Implications	Objective	Potential Options
Coastal Marine Ecosystem (Coastal areas)	Severe storms and flooding increase the risks of informal settlements at river mouth	Delayed interventions may cause Injuries and even deaths.	Human Security (NCCAP) To alleviate conditions of informal settlements	-- Update maps and land uses to zone most vulnerable areas for non-settlement uses -- Develop community warning and evacuation systems -- Risk prediction and mapping -- Update local building codes – climate proof construction -- Local economic development strategy with "green jobs" component
	Increased flood incidents contaminate water supply Drought – limited supplies in summer-months	Delayed interventions may increase exposure of children, women and elderly to water- borne diseases	Water Sufficiency and Human Security (NCCAP) Protect drinking water supply	-- Eliminate contamination sources by zoning industrial activity to new locations -- Water conservation program -- "Low regrets" option (e.g. Strengthen partnership with DOH and provincial government for improvement of water conditions. -- Climate-proof existing reservoir and facilities -- Develop or expand reservoir to ensure adequate water supply during droughts -- Build new reservoir in a safe area
Example: Goal: Reduce poverty				

Decision Area	Technical Finding	Implications	Objective	Potential Options
Upland Ecosystem (Agriculture) - 9 barangays	As projected, extreme events by 2050 will increase with rainfall volume above 300mm Major informal markets (talipapa, community markets, post-harvest facilities) located in RIL areas will be severely affected during heavy rains	6 post harvest facilities (PHFs) would mean more than 50% reduction in incomes of 56 farmer families if no immediate interventions will be introduced in the area; Mast children of these farming facilities are school-age and may not reach to secondary level when RIL is not addressed.	Ecological and Environmental Stability Knowledge and Capacity Building (NCCAP) To Improve informal market infrastructure and PHFs	-- Local economic development strategy with "green jobs" component -- Develop new informal markets -- New building code -- Climate proof construction designs -- Monitor market days lost to flooding -- "Low regrets" infrastructure upgrades (e.g. erosion defense) -- Community warning and evacuation system -- Disaster Response Plan – relief aid -- Strengthen networking and partnership with TESDA for alternative livelihood for women in the area.

Table 17. Determining options from technical findings and objectives

Task 5.2 Organize options according to sectors and time frame

LGUs must organize the options according to sectors and time horizon. This task requires a workshop of three hours to half a day. A facilitator (most likely the head of the LCCAP Core Team) must ensure that each sector will present the outputs to:

1. Promote harmonization with other sectors
2. Avoid duplication, and
3. Sustain implementation given the availability of resources

Once the tasks are completed, this would be the basis and explanation why the PAPs in Section 4 of the LCCAP were chosen and planned accordingly.

What are the Tools?

TOOL 5-A Determining options to respond to technical findings and implications

This tool allows the LGU to identify viable options and the package of interventions that will yield the most benefit. To ensure that PAPs operationalize the objectives set in Step 4, additional columns may be added in Tool 4-B where objectives were already set to address key issues and challenges or sustain possible opportunities that came out of impact chain analysis and in technical findings.

TOOL 5-B Organizing options according to time frame

Even if the LCCAP is suggesting a three-year term, a tool is offered in Step 5 where LGUs can set the time horizons and time coverage of PAPs to short-term, medium-term, and long-term. A sample table that organizes the options according to time frame is reflected in Book 4.

Meanwhile, the table on the next page illustrates the time table of projects under the environment sector.

ENVIRONMENT						
List of Projects	Project Cost In '000 peso	Schedule of Implementation/Allocation				
		2015	2016	2017	2018	2019
Establishment of Municipal Sanitary Landfill	10,000	1,000	3,000	3,000	3,000	
Establishment of Municipal Recovery Facility	1,000	100	300	300	300	
Billion Trees Project	500	100	100	100	100	100
Purchase of Garbage Equipment	1,000		1,000			
Establishment of natural river control along flood-prone areas	15,000	5,000	5,000	5,000		
Delineation of Barangay Boundaries	4,500	3,000	1,500			

Table 18. Adaptation projects under the environment sector, Mallig LCCAP

What are the Outputs?

The following outputs should be produced:

1. A list of all possible courses of action (climate-responsive PAPs) for adaptation and even mitigation as agreed upon by the LCCAP Core Team and other sectoral members. The PAPs are direct responses to key findings and implications in Module B, Step 3a and 3b
2. Organized options according to time frame. The listing of options is needed to complete the tasks in Step 6 where the identified options are subjected to further assessment and prioritization.

STEP 6. OPTIONS ASSESSMENT

In dealing with the impacts of climate change, the LGU should identify options that are economically, socially, and politically viable and would not result to mal-adaptation or will exacerbate conditions that cause climate change. The LGU shall also ensure that the issues and opportunities identified in climate assessments done in the previous Steps could be addressed. Given these, it is therefore critical for LGUs to assess options against accepted and agreed criteria and parameters.

This Step involves major stakeholders to evaluate options for LCCAP The LCCAP Core Team can organize a one-day workshop (or longer, as needed) with major stakeholders to validate the assessment and ranking of options. Note that the same participants who were involved in Step 3 and Step 4 shall be invited to this workshop as they are the ones who knew the key challenges and issues on climate change.

Why is this Step important?

This Step is important because it facilitates and allows the LGUs and stakeholders to prioritize the PPAs as well as policy options that will be brought to implementation and towards achievement of LCCAP objectives. This Step provides an opportunity for the LGU to screen the lost list of options identified in Step 5 and prioritize those using parameters that are most relevant and important to their realities. Outputs of this Step are expected to be presented to the LGU's Executive and Legislative Leaders for adoption and approval.

The approved options are expected to be linked to the LDIP and shall later on be reflected and articulated in climate change expenditure tagging CCET.

What are the Tasks involved?

Task 6.1 Assess all the options identified in Step 5 by screening them using appropriate parameters and processes

Task 6.2 Rank and organize the options according to the parameters/process used

Task 6.3 Present the ranked and organized climate change options to the Executive and Legislative Officers

Task 6.1 Assess all the options identified in Step 5 by screening them using appropriate parameters and processes

There are various tools that may be used to assess the identified options. It is important for LGUs to get hold of available tools that can help them screen the options according to parameters that they believe are most relevant to their situation (i.e. targets, available resource, capacities, etc). This will aid in explaining and rationalizing the PAPs to the local leaders who shall approve and adopt them for inclusion in their LCCAP.
These tools are presented in Book 4-Toolkit of this guide.

Task 6.2 The screened options shall then be prioritized according to their importance to the LGU.

The LGU shall likewise provide a summary or justification for the ranking. The justification may be reference of the parameters used for screening.

Task 6.3 Activity is carried out.

There is no specific tool designed for it may be carried out depending on how the LGU's technical team conducts their meetings with elected leaders. This task shall be led by the Planning Coordinator/Focal and the sectoral planning teams by organizing a meeting with the Local Chief Executive as well as the responsible Council Committee (together or separately) to present the assessment results and to get the official's initial approval and endorsement of the PAPs identified to constitute their local climate action.

What are the Tools?

Various tools are available to help LGUs screen the list of options generated in the previous Step. It is recommended for LGUs to use at least two tools in assessing their options using various lenses or parameters that could facilitate decision making.

TOOL 6-A Urgency Test

The urgency test as advocated in the RPS may be used to prioritize or assess programs, activities, and projects as: urgent, essential, desirable, acceptable, or deferrable.

TOOL 6-B Prioritization of options

This tool, as shown in Book 1, helps to prioritize PPAs and identify the appropriate time line for each. Results of this Tool can be recommending policies that will enable implementation of prioritized actions. To the extent possible, LGUs are encouraged to prioritize options that cover mitigation as a function of adaptation.

TOOL 6-C Technical screening and ranking of options

This tool assesses projects according to several parameters that uses a constructed scale to present and justify potential ranking that will be done. Parameters used include:

- Stakeholder acceptability
- Technical feasibility
- Ease of implementation
- Urgency of implementation
- Relative effectiveness
- Cost
- Mainstreaming potential
- Multi-sectoral and multi-objective

TOOL 6-D Screening for Complementarity-Compatibility-Conflict Matrix, etc.

The sectoral groups can be gathered and do the screening to see if:

- Projects are in conflict, when the expected benefits of the projects tend to nullify each other or when the implementation of one obstructs the implementation another;
- Projects complement each other, when two or more projects are neutral of compatible with each other;
- Projects are in conflict with many or most of the other projects. Normally, these projects should be removed from the initial list; and
- In some cases, projects which conflict with some but are compatible or complementary with others may be reformulated to resolve the conflict.

TOOL 6-E Goal-Achievement Matrix (GAM)

GAM is an approach applied to score and prioritise projects and strategies according to sustainable development fundamentals expressed through goals and objectives. The top scoring projects are indicative of their strong links to achieving the sectoral goals and objectives. This tool can be successful when participated by multi-sectoral representatives in the city or municipality.

TOOL 6-F Direct ranking of options

Direct ranking of options allows participants (core planning team, stakeholder advisory group) to review the high-ranked options that resulted from using any of the TOOLS in 6A-to-6D and to select those which they think would be best to implement. The intent of this activity is to create a direct-ranked list of options using the expert judgment of the planning team following the screening and assessment done in Task 6.1.

What are the Outputs for this Step?

The output of this Step is the ranked list of options per ecosystem or within each decision area that is developed through a participatory and/or consultative process. It represents the agreements of the LCCAP Core Team, sectoral units, and other stakeholders based on agreed parameters for screening and ranking approved by the Executive and Legislative Officers.

How is this Step Linked to relevant LCCAP Section(s)?

The ranked and selected options will be considered as priority programs, projects, activities and legislations that will be included in the first draft of the LCCAP. The results of the ranking are reflected as Annexes in the LCCAP to promote transparency in the selection process, especially if a wide discrepancy exists between the highest ranked and those that eventually landed in the final list of policy options.

The approved options form part of the LCCAP, particularly under Section 4: Programs, Activities and Projects and Policy Requirements. This section presents the final list of priorities that the LGU will implement. The PPAs should explain the details (e.g. Title of the action, target sectors and number of target beneficiaries, where the action would take place, timeframe of implementation, indicative cost, potential partners) of every PPA. These PPAs should be categorized—whether they address adaptation or mitigation strategies.

STEP 7. IMPLEMENTATION

This Step guides LGUs on how, when and who should be involved in the plan implementation. In this step, the LCCAP core team works with pertinent stakeholders to develop an implementation plan and begin the process of implementing the adaptation and mitigation activities defined in the previous step. It also covers tasks such as budgeting and accessing funding sources like the PSF.

Part of the step is to maximize the CCET to ensure that programs, activities and projects, reflected in the CCET are directly responsive to climate change issues. Assigning focal person/team/department to be responsible for implementation and achievement of results is necessary.

The Local Development Investment Program (LDIP) links the plan to the budget. Implementing the LCCAP shall follow the investment programming, budgeting, and implementation cycles as provided in the updated Synchronized Local Planning and Budgeting Calendar issued by the DILG. The list of adaptation and mitigation options derived from the CDRA and GHG inventory and assessment will provide an opportunity to maximize the CCET by ensuring that programs, activities and projects reflected in the CCET are directly responsive to climate change issues.

Why is this Step important?

The mobilization and utilization of resources—human, financial, or physical—make sense only if climate change goals/objectives are achieved by implementing climate change options and sustainability measures over time. This Step also adds value to tagging CCET in the LDIP and in the AIP.

What are the Tasks involved?

Task 7.1 Discuss with the Core LCCAP Team and the Local Finance Committee on how the current LDIP with CCET can be enhanced, following the results of prioritized climate change options derived from previous steps.

Implementation of PPAs entails established procedures for procurement, budgeting, and auditing. In addition, the Climate Change Commission has established the CCET to keep track of implementation of climate change actions in the Philippines, especially those at the local level. To do this, LCCAP Core Team, together with members of the Local Finance Committee (LFC), should review, through a meeting, prioritized climate change options derived from previous steps.

Task 7.2 Validate prioritized options in the context of available resources in the LGU

Since LFC members participated in critical steps of CDRA process, prioritized options in the context of available resources in the LGU are revalidated. The meeting should result to agreements on what climate change options should go into the LDIP. This task should not duplicate the normal process of preparing the investment program LDIP.

Task 7.3 Brief Department Heads and their technical staff on the preparation of the Project Brief

The next task is to brief the Department Heads and their technical staff on how to prepare a Project Brief. This will prepare LGU Departments in explaining climate change options during technical budget hearings for LDIP preparation. Continuous discussions and meetings with Department Heads must be led by the LCCAP Core Team to ensure that prioritized climate change options will be included in the CCET portion of the LDIP.

What are the Tools?

This step makes use of three tools:

TOOL 7-A Integrating policy options in CCET for LDIP and AIP

Implementing the LCCAP shall follow the investment programming, budgeting, and implementation cycles provided in the updated Synchronized Local Planning and Budgeting Calendar issued by the DILG. This gives LGUs the opportunity to maximize the CCET by ensuring that programs, projects, and activities in the CCET are directly responsive to climate change issues.

TOOL 7-B AIP summary form (with CCET)

Step 7 adopts the LDIP process with the CCET currently advocated by the CCC, the DBM, the DILG, and other agencies. This guidebook strongly suggests that the LDIP and AIP with CCET be used in the implementation of adaptation and mitigation options since they are implementation instruments of local plans.

TOOL 7-C PROJECT BRIEF

To better prepare the LCCAP core team in defending the prioritized adaptation and mitigation options during the technical budget hearings, Step 7 offers an outline of a project brief. LGUs are encouraged to cover substantive information in the project brief, such as, but not limited to the following:

a. Key activities that are programmed according to time slices. Example: Project Identification, Project Preparation Project Appraisal and Financing may take two years; Detailed Design, Project Implementation and Project Operation may take three years; Monitoring and Evaluation may be done annually.

b. If a project takes five years to implement, but the LCCAP has a time horizon of three years, it is important that the remaining activities be carried out in the next updating of the LCCAP.

c. Reflective of time slices and know which activities can be implemented within the time horizon of the LCCAP.

d. Reflective of objectives, scope, target clientele or beneficiaries, and organizational structures.

The figure below illustrates the time slices of projects which can be covered in the current LCCAP and the remaining activities to be forwarded and reflected in the next LCCAP updating.

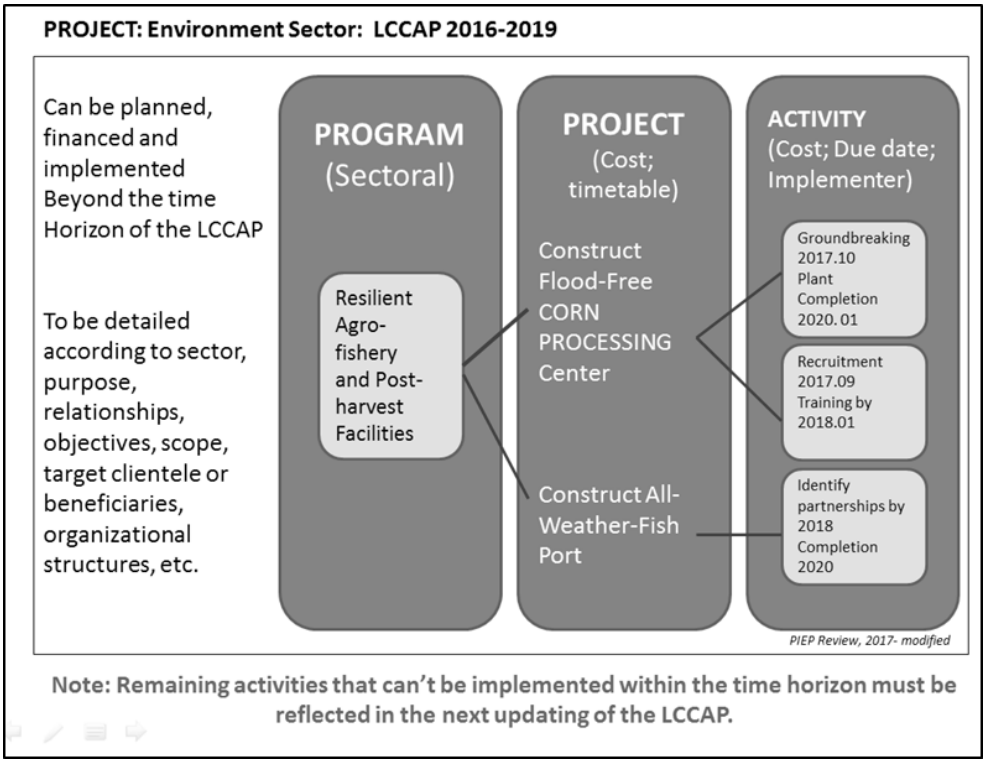

Figure 15. Program projects and activities with time slices beyond the horizon of current LCCAP

What are the Outputs?

The LDIP and the AIP serve as the main instruments for implementing priority climate change actions. Unlike the LDRRMP, which has legal provision for budgetary allocation, the priorities of the LCCAP are to be funded out of the regular budget of the LGU. Mainstreaming climate change into the CLUP and CDP will increase the chances that the priorities indicated therein will be budgeted. Thus, under this step the important outputs are the LDIP and AIP with climate change expenditure tagging to implement climate change options; and the project briefs of prioritized adaptation and mitigation options that are used for budgeting.

How is this Linked to Relevant LCCAP Section(s)?

At this stage, the full LCCAP should have been completed. The Medium-Term LDIP with Adaptation and Mitigation Options should be reflected in the CCET and the AIP with Adaptation and Mitigation Options reflected in the CCET. An application for the PSF, should the LGU decide, should also form part of the LCCAP. Prioritized Options can funded by local and external sources.

The outputs of this Step will support the key content of the LCCAP specifically Section 4 on PPAs and Policy Requirements.

Module D

Monitoring, Evaluating, Adjusting and Modifying

Preparing for climate change is a continuing process. Tracking and measuring "success" and progress of climate actions are necessary to facilitate necessary alterations in and further roll-out of measures taken. Success factors, or otherwise, are important bases and evidence for national and local policies relating to adaptation and mitigation measures.

Tracking and measuring success and progress, however, should happen at multiple levels and for multiple audiences, from the LGU's Core Team over to the stakeholders, and down to the community. Part 2 of this Guidebook provides an outline of the LCCAP sections with a corresponding checklist showing the recommended key contents. The LGU may use this checklist to mark its progress in preparing its LCCAP as it goes through the Steps based on the materials of the guidebook.

Once the LCCAP is formulated, the LGU shall develop measures for M&E progress and evaluating adaptation and mitigation programmes/projects, reporting on results, and adjusting objectives and strategies to ensure that the LGU's climate change actions remain aligned with its development goals and that the LCCAP remains responsive to the needs of the community over time.

The two Steps are:

Step 8: Monitoring and Evaluating presents a monitoring framework and leads LGUs through the development of a plan for monitoring and evaluating priority programs, activities and projects in the LCCAP. The M&E plan will also identify how the progress and performance monitored in the course of LCCAP implementation can be shared with stakeholders, including partner agencies and organizations assisting with implementation, and the broader community.

Step 9: Adjusting and Modifying guides LGUs to review its climate change strategies and actions, and the measures for monitoring and evaluating their progress and performance in order for the LCCAP to evolve and remain appropriate despite changing natural, economic, social and political conditions. This step also allows for new climate change information to be incorporated into the LGU's regular planning updates.

Below are key questions per step to guide LGUs in completing Module D:

Step	Key Questions
8. Monitoring and Evaluation	1. Are project or programme stakeholders and agencies doing what they agreed to do in Step 7 – Implementation? 2. Are the programs and projects referenced in the LDIP and AIP using the climate expenditure tagging processes? 3. Is the climate change adaptation and mitigation programs, project and policy (i.e. the actions selected in Step 6) having the desired effect? 4. Is the quality review and control mechanism used to review the LCCAP?
9. Adjusting and Modifying	1. What are the recent updates and adjustments done to adequately address dynamic climate change? 2. Are there new personnel or department established to support climate change? 3. Are there new climate data and projections with ramifications for your local area (e.g. rapid sea level rise, revised precipitation or temperature trends)? 4. Are there new funding for climate adaptation planning or option implementation? 5. Are there climate adaptation funding reductions or constraints, particularly if these reductions directly impact existing or planned projects in your *Climate Change Action Plan?*

Table 19. Key Questions of Module D, Steps 8 & 9

STEP 8. MONITORING AND EVALUATION

Why is this Step important?

Monitoring and evaluation helps LGUs track the progress and performance of climate change actions, and ensure that programs, activities and projects remain relevant and effective in meeting the complexity of the realities and challenges on the ground. In this Step A the LGUs are given the flexibility to define qualitative and quantitative (or a combination of both) indicators that are consistent with the objective indicators formulated in Step 4 and at the same time fits their programme, context, and purposes. Although the LGU may adopt a specific M & E system or framework—either results-based management or logical framework, etc.—or use existing one for monitoring and evaluating the implementation of its LCCAP, what is important is for the LGU to develop indicators that help enhance the degree to which its LCCAP accounts for climate change adaptation and mitigation considerations. This Step also determines the frequency with which your LGU will measure its progress depending on its context such as the nature of the vulnerabilities and risks that the LGU is addressing in its decision areas or the LGU's planning and budget cycles. Since the LCCAP and other local development plans are reviewed on a regular basis, the results from the monitoring program will be useful in revisiting the vulnerability and risk assessments that were conducted in the initial steps of LCCAP implementation process.

What are the Tasks Involved?

Assessment, monitoring and evaluation are integral parts of climate change action planning and implementation. In doing these activities, the LGU are expected to set baselines, define indicators, measure progress and evaluate successes and setbacks in the LCCAP implementation.

Task 8.1 Prepare the monitoring and evaluation plan

This task shall ensure that the LGU stays accountable to the achievement of the goals that are set out in its LCCAP. In preparing the monitoring and evaluation plan, the LCCAP Core Team shall use the reviewed and set Goals and Objectives in Step 4 and the Options identified in Step 5 as starting point for identifying what it seeks to measure. Given the Options, the team shall outline the expected changes and results across the PAPs, including the expected behavior changes, outcomes and impacts. The team shall then formalize this into a logical framework and shall use indicators to link all inputs and activities to the development objectives through a series of outputs and outcomes.

Task 8.2 Developing adaptation- or mitigation-associated indicators

The LGU may already have information on how well it is meeting its development objectives, based on relevant data currently being collected to monitor and evaluate other local development plans. Thus, the LGU would need to either reframe existing indicators or develop new ones to assess its performance and progress in delivering adaptation and mitigation actions. However, developing new 'success" measures would require resources especially if the indicator being developed requires new data and information to be collected. In such case, the LGU is recommended to maximize the use of existing data from other activities for M&E or to use a qualitative or 'ask the right questions' approach for reviewing and evaluating the LCCAP implementation. Whatever approach the LGU chooses, either quantitative or qualitative, the LGU should develop indicators that are Simple, Measureable, Attributable, Reliable or Time bound (SMART).

Task 8.3 Capture and communicate results

The Monitoring and Evaluation plan shall also include a process for capturing and reporting back to the Core Team any challenges that are encountered during implementation of the LCCAP. This may be linked to existing reporting procedures in the LGU. In this way, the information (results) that were monitored and evaluated are brought back to the decision making process showing the iterative nature of climate change action planning.

More importantly, the process is also useful for documenting positive results due to any of the adaptation or mitigation activities implemented. The accomplishments may be communicated to stakeholders, decision-makers, organizations, or staff in the LGU who have interest in any of the PPAs implemented, who have participated in them or where affected by them. This may be done through public outreach activities, progress reports, website updates or workshops.

What are the Tools?

TOOL 8-A Monitoring Framework: End-of-Term Accomplishment Report

TOOL 8-B LCCAP Work plan and Performance indicators

TOOL 8-C Questions and Indicators Benchmarks for Monitoring and Evaluation

TOOL 8-D Review Mechanism of the LCCAP

What are the Outputs?

The following outputs should be produced:

1. A plan to monitor the progress of implementation and the effectiveness of climate change adaptation and mitigation actions
2. Set of adaptation- or mitigation-associated indicator.
3. Plan for reporting, capturing and communicating results.

STEP 9 - ADJUST AND MODIFY

Why is this Step important?

Climate impacts will change (and potentially speed up) over time. New and different impacts may emerge while existing exposure may increase. Capturing and utilizing new information or additional local knowledge as they emerge would be valuable in re-evaluating the climate change vulnerability, risks, and adaptation and mitigation options that were identified as priorities in the LGU's current LCCAP. This also provides an opportunity for the LGU to incorporate new information into the regular updating of long-range planning documents.

What is the Task involved?

Task 9.1 Adjust and modify the LCCAP

The LCCAP is a living document that requires regular updating and adjustments in order to improve the effectiveness of its climate change adaptation and mitigation efforts. The LGU should update its LCCAP regularly based on the information collected from measuring progress and reviewing results of its climate change actions.

Depending on the amount and relative significance of the new information gathered, the LGU may strategize on how to incorporate the updates in the LCCAP into other local development plans. New information that requires urgent decisions and detailed actions may be reflected in budget proposals or short-term decision arenas where the LGU may raise specific climate change issues that it is facing. Otherwise, if the climate change impact that the LGU intends to address does not pose an urgent concern to its locality and can be addressed in broad language then new information may be incorporated into regular planning updates.

What are the Tools?

There are no specific tools offered for this Step. However, it must be noted that Step 9 provides a complete picture of how the LCCAP can be mainstreamed into comprehensive plans; and the vulnerability and risk assessment and low emission development strategies can be used to enhance the ecological profile and sectoral studies and influence the current comprehensive planning processes and investment programming.

What are the Outputs?

1. Updated LCCAP
2. LCCAP results incorporated in LGU development plans

Annex A

CDRA as reflected in HLURB's Supplemental Guideline	CDRA as adopted in LCCAP Process
CDRA covers six (6) major steps and corresponding tasks per step	The Steps of CDRA are translated to six tasks since the LCCAP process in itself already covers nine Steps.
Sectors covered are population, natural resources, urban ecosystem, critical point facilities as well as lifelines.	A preliminary activity is introduced in Module B, Step 3A of the enhanced LCCAP Guide which is determining the geographical coverage of CDRA, according to ecosystem. – coastal/marine, agriculture, upland, urban

CDRA as reflected in HLURB's Supplemental Guideline	CDRA as adopted in LCCAP Process
Step 1. Gather and analyse climate and other hazard information	**Task 1.** The same activities but with highlights on: - magnitude and onset of hazards (with reference to existing maps and/or result of focus group discussion - summary of hazards per barangay according to ecosystem - preferably, the climate information that will be used is the Climate Information and Risk Analysis Matrix (CLIRAM) data using RCP data for 2050 from DOST-PAGASA, if there is no available CLIRAM or Representative Concentration Pathways RCP data for the province, the LGU may opt to use the Special Report on Emission Scenarios (SRES) climate projections.
Step 2. Impact Chain Analysis to: - population - natural resources - urban ecosystem - critical point facilities - lifelines.	**Task 2.** The same activities with Step 2 but should include (with emphasis on) possible opportunities and/or positive consequence/impacts derived from the activities. Impact chain analysis also highlights on the sectors and sub-sectors. Tabular/matrix presentation of impact is also encouraged.
Step 3. Exposure Database • population, natural resources, urban ecosystem, critical point facilities and lifelines. • covers the sensitivity analysis • covers the determination of threat level (with parameters of 3 indicators and adaptive capacity with parameters of 3 indicators.	**Task 3**. The same elements with Step 3 but with enhanced reporting on: - multi-sectors and sub-sectors (social, economic, environment, infrastructure and physical land use) - threat level of degree of impacts covering five parameters (high, medium-high, medium, medium-low, low) - adaptive capacity covering five parameters: high, medium-high, medium, medium-low, low. Each of the six dimensions of adaptive capacity (wealth, information, technology, infrastructure, institution and governance and social capital) is scored to get the average score. - Determining summary of findings or observations of results of: o exposure and sensitivity o threat level o adaptive capacity o vulnerability and risks

CDRA as reflected in HLURB's Supplemental Guideline	CDRA as adopted in LCCAP Process
Step 4. Vulnerability is derived by multiplying the threat level to adaptive capacity. This becomes the Vulnerability Index.	**Task 4** - Relative vulnerability is derived by dividing the threat to adaptive capacity in consonance with what's provided in Book 1 version of the LCCAP. - The vulnerable sectors are subjected to risk estimation by multiplying the Likelihood of Occurrence (LOO) with Severity of Consequences (SOC). Parameters for LOO on flooding and SOC are culled from Step 5 of the CDRA. - Task 4 generates the CCVRA or Climate Change Vulnerability and Risk Assessment.
Step 5 - Involves the estimation of risks as agreed by three groups within the technical working group organized for this purpose.	**Task 5** - Determines the decision areas as analysed in previous tasks. - The selection of decision areas is influenced by the technical findings (or summary of findings, mapping and observations of previous tasks).
Step 6 - Involves determination of implications and key issues and challenges.	**Task 6** - Determination of implications or consequence under a business-as-usual scenario. - Determination of key issues, challenges and opportunities. - Results of this task will input to goals and objectives review and enhancements, project identification and prioritization which are provided in subsequent Steps of CDRA.

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