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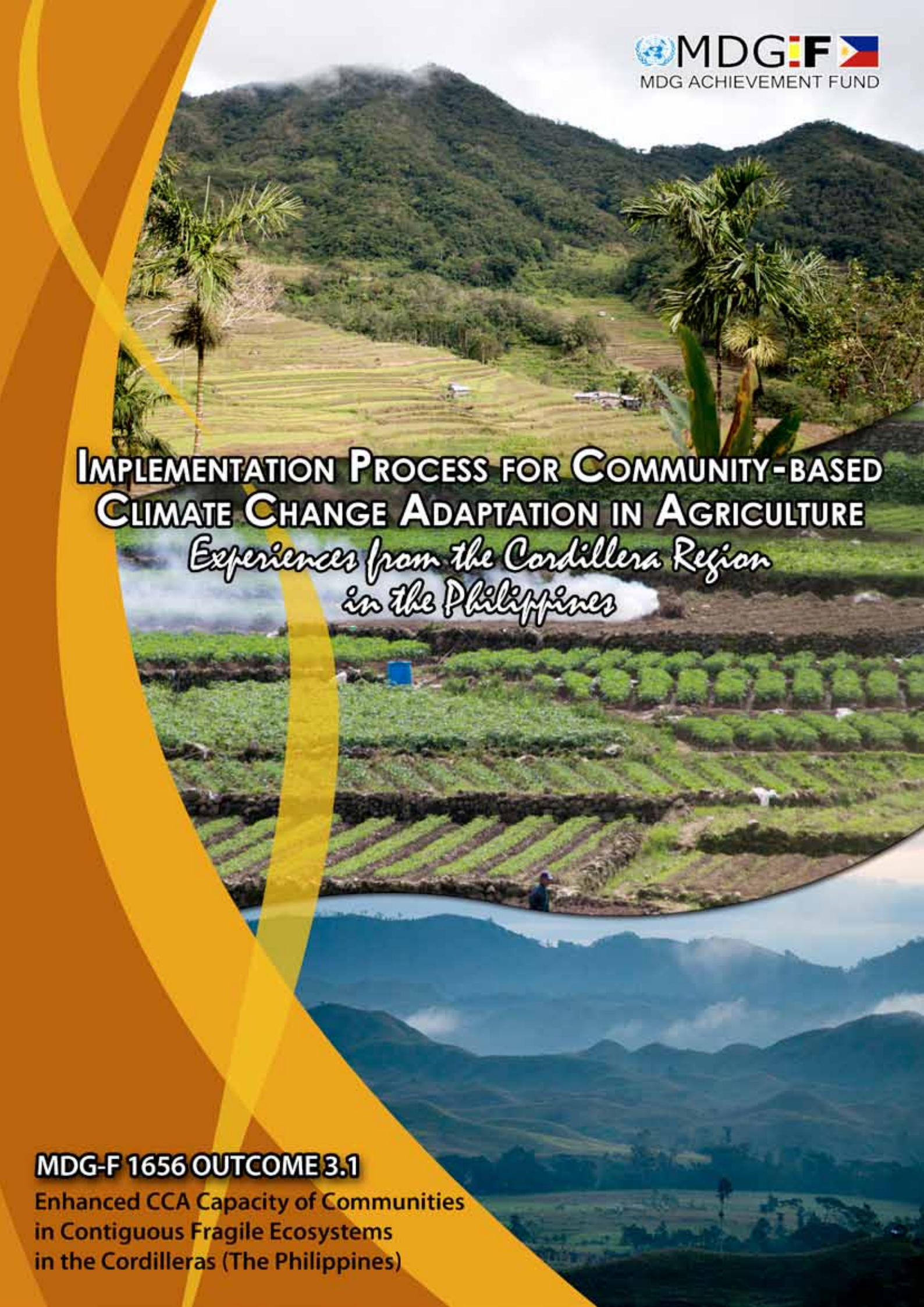

Implementation Process for Community-based Climate Change Adaptation in Agriculture

Experiences from the Cordillera Region in the Philippines

MDG-F 1656 OUTCOME 3.1

Enhanced CCA Capacity of Communities in Contiguous Fragile Ecosystems in the Cordilleras (The Philippines)

MDG-F 1656 Outcome 3.1
Enhanced Climate Change Adaptation Capacity of Communities
in Contiguous Fragile Ecosystems in the Cordilleras (The Philippines)

Implementation Process for Community-based Climate Change Adaptation in Agriculture

Experiences from the Cordillera Region in the Philippines

Department of Agriculture (Philippines)
Food and Agriculture Organization of the United Nations
June 2012

Executive Summary

Climate change adaptation can be considered as a socio-institutional learning process. As climate change impacts change over time, adaptation cannot be a one-off intervention. It should rather be understood as a flexible and iterative process. In this context, an important output of pilot projects for climate change adaptation is a documentation of the processes and the establishment of institutional mechanisms that allow all stakeholders, such as farmers, extension workers, researchers and local government officials and their institutions to collaborate more closely and in a more experimental way to allow learning and adjustments over time, as well as to serve as a fruitful encounter of local/indigenous and scientific knowledge and exchange across disciplines. Often, this requires a shift in mindset, which cannot be achieved overnight. However, progress in this direction can be observed in many places of the world.

This document aims to describe the processes followed in the Millennium Development Goal Achievement Fund (MDG-F) 1656 Outcome 3.1 project entitled Enhanced Climate Change Adaptation Capacity of Communities in Contiguous Fragile Ecosystems in the Cordilleras. The objective of the process documentation is two-fold: (1) capture and document the different steps carried out in the project to serve as a model for other future community-based adaptation processes at the local level, and (2) document both facilitating and hindering factors in project implementation to allow continuous learning and adjustments during the project as well as to inform future projects.

Key lessons regarding the processes initiated by the project include:

- Participatory action research is an effective way for initiating local adaptation processes. However, it takes time to make everybody understand that the adaptation learning process is as important as the content.

- Farmers are keen to contribute their local knowledge and share their observations with extension workers and scientists. However, defined sets of criteria for pilot site selection, farmer selection and selection of good practices for CCA are crucial not to lose climate change focus.

- Local working groups and technical validation meetings were successful mechanisms to facilitate local CCA processes and build close partnerships between Department of Agriculture, Local Government Units, State Universities and Colleges, and research institutions and farmer groups.

- The sensitization of local government executives was instrumental in creating an enabling environment for implementing local CCA processes.

- Local, participatory vulnerability assessments are key for targeted adaptation and also a good venue for community mobilization. They can be complemented with scientific modeling tools if data availability allows robust results.

- Setting up a proper M&E system for the field demonstration of good practices for CCA is challenging but is essential for systematic learning and a performance evaluation that goes beyond economic yields.

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Acronyms and Abbreviations

AT	Agricultural Technician
Agsys-VACA	Agricultural System Vulnerability and Adaptive Capacity Assessment
AWS	Automatic Weather Station
BAI	Bureau of Animal Industry
BAS	Bureau of Agricultural Statistics
BFAR	Bureau of Fisheries and Aquatic Resources
BSU	Benguet State University
BSWM	Bureau of Soils and Water Management
CAR	Cordillera Administrative Region
CC	Climate Change
CCA	Climate Change Adaptation
CENRO	Community Environment and Natural Resources Office
CHARM2	Second Cordillera Highland Agricultural Resource Management Project
CHES	Celo Haight Elementary School
CORDEV	Center for Organic Farming and Integrated Rural Development
DA	Department of Agriculture
DENR	Department of Environment and Natural Resources
DOH	Department of Health
DOLE	Department of Labor and Employment
DRR	Disaster Risk Reduction
DTI	Department of Trade and Industry
FAO	Food and Agriculture Organization of the United Nations
FFS	Farmers' Field School
GP	Good Practice
GPS	Global Positioning System
HUDCC	Housing and Urban Development Coordinating Council
IEC	Information and Education Campaign
IFAD	International Fund for Agricultural Development
IFSU	Ifugao State University
ILO	International Labour Organization
KM	Knowledge Management
LGU	Local Government Unit
LUCFP	Locally Upgraded Conventional Farmer's Practice
LWG	Local Working Group
M&E	Monitoring and Evaluation
MAO	Municipal Agricultural Officer
MARO	Municipal Agrarian Reform Office
MCA	Multi-Criteria Analysis
MENRO	Municipal Environment and Natural Resources Office
MDG	Millennium Development Goal
MDG – F	Millennium Development Goal Achievement Fund

MDG – F 1656	Strengthening the Philippines Institutional Capacity to Adapt to Climate Change
MDG – F 1656 Outcome 3.1	Enhanced Climate Change Adaptation Capacity of Contiguous Fragile Ecosystems in the Cordilleras
MLGU	Municipal Local Government Unit
MoU	Memorandum of Understanding
MPDO	Municipal Planning and Development Office
NCTL	National Component Team Leaders
RFU	Regional Field Unit
NCT	National Cooperative Testing
NEDA	National Economic and Development Authority
NGA	National Government Agency
NGO	Non-government Organization
NPCMT	National Project Component Management Team
NPSC	National Project Steering Committee
OMAG	Office of the Municipal Agriculturist
OPAG	Office of the Provincial Agriculturist
PAGASA	Philippine Atmospheric, Geophysical and Astronomical Services Administration
PENRO	Provincial Environment and Natural Resources Office
PLGU	Provincial Local Government Unit
PMC	Project Management Committee
PMO	Project Management Office
PTA	Parent – Teacher Association
RED	Regional Executive Director
ROI	Return on Investment
RPCMT	Regional Project Component Management Team
RTST	Regional Technical Support Team
SPICACC	Strengthening the Philippines Institutional Capacity to Adapt to Climate to Adapt to Climate Change
SRT	Scientifically Released Technology
SUC	State Universities and Colleges
UN	United Nations
UNDP	United Nations Development Programme
UN – Habitat	United Nations Human Settlements Programme
UPLBFI	University of the Philippines Los Baños Foundation Inc.
WHO	World Health Organization

1. Introduction

Climate change adaptation can be considered as a socio-institutional learning process. As climate change impacts will change over time, adaptation cannot be a one-off intervention. It should be understood as a flexible and iterative process. In this context, an important outcome of pilot projects for climate change adaptation is to document the process and to establish institutional mechanisms that allow all stakeholders, such as farmers, extension workers, researchers, and local government officials to collaborate more closely and in a more experimental way to allow learning and adjustments over time, as well as a fruitful encounter of local/indigenous and scientific knowledge and exchange across disciplines. Often, this will require a shift in mindset, which will not be achieved overnight. However, progress in this direction can be observed in many places of the world. Process documentation allows to systematically capture what happens in the process of change, including how it happens, to organize and disseminate the findings.

This material aims to document the processes followed in the MDG-F 1656 [1] Outcome 3.1. projects which aimed for Enhanced Climate Change Adaptation Capacity of Communities in Contiguous Fragile Ecosystems in the Cordilleras. The objective of the process documentation was two-fold: (1) capture and document different steps carried out in the project to launch community-based adaptation processes at the local level, and (2) document facilitating and hindering factors throughout the entire project in order to allow continuous learning and adjustments during the project as well as to inform future projects.

This document is structured along the main intervention areas of the project, namely capacity development, situation and vulnerability assessments, and participatory action research for the identification and monitoring and evaluation of good practices for climate change adaptation. These sections are framed by background information on the project and process recommendations for the institutionalization and upscaling of climate change adaptation processes.

[1] The MDG Achievement Fund is an international cooperation mechanism whose aim is to accelerate progress on the Millennium Development Goals (MDGs) worldwide. Established in December 2006 with a generous contribution of €528 million Euros ($US710M) from the Spanish Government to the United Nations system, the MDG-F supports national governments, local authorities and citizen organizations in their efforts to tackle poverty and inequality (www.mdgfund.org)


Philippine Sea
LUZON
CORDILLERA ADMINISTRATIVE REGION
South China Sea
VISAYAS
Sulu Sea
MINDANAO
MALAYSIA
South China Sea
APAYAO
ABRA
KALINGA
MT. PROVINCE
IFUGAO
BENGUET

2. Project Background

The project "Enhanced Climate Change Adaptation Capacity of Communities in Contiguous Fragile Ecosystems in the Cordilleras" is one of the components (Outcome 3.1) of the joint programme "Strengthening the Philippines' Institutional Capacity to Adapt to Climate Change" under the UN Millennium Development Goals thematic window on Environment and Climate Change (MDG-F 1656). This three-year project (2009 – 2012) was jointly implemented by the Department of Agriculture (DA) and the Food and Agriculture Organization (FAO) of the United Nations (UN) in partnership with different government agencies including local government units (LGUs).

The overall goal of the project was to improve climate change coping mechanisms in the Cordilleras through capacity development activities at various levels and field demonstrations of location-specific climate change adaptation (CCA) options with upscaling potential.

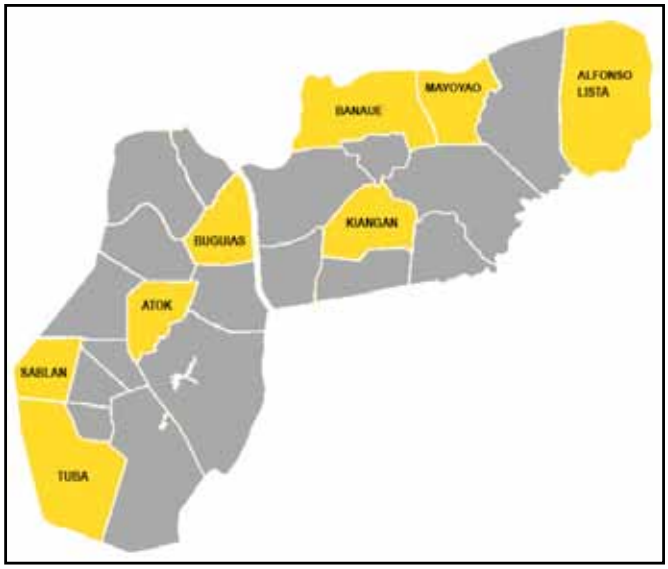
2.1 Description of Project Area

The project was implemented in two provinces (Benguet and Ifugao) in the Cordilleras—the only land-locked region in the country. The Cordillera mountain range is one of the major watersheds in northern Philippines from which many of the headwaters of major river systems originate. Normally, the seasons are not very pronounced but the climate is relatively dry from November to April and relatively wet from May to September.

The demonstration sites were located in the low, middle, and high elevation areas of Benguet and Ifugao representing agriculture and forest ecosystems. In the Cordilleras, Benguet is a representative site for vegetable-based agriculture while Ifugao is representative for rice-based agriculture.

Benguet Province

Benguet lies in the southernmost part of the Cordillera Administrative Region (CAR). It is located between 16'33" north latitude and 120'34" to 120'52" east longitude. Benguet is 256 kilometers north of Metro Manila and serves as gateway to Baguio City and to other Cordillera provinces. It is known as the "Salad Bowl of the Philippines" because of its huge production of semi-temperate vegetables cultivated at middle and high elevation areas. From its 13 municipalities, four were selected by the project to represent the low, medium, and high elevations.



The low elevation (200 – 999 meters above sea level (masl)) was represented by barangay Bayabas of the municipality of Sablan and barangay Taloy Sur of the municipality of Tuba. The medium elevation (1000-2000 masl) was represented by barangay Loo of the municipality of Buguias, while the high elevation (>2000 masl) was represented by barangay Paoay of the municipality of Atok. The demonstration sites are populated by indigenous peoples who are mostly from the Ibaloi and Kankana-ey ethno-linguistic groups.

Ifugao Province

The province of Ifugao is situated at the foot of the Cordillera Mountain Ranges and is known for its world-famous rice terraces. It is a landlocked watershed province with three major river tributaries that flow to the Magat River. These tributaries help maintain the Magat Integrated Irrigation Systems which support the fishery and rice industries of lowland Ifugao towns and the provinces of Region II. Communities in both middle and high elevation areas of Ifugao are home to rice terraces, which are on the World Heritage List. In general, the province has two types of climate; the western portion with two pronounced seasons, dry from November to April and wet for the rest of the year and the eastern portion with seasons not very pronounced but is also relatively dry from November to April and wet for the rest of the year.

The demonstration sites are located in barangay Namnama, Alfonso Lista for the low elevation, barangay Nagacadan, Kiangan for the middle elevation, and barangay Viewpoint, Banaue and barangay Bato-Alatbang, Mayaoyao for high elevation. These areas are mostly populated by indigenous peoples from the Ayangan and Tuwali ethno-linguistic groups.

2.2 Project Framework

Specifically, the project aimed to (1) develop inter-sectoral, rights-based, and gender-friendly adaptation approaches, including "no regret" options, in contiguous mountain/forest-lowland agriculture ecosystems and (2) test innovative adaptation measures/technologies for agriculture, water/watershed management including biodiversity conservation.

Through active participation and involvement of local stakeholders and agricultural producers in both training and field demonstration activities, the project identified and field-tested location-specific and appropriate options for climate change adaptation (CCA options) in the selected representative sites for low, middle and high elevations in Benguet and Ifugao. This action research approach was complemented by various other capacity development activities, assessment studies and the development of tools (see Figure 1). The generated data and knowledge was consolidated and synthesized and lessons were drawn all along the process implementation.

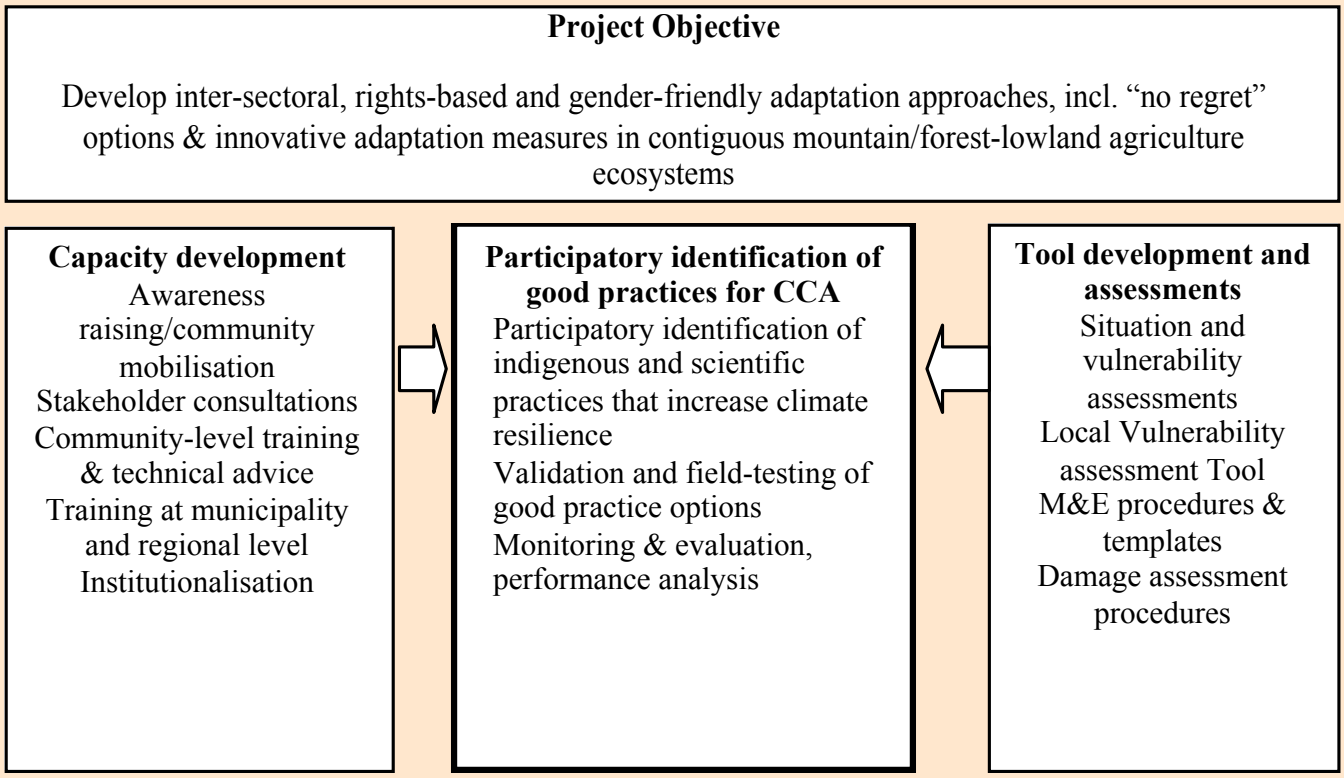


Figure 1. Relationships between project components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3. Project Implementation Arrangements

In the UN Joint Programme, responsibilities were divided among nine agencies of the Government of the Philippines and six UN agencies (see Figure 2). The Outcome 3.1 Project was carried out by the Department of Agriculture (DA) with technical backstopping from the Food and Agriculture Organization of the United Nations (FAO). The Government created a National Project Steering Committee (NPSC) with the DA Undersecretary for Operations as Chair and the FAO Representative and National Component Team Leaders (NCTL) as members. The NPSC was assisted by the National Project Component Management Team (NPCMT) consisting of national DA staff, which in turn coordinated and liaised with the Regional Project Component Management Team (RPCMT) consisting of regional DA staff from different divisions/offices. The NPCMT and RPCMT coordinated and liaised with the national and regional stakeholders including the provincial governments of Benguet and Ifugao, through the Provincial and Municipal Agricultural Offices (OPAG/OMAG) (see Figure 3). Part-time national consultants (Team Leader/Agro-ecosystems Specialist, Development Communication Specialist, Climate Change Adaptation Specialist, Agronomist/Natural Resources Specialist, Environmental Science Specialist, and Monitoring and Evaluation Specialist) and two field coordinators were hired to provide technical assistance in the various aspects of project implementation. Daily project operations were handled by a full-time Project Manager, which was put in place in spring 2010.

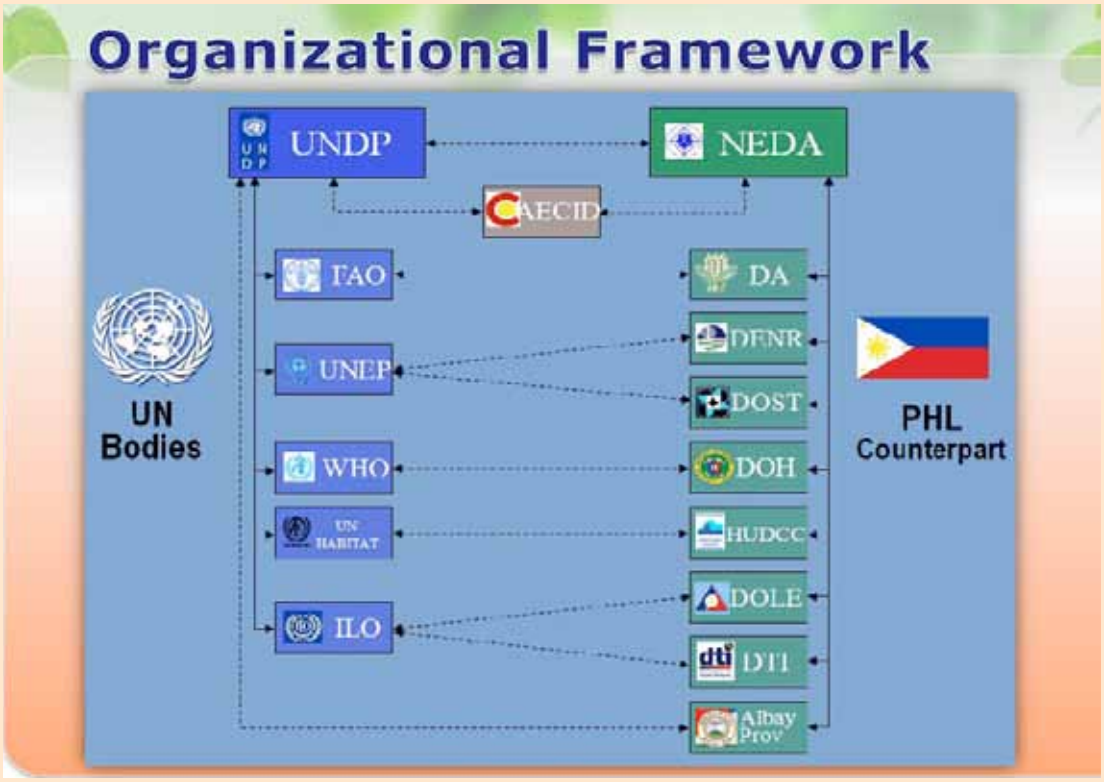

Figure 2: MDG-F 1656 organizational structure of entire UN Joint Programme

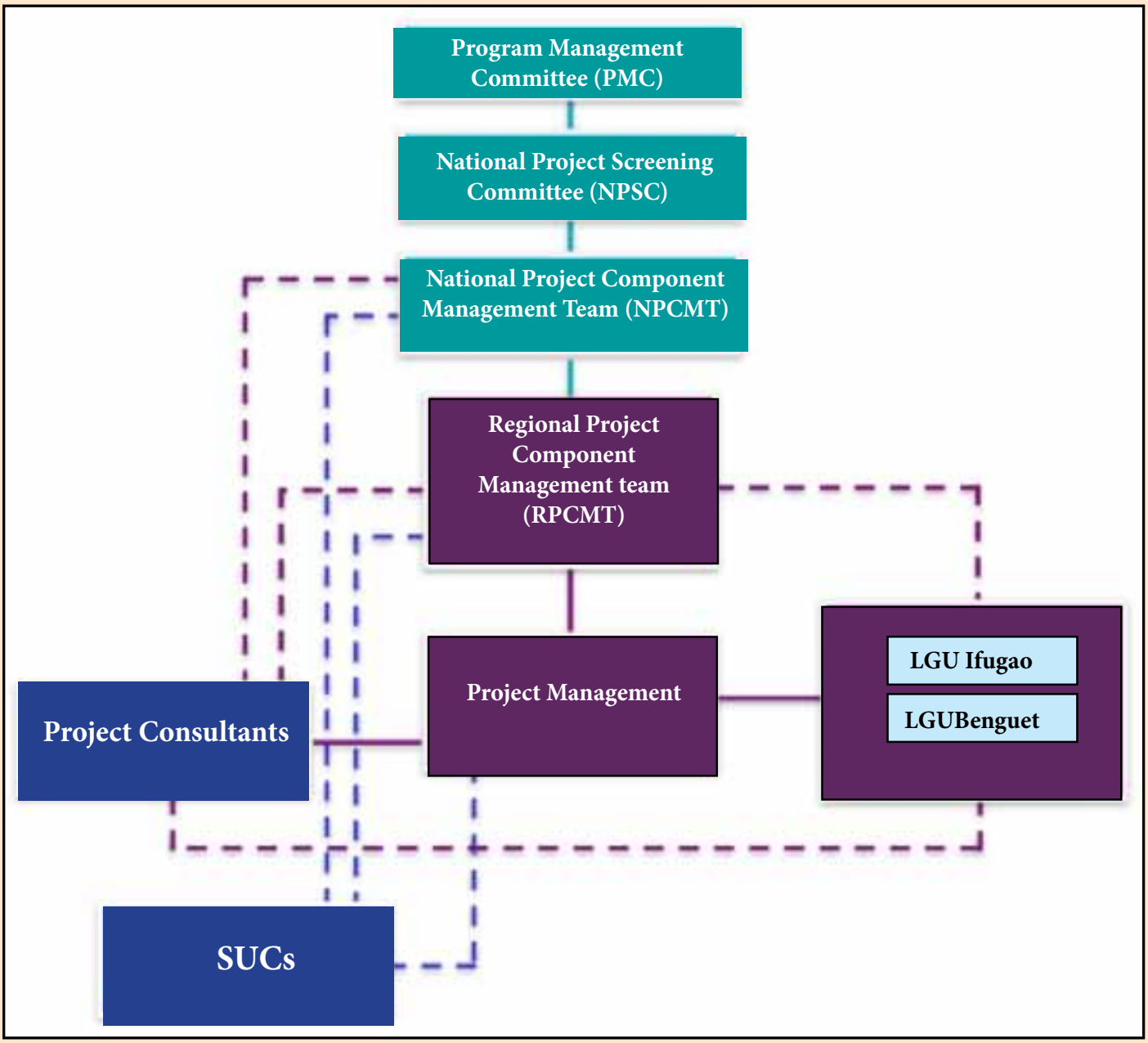

Figure 3: MDG-F 1656 Outcome 3.1 organizational structure

This large number of implementing actors and interventions – scaling from national to community level – required the establishment of effective mechanisms for stakeholder collaboration. In addition to special orders that underpinned the Project Component Management Teams, letters of agreements were signed with three state universities and colleges (SUCs), namely Benguet State Univeristy (BSU), Ifugao State University (IFSU) and University of the Philippines Los Baños Foundation Inc. (UPLBFI) Memoranda of Understanding were signed between DA-RFO-CAR and provincial local government units and the eight municipal local government units at the pilot sites to create local working groups (LWGs) at the municipal level. NGOs and National Government Agencies (NGAs) also provided support/assistance in parts of the project.

3.1 Composition and Functions of the Local Working Groups and the Pilot Demonstration Teams

Local working groups

The local working groups (LWGs) played a central role in the local identification, validation and implementation of adaptation options for each season. The LWG members represent a range of stakeholders directly involved in the project and are active contributors rather than simply observers. One LWG was launched in each project municipality after the first set of option identification and validation meetings at the barangay level. The local working group and pilot demonstration team had the following functions:

- Facilitate the conduct of the social mobilization activities, orientation meetings, community-level trainings/workshops, demonstrations, monitoring, reporting; produce extension materials to promote CCA options in the pilot sites.
- Advice and assist the pilot demonstration team in transforming CCA options into locally usable and farmer-friendly information;
- Ensure and enlist participation of local stakeholders: farmers' groups, community representatives; facilitate women's involvement.
- Review seasonal work plans of the pilot demonstration team at the municipal level and assist in coordinating the activities.
- Function as a clearing house at the municipal level for the implementation and replication of identified and successfully introduced options in broader agricultural sectors.

Monthly meetings of the LWG were conducted throughout the different project sites. These became convenient venues for community bonding and reflection on the action research activities. A typical meeting agenda consisted of the following:

- review of project progress, status of implementation of CCA options and identifying action points that need to be addressed
- distribution of inputs, if applicable
- review of climate change concepts.

Pilot demonstration teams

A subset of the local working groups, the so-called pilot demonstration team, was in charge of the day-to-day work related to the pilot demonstration of the CCA options. It consisted of the project's field coordinators, the agricultural technician(s) (AT) assigned to the barangay where the demo sites are located, and the farmer cooperators. The pilot demonstration team had the following functions:

- establish and maintain pilot demonstrations
- collect and process monitoring data from pilot demonstration sites
- prepare seasonal work plans
- report regularly to LWG on the status of field demonstrations, lessons learned and farmers' feedback.

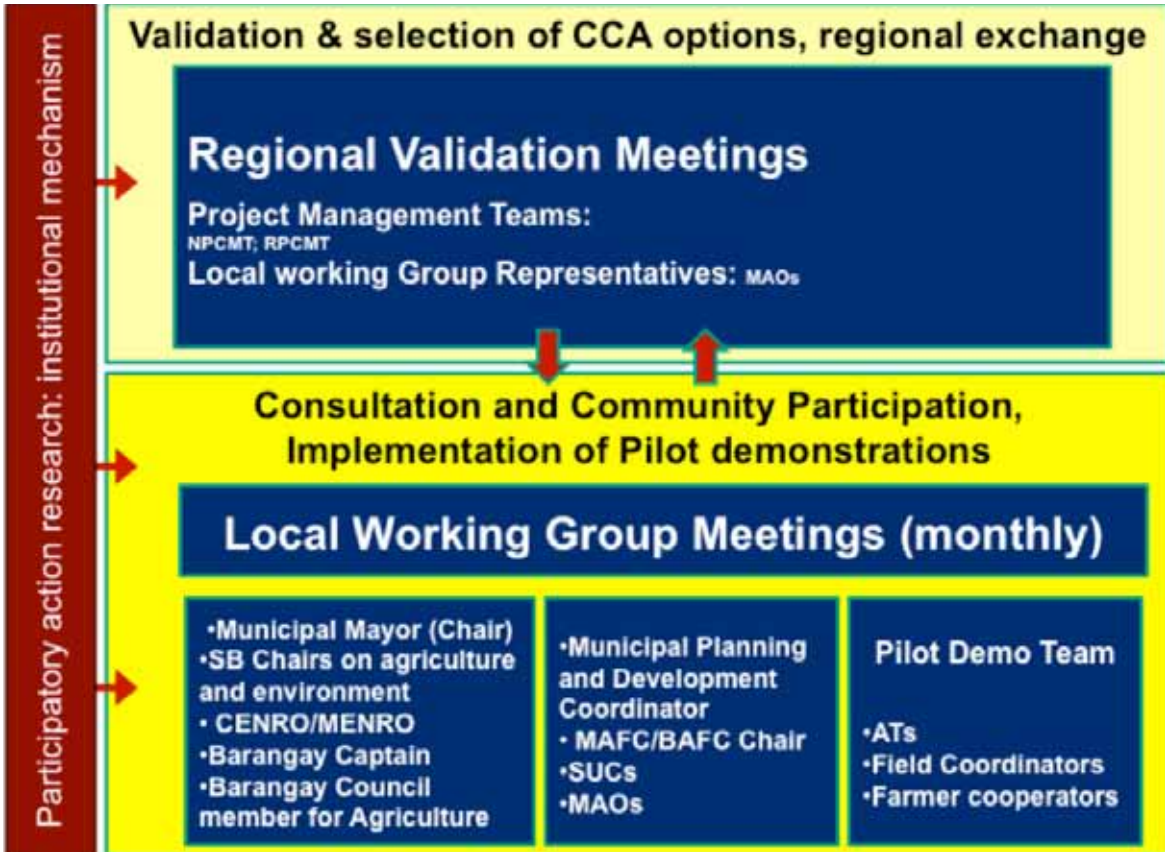

Figure 4: Institutional mechanism for participatory action research on good practices for climate change adaptation in the project

In addition to monthly local working group meetings, seasonal validation meetings at regional level allowed engagement of various other stakeholders and to bring in innovative technologies. Figure 4 summarizes the institutional mechanism for the participatory action research.

The graph also specifies a typical, flexible composition of a Local Working Group composed of government officials from the municipal and barangay levels as well as farmer representatives, project team members, and in some cases SUC representatives. The Municipal Planning and Development Coordinators were included at a later stage when their crucial role for the long-term sustainability of the intervention became more and more evident. Changes in elected local officials required continuous sensitization about the importance of the project interventions and the topic of climate change and agriculture in general.

4. Capacity Development

In the context of climate change adaptation in agriculture, capacity development describes the process through which individuals, organisations, and societies obtain, strengthen, and maintain their capabilities to set and achieve the objective to adapt their livelihoods and agricultural farming systems to climate change. Efforts go much beyond one-off training activities introduced by outsiders. Capacity development takes a longer-term perspective and seeks to capitalize on existing capacities.

4.1 Capacity Development Strategy and Approaches

The project implemented a systematic process for capacity development that was based on capacity and training needs assessment of the relevant institutions. Capacity development activities were implemented at different levels, targeting institutions from the national, regional, provincial, municipal, and barangay levels as well as individual farmers. An integrated approach was followed that aimed to strengthen capacity horizontally and vertically throughout the entire project duration. Due attention was given to gender aspects in all activities.

The project applied a mix of methods, ranging from formal training workshops to more informal farmer field schools or participatory methods such as focus group discussions (see Figure 5).

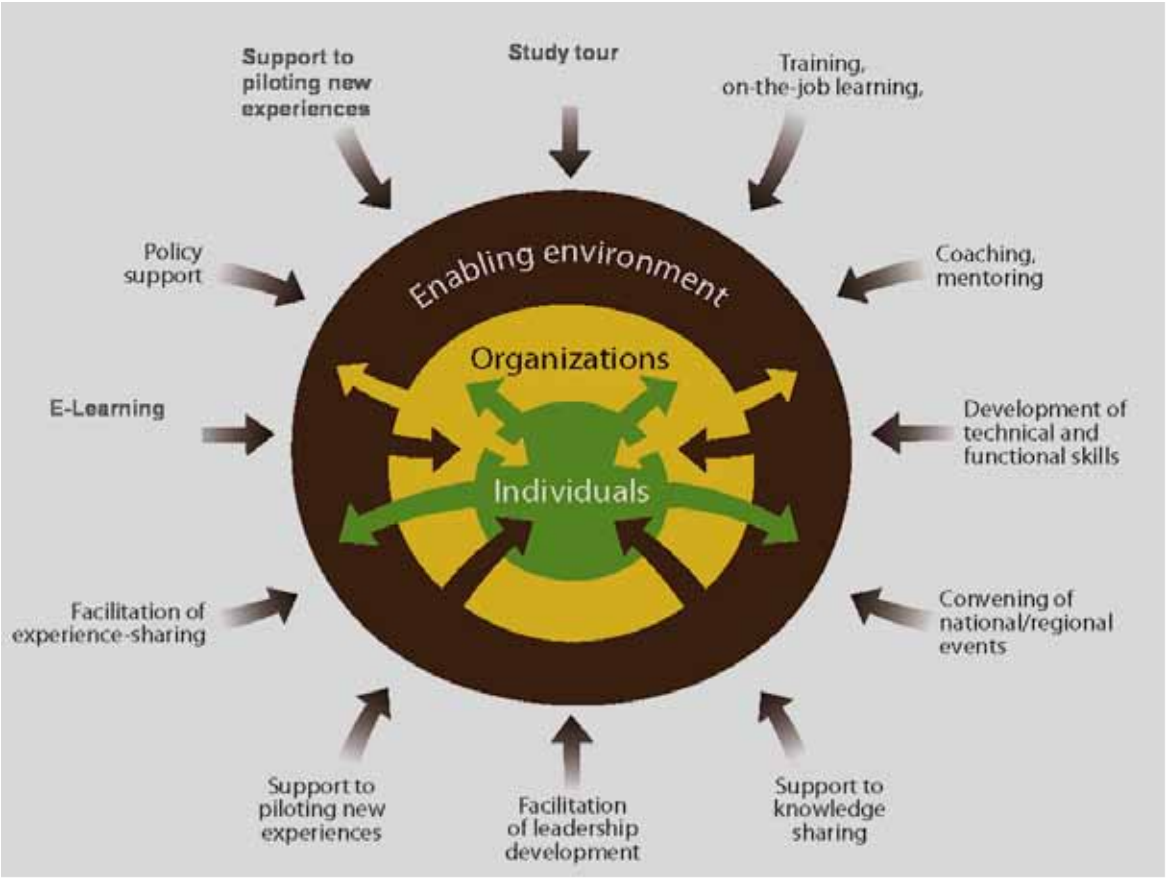

Figure 5: Methods used by the project for capacity development (modified graph from FAO 2011)

The project produced and applied a wide range of training materials and tools. These included:

- Hard copies and e-copies of lecture notes and PowerPoint presentations
- E-Learning Tool on planning community-based adaptation introduced through face to face workshops
- Field manuals and templates, e.g. data collection for field monitoring & evaluation
- Technical implementation guidelines to guide establishment and proper maintenance of field demonstrations
- Various modules for class room training: e.g on Vulnerability and Impact Assessment Tools on Agriculture; adaptation strategies and Monitoring and Evaluation of Adaptation Measures
- Farmer Field School Module on Climate Change
- Communication materials such as posters, flyers, videos
- Signages at field demo sites explaining features of the CCA option

Nearly all project interventions directly contributed to capacity development, as the project promoted climate change adaptation as a socio-institutional learning process. In this context, the participatory action research approach involving farmers, extension workers, local government units, and researchers from national and state universities encouraged learning by doing. In the following, some more details are provided regarding key components of the capacity development strategy of the project.

Capacity and training needs assessments

At the start of the MDG-F 1656 project, an assessment of the capacity of personnel from government institutions and agencies including the Department of Agriculture (DA) at the national, regional, and down to provincial levels was conducted by NEDA (2010). While Benguet province was included in the assessment, Ifugao province was not included due to extreme weather preventing their participation. Intersected with core capacities (policy, technical support, knowledge management, human resources development) the study assessed functional capacities related to multi-stakeholder dialogues, assessments, policy formulation, budget and implementation capacity, and monitoring and evaluation. At national level DA scored significantly better than agencies from other sectors indicating medium level capacities, i.e. CCA approaches are being implemented and adjusted but not yet fully integrated into the organisation. At provincial level, government capacities related to climate adaptation in agriculture are much lower, expect for the climate change adaptation pioneer province Albay.

For Benguet, average score across all implementing agencies indicated low capacities, i.e. some capacity for CCA interventions exists but it is not much used for planning and implementation. Weakest scores were obtained for monitoring and evaluation capacity. As data for Ifugao was missing, the DA-FAO project component used one of the training workshops in Ifugao to conduct a rough assessment based on a simplified version of the questionnaire used by NEDA. The results were similar to those for Benguet with slightly lower capacity scores.
More specific assessments of training needs of project stakeholders

were conducted throughout the project to adjust the training activities. A first, basic training needs assessment was conducted in April 2010 at the provincial level. The identified training topics were similar for Benguet and Ifugao and covered a wide range, from awareness campaigns for climate change, technical topics such as specific farming systems and best practices to policy issues and soft skills such as community mobilization and technical writing. In both provinces, information education campaigns (IEC) on climate change and agriculture were in highest demand. In Benguet, this topic was followed by a training for LWG members on community mobilization for climate change and a training on climate change vulnerability and risk assessment. Highest priorities matched well with the already planned formal and informal training activities of the project.

Training needs of other stakeholders at the municipal and barangay levels were assessed through various activities/venues such as workshops, local working group meetings and field visits.

Promoting learning by doing

The principle of learning by doing has been applied throughout the project, especially in the work with local stakeholders such as LGU personnel, farmers, and local communities. From the start, local stakeholders were involved in the identification and validation of good practices, contributing their local knowledge and perceptions.

A Farmers' Field Day held during the rice harvest season. Mayaoyao, Ifugao (high elevation)

The pioneering of the participatory action research approach allowed the project team to review with local stakeholders existing conventional farmers' practices including indigenous technologies and to determine how these could be upgraded and/or integrated with scientifically released agricultural technologies. Related activities at local, provincial, and regional levels included, for example (1) Workshops on Identification of Local Best Practices at barangay level, (2) Workshops for the Assessment of Adaptation Options at provincial level, and (3) Orientations on climate change at various levels.

The participating farmer-cooperators learned through the field testing of climate change adaptation options. They were taught *in-situ* by the project field coordinators and members of the regional technical support team (i.e. RPCMT) with diverse backgrounds ranging from agricultural engineering (land and water resources), agronomy, horticulture, soil science, entomology, to agricultural economics. Technical backstopping was provided by members of the national technical support team (i.e. NPCMT) and national consultants. Various one-day technical trainings on specific agricultural practices were held. Farmer's Field Days allowed farmer-cooperators and technical experts from the RCPMT to share their experiences and expertise.

Farmers' Field Days were conducted in seven out of the eight demonstration sites, the first one was held in Atok on December 22, 2010 and the last one was held in Kiangan, Ifugao on August 17, 2011. In Sablan, an expanded LWG meeting with subsequent field visit in September 2011 took the place of a Farmer Field Day as the barangay council was busy preparing for a provincial event.

During the Farmers' Field Days, non-cooperator farmers visited the farmer cooperator's site and the farmer cooperator explained how the

An Agricultural Technician closely monitoring the establishment of a CCA option in an elementary school. Atok, Benguet (high elevation)

CCA option was implemented. The field visits were culminated by a short program where the farmers shared their experiences in both planned and autonomous adaptation. For the crop production CCA options, a simple computation of Return on Investment (ROI) was carried out to help the farmers realize whether they had a good crop or not.

Capacitating local actors to plan and implement CCA interventions

The project succeeded in enhancing the capacities of the staff of the participating LGUs and government line agencies to address climate change. For example, two provincial level e-learning trainings on planning community-based adaptation to climate change in agriculture enabled participants from Benguet and Ifugao to differentiate planned adaptation from coping. The training also showed them how to design effective adaptation interventions at the community-level based on observed and expected climate variability and change and the dynamics between biophysical and socio-economic subsystems.

The increased understanding of the involved LGU staff on community-based adaptation has been demonstrated repeatedly and observed by project team members during the monthly visits to the demonstration sites. Many of the agricultural technicians (ATs) have become more cognizant of possible site-specific hazards and environmental problems such as increased surface run-off and have spearheaded discussions with the farmer-cooperator(s) on the farm activities that might have caused it and possible response measures. One example is a demonstration site in Ifugao where the adjacent steep sloped area has recently been cleared of vegetation. Without any prompting from members of the project team, the AT discussed her observation with the farmer-cooperator and in consultation with the present project team members proposed measures to address associated environmental problems. Although the purpose of the visit was to monitor the progress of a crop production CCA option, the action and initiative of the AT regarding the recently disturbed area beside the farm shows the ability of a local actor to identify a driving variable of vulnerability and facilitate a simple consultative process in which such vulnerabilities can be addressed.

Another example is the active engagement of the Municipal Agricultural Officers and Agricultural Technicians in the regular visits to the demonstration sites during the monthly LWG meetings and the monitoring and evaluation activities. These were suitable venues for extensive interaction and knowledge-transfer. The ATs were involved in the conduct of the farm household surveys and learned, hands-on, proper interviewing techniques as well as the variables needed in producing a comprehensive farm household profile including farm labor distribution, asset inventories, and social network mapping. The ATs also took part in the biophysical assessment activities conducted by the state universities where they learned to apply simplified vegetation sampling techniques (e.g. quadrats and transects) and GPS-assisted demo-site/farm perimeter and slope profiling.

Enhancing partnering capacities for CCA

The implementation of the various project activities required the active participation and cooperation of various institutions,

Installation of one of the AWS by PAGASA and fencing by the partner local government unit. Tuba, Benguet (low elevation)

agencies, academics, and stakeholders at different levels. Key actors included national and regional DA, The Philippine Atmospheric, Geophysical, and Astronomical Services Administration (PAGASA), DENR, provincial and municipal LGUs, and state universities. This required the sharing of relevant data and information, expertise, and experiences among all participating agencies and stakeholders. Thus, the project activities facilitated increased interaction and sharing of experiences and knowledge among municipal, provincial, regional, and national actors. The establishment of the automatic weather station (AWS) prompted collaboration between PAGASA, LGUs and DA. PAGASA put-up two out of the eight AWS being used in the project and beyond and provided training to project stakeholders. The project also prompted future partnerships among government agencies and academic institutions. For example, PAGASA and the DA Bureau of Soils and Water Management (BSWM) will be collaborating in a Water Balance Analysis project in which PAGASA will provide the data and BSWM the Water Balance Analysis tool.

The commissioning of the biophysical characterization and socio-economic profiling sub-components to Benguet State University (BSU) and Ifugao State University (IFSU) and the Simplified Vulnerability Assessment Tools to the University of the Philippines Los Baños Foundation Inc. (UPLBFI) paved the way for increased interactions with DA, PAGASA, DENR and LGUs. Data gathering activities of these three universities at the municipal and barangay levels were carried out with the help of the LGUs while other data were obtained from DA, PAGASA and DENR.

In addition, the project did not only facilitate knowledge exchange between these different stakeholder groups but also within their respective institutions. For example, state universities such as BSU, IFSU, and UPLBFI set up new multi-disciplinary climate change teams to conduct the assessment studies commissioned to them by the project. At IFSU and BSU, the studies helped to kick-start own climate change activities. At DA-CAR, the formation of the RPCMT can be considered as the first effort of the organisation to create a team of climate change experts which itself benefitted as trainees as well as trainers. The members of the RPCMT or also referred to as Regional Technical Support Team (RTST) will continue to work on climate change issues beyond the duration of the project.

Women farmer-cooperators actively participating in a technical training conducted by the project. Alfonso Lista, Ifugao (low elevation)

Gender considerations

The project put considerable efforts into capacitizing both gender. While strong women's participation was inherent in the field demonstrations, the project team ensured that gender aspects were considered in all project interventions. These included selection of farmer cooperators, selection of participants in capacity development activities, interview/survey design of assessment studies of state universities and Monitoring and Evaluation design. A healthy gender mix was observed in all activities. About 45% of training participants were female. At the community level or barangay level trainings, 50% of the participants were female, while at the higher level (regional, provincial, municipal) 33% of participants were female. One example of successful women involvement is the case of Mayayao, Ifugao, where the relatively 'weak' barangay council posed concerns regarding successful field-testing of GP CCA Options. However, the existence and engagement of a strong women's organization enabled successful pilot-demonstration activities.

Elisia Alilis helping another farmer-cooperator during the field monitoring of a CCA option in agroforestry. Tuba, Benguet (low elevation)

Several women cooperators such as Alicia Alilis of Tuba, Benguet and Gladys Tillay of Banaue, Ifugao were at the forefront of the pilot demonstrations. Their farm households served as ideal models for healthy and equitable male and female farming relations. It was observed that women play a key role in the formation of informal safety nets and ensuring food security at the farm household level because they carry out various activities that contribute to adaptation and reduce risks from environmental and economic shocks such as homestead gardening, planting of different crops in abandoned farm lots, and raising of livestock.

4.2 Capacity Development Themes

The capacity development activities of the project focused on the following thematic areas:

Increased knowledge on climate change, its impacts and adaptation options

The training activities, workshops and seminars for different stakeholders at different levels covered the nature and causes of climate change, its manifestations in terms climatic variability, changes in rainfall pattern and distribution, more frequent and intense extreme climatic events such as typhoons, floods and droughts. Other topics covered included the impacts of climate change on agriculture, forestry, fisheries, and potential adaptation options.

Enhanced planning capacity for adaptation interventions at municipality and regional levels

Activities included, for example, classroom training on planning community-based adaptation to climate change as well as hands-on coaching as part of the participatory action research. Exit and follow-up strategies for the end of the project were discussed at several occasions. The project also enabled the participation of government officials in national and international events, namely the LGU summit on climate change and the Asia Pacific Climate Change adaptation forum.

Workshops for mainstreaming climate change adaptation into agricultural plans for LGUs were carried out through a Letter of Agreement with DA-CAR. The workshops covered climate change and disaster risk reduction concepts, community-based vulnerability assessment, crop damage assessment, the design of agricultural development activities/projects through a CCA and DRR lens and their integration into local development plans and instruments. The training activities linked to the the Simplified Science-Indigenous Knowledge-Based Vulnerability Assessment Tool and the identification and evaluation of Adaptation Strategies also contributed to enhanced planning capacities.

Enhanced data management for climate change monitoring and planning

Training activities addressed collection, monitoring, and analysis of data and information for adaptation planning. Data included weather data as well as other biophysical and socioeconomic information. As an example, agricultural technicians were trained on how to operate and maintain the Automatic Weather Stations installed by the project and PAGASA as well as how to process raw data and carry out simple weather data interpretations. Several informal training activities were carried out related to the monitoring of the field demonstrations and by the teams of the state universities to support data collection during the situation and vulnerability assessment studies.

Enhanced local capacities for farm-level implementation of CCA options

Technical trainings held at the community (barangay) level included: Homestead Gardening, Livestock Production, Composting Using Trichoderma, Seed Potato Production, Forest Enrichment, Highland Rice Production, Crop Propagation, and Integrated Pest Management.

Annex 1 summarizes key training and learning activities implemented by the project and provides further details on the number and gender distribution for each event. The total number of participants in training events of minimum one day duration sums up to more than 2000. Due to frequent trainings for the local working groups, the actual number of individuals is lower but still considerable for a pilot project which that due to its experimental nature and innovative focus on climate change, manifests its results in quality rather than quantity.

5. Situation Assessment and Development of Vulnerability Tools

To facilitate the identification and field-testing of CCA options, three universities (BSU, IFSU, UPLBFI) were commissioned to carry out situational assessments and develop simplified vulnerability assessment tools. The outputs from these three studies informed the participatory action research, including the identification, establishment, and evaluation of the good practices for CCA. Moreover, these outputs serve as important references for current and future studies and projects.

Further details on the methodology and results can be found in the BSU, IFSU and UPLBFI reports.

5.1 Biophysical Characterization and Socio-economic Profiling for Benguet and Ifugao

The biophysical characterization included the use of mostly secondary data to produce a topographic and land-use map, conduct soil characterization, assess biodiversity, water resources, and hydro-meteorology. The agro socio-economic profiling included agro-economic profiling (gender, poverty level and demography), agro-based livelihood profiling, and identification of issues, gaps, and constraints.

In addition, the situation assessments gathered information on the awareness, local knowledge and observations of the pilot communities on climate change and their coping strategies. These findings were further expanded in the vulnerability assessment study, which also assessed local perceptions and coping strategies on climate change, but did not only interview people from the eight pilot barangays, but also from other barangays in the selected municipalities as well as other municipalities in the two provinces.

The municipalities in Benguet and Ifugao were grouped into three elevation classes (low, medium, and high) and municipalities representing the different elevation classes were selected as study sites. In Benguet, Tuba, and Sablan represented low elevation, Bugias medium elevation and Atok high elevation. In Ifugao, Alfonso Lista represented low elevation, Kiangan medium elevation, and Mayayao and Banaue high elevation. One barangay per municipality was then selected as pilot site.

The biophysical characterizations for both provinces were based on secondary and primary data, and covered:

Climate - Data was obtained from PAGASA weather stations as well as from different university-based agro-meteorological stations.

Land-use, Topography and Hazards - Base maps and topographic maps were obtained from the Cordillera Highland Agricultural Resource Management Project (CHARM), government agencies, and academic institutions. These were updated through field verification and Geographic Information System was used as the platform in analyzing and/or presenting the different data gathered by the two universities. Detailed local hazard maps were prepared for the pilot communities in Benguet.

Soil – Secondary data was collected from the provincial and municipal agricultural offices and on-going researches in both state universities. Soil samples were collected from the biodiversity plots and farm lots from the different project sites. Analyzed parameters include pH, organic matter, potassium, and others.

Water Resources – Water sources for agriculture were determined through interviews. Volume and water analysis was not conducted due to the short study period.

• **Biodiversity** – Plots for different vegetation types (e.g. pine forest, mossy forest, second growth, and brushland areas)

were established. A vegetation inventory was carried out and biodiversity was analyzed using accepted methods and indices. Wildlife was determined through interviews. The newly established biodiversity plots will be maintained by BSU and serve as a baseline for future studies on how climate change and other factors affect biodiversity.

Agriculture and Livestock – Data on agricultural crops and livestock were determined through interviews and secondary data.

The socio-economic profiling was carried out using a variety of methods and tools including household surveys, focus group discussions and key informant interviews. In Benguet, the household survey covered 243 respondents from the four pilot communities/ barangays. In Ifugao, the socioeconomic survey targeted at least 60% of the household population from the four pilot communities, summing up to 580 respondents. The survey design included random sampling, pre-testing of the questionnaires as well as translation of the questions into local dialects. Focus group discussions, key informant interviews etc. informed the design and/or validation of the survey results.

At a later stage, the biophysical and socio-economic data gathered by BSU and IFSU were supplemented with demonstration site-specific

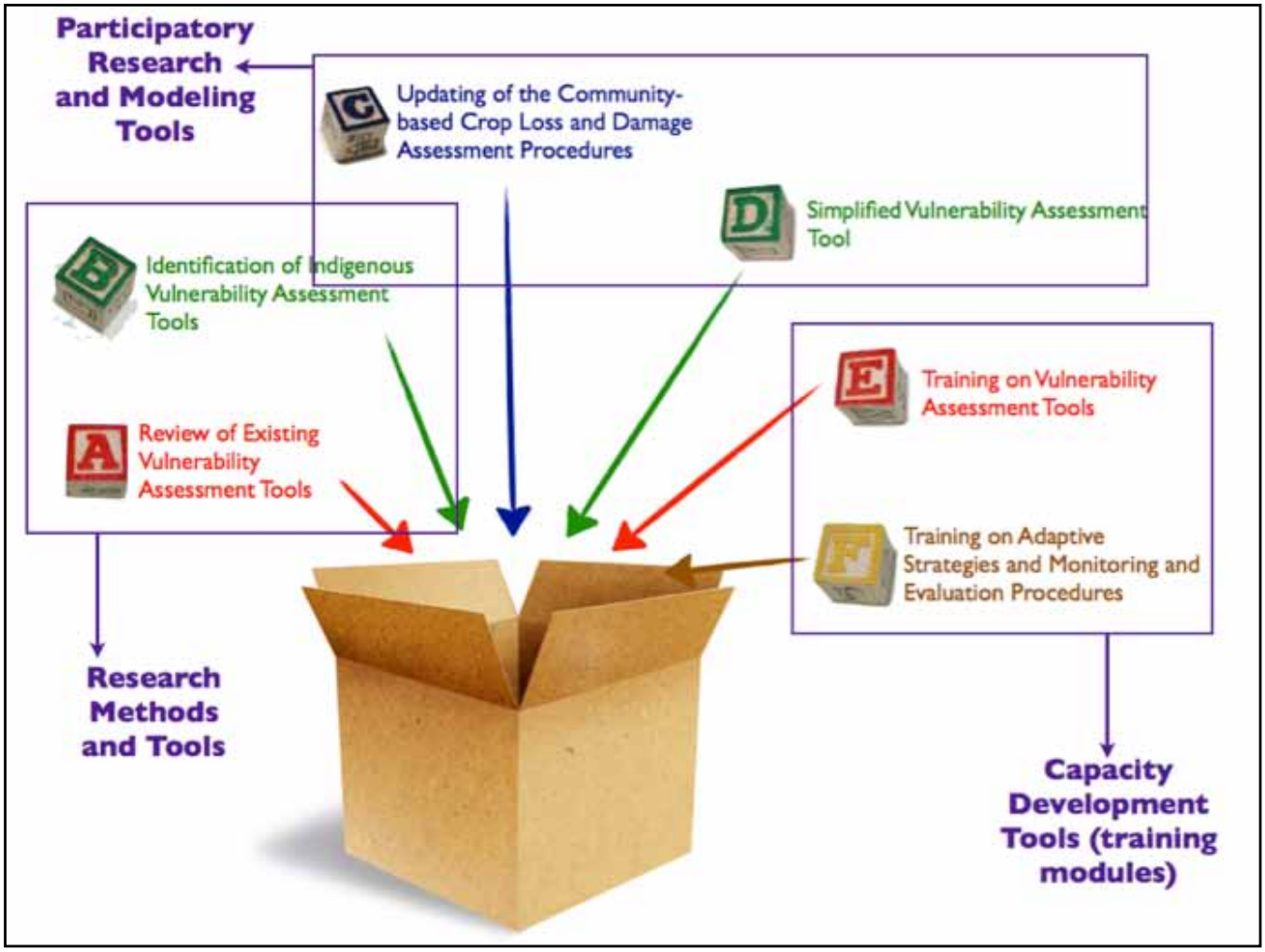

Figure 6: Components of study for development of vulnerability assessment tools

5.2 Development of a Vulnerability Assessment Tool for the Agricultural Sector of Benguet and Ifugao

Assessments of current and future vulnerability of agricultural communities to climate change are vital for adaptation planning. This requires a set of tools that allows to link local information and national level scientific information, such as national climate change scenarios. The UPLBFI team employed a number of methods and approaches to combine indigenous knowledge with current-science based tools (see Figure 6).

The multi-component study started with a review of available science-based vulnerability and adaptive capacity assessment tools to ensure reference and alignment with existing methodologies on vulnerability assessment.

Making pingkol or mounds composed of decaying rice stalks to plant vegetables during fallow period is an indigenous practice of composting farm residues. Kiangan, Ifugao (medium elevation)

The relevant factors and procedures identified during the review were integrated to form one Vulnerability Assessment Tool: Agricultural System Vulnerability and Adaptive Capacity Assessment (AgSys-VACA). The tool draws from a wide array of qualitative data gathering tools that investigates an area's biophysical characteristics as well as the local community's exposure, sensitivity, and adaptive capacity to different hazards.

The study involved the identification of Indigenous Knowledge-based vulnerability and adaptive capacity assessment tools in Benguet and Ifugao, which were based on several generations of farming experience and knowledge in upland tribal communities. This component could build on the findings from the assessment studies from BSU and IFSU in the pilot communities but studied vulnerabilities and adaptation strategies in-depth and within a larger geographical area.

The integrated, simplified science-indigenous knowledge-based vulnerability assessment tool (AgSys-VACA) for upland communities of Benguet and Ifugao served as an easy to follow guide for identifying vulnerable agricultural areas. It was pilot-tested in several barangays.

As a contribution to methodology and tool development, the optimal future cropping calendars for corn and rice were constructed based on different methods linked to rainfall and/or yield probabilities. The study also validated and updated the community-based Crop Loss and Damage Assessment Models of the Department of Agriculture in Benguet and Ifugao. This component proposed a more comprehensive evaluation of climate-change related impacts. Although the direct application of the tools may not be possible as they did not yet provide reliable results due to large data gaps, the tools will be useful once more complete and reliable data (e.g. weather and genetic coefficients) is available.

6. Participatory Identification of Good Practice Options for CCA

This chapter describes some of the key elements of the participatory action research approach, namely (1) criteria setting for selection of potential CCA options and farmer cooperators, (2) the key components of the field-testing of the CCA options and (3) the preparation of technical implementation guidelines.

6.1 Criteria Setting for Selection of Potential CCA Options and Farmer Cooperators

At the beginning of the project criteria for the validation of potential good practice options for CCA were defined through a series of workshops attended by the NPCMT, RPCMT and project staff,. These are as follows (bracket indicate weighting factors):

A. Increase climate resilience (15%)
B. Socio-economic efficiency (15%)
C. Positive environment impact (15%)
D. Sustainability (15%)
E. Social and cultural acceptance (10%)
F. Potential for upscaling (10%)
G. Immediate impact/response to urgent needs (10%)
H. Promote participation and equal access to men/women (10%)

These criteria were then presented for validation to the members of the local working groups including municipal agriculturists and technicians, barangay officials and prospective farmer cooperators, before the start of field-testing. At the end of the project pilot-testing phase of the good practice CCA options, in December 2011, the above criteria were again presented to the local working groups and the LWG members were asked to rate the criteria with respect to the different good practice CCA options that were field-tested in their respective barangays/municipalities. Arrangements or mechanisms on how to continue the implementation and promote the adoption of the field-tested good practice CCA options were also discussed as part of these hand-over workshops.

Prior to field-testing, criteria for selection of farmer cooperators were defined during a series of meetings held in all eight municipalities (one host barangay per municipality). These meetings were attended by members of the project team (RPCMT, project manager, field coordinators, and consultants), municipal agricultural officers and agricultural technicians, and barangay officials. The meetings started with a review of basic climate change concepts that was followed by the presentation of the identified CCA options (refer to section 6.1 for the process) with clear and simplified explanations on why or how these can promote adaptation to climate change.

The criteria include the following:

- the farmer cooperator must be willing to share a portion of the whole farm for the pilot demonstration;
- the farmer cooperator must be willing to provide labor as counterpart to the pilot demonstration;
- the farmer cooperator must be receptive to the various aspects of the CCA Option to be field-tested; he/she must also be willing to share experiences with other farmers;
- the farmer cooperator must be willing to provide materials/ facility required by the option (e.g. housing for livestock) and must also have some knowledge about the option;
- as much as possible, the farmer cooperator must not be a beneficiary of previous/other on-going projects in the area;
- the farm to be used is accessible for extension and M&E activities; and
- where meaningful, gender balance should be observed in all demo sites.

6.2 Field-testing of Good Practice Options for CCA

The activities undertaken for the pilot demonstration include the following: (1) consultations for identification, validation and selection of good practice options at multiple levels, (2) procurement and establishment of options, (3) monitoring of option implementation and (4) end of season assessment (see Figure 7).

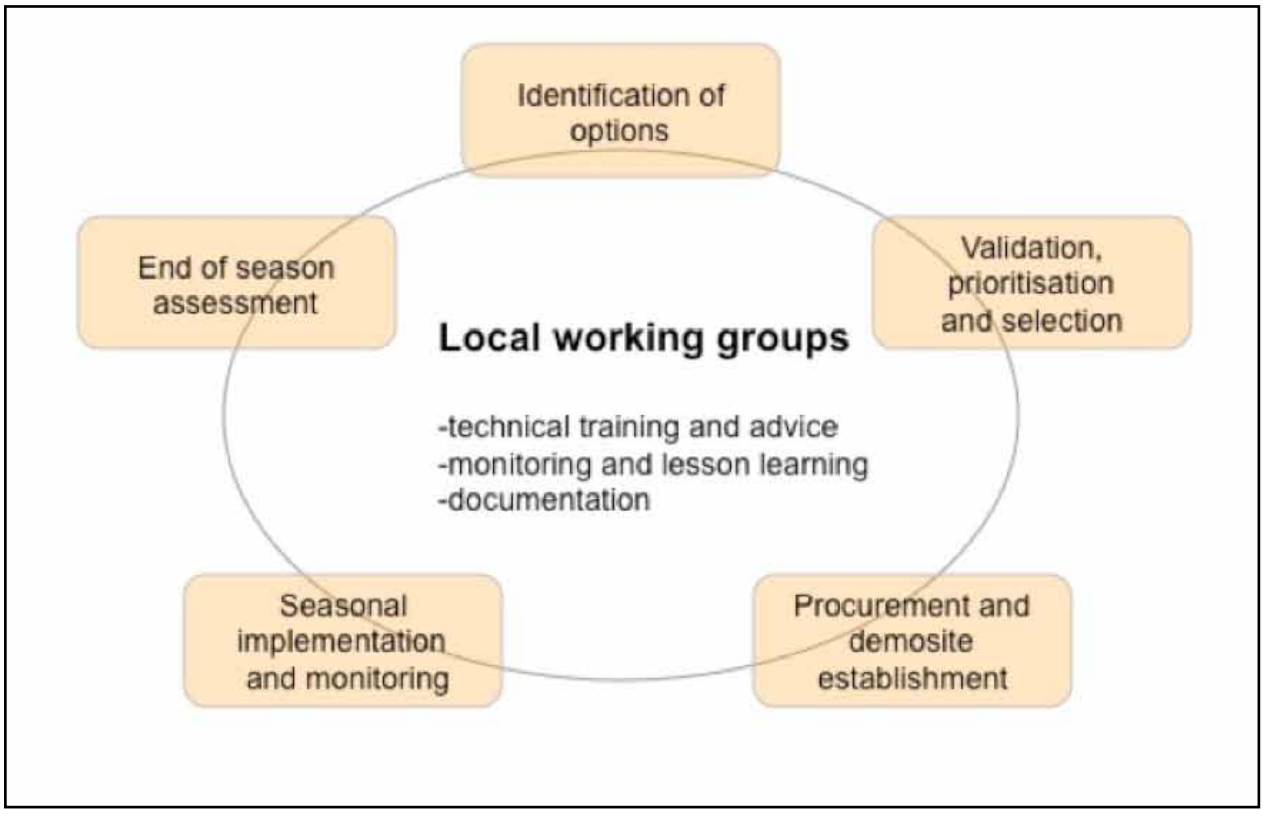

Figure 7: Steps of implementation of field demonstration (seasonal options and long-term options)

Consultation process for option identification and validation at multiple levels

The identification of potential CCA options was initiated through a series of workshops conducted in all eight municipalities in March 2010. The objectives of the workshop included (1) familiarization of the participants with the project; (2) familiarization of the participants with climate change concepts; and (3) identification of local good farmers' practices in agriculture and natural resources management relevant to climate change adaptation. In total 304 participants (153 men and 151 women) attended these workshops. Participants consisted of representatives from the Municipal LGUs, Municipal Agricultural Office, provincial and municipal offices of DENR, state universities, barangay officials, and selected farmers. The workshops were facilitated by members of the RPCMT and supported by the consultants and field coordinators.

During the workshops, the participants discussed at length locally observed impacts of climate variability and change on their farming as well as the perceived causes and possible solutions or measures to cope with the observed impacts. Community-observed manifestations included drought, longer rainfall periods, stronger typhoons, and increases in temperature. Identified local causes for the degradation of natural resources included deforestation, forest burning, improper waste disposal, and excessive agro-chemical use. As for possible solutions or measures to cope with the observed impacts, each municipality came up with its list of alternatives, most of which considered by the participants as 'good farmers' practices'.

A subsequent workshop was conducted at the regional level in April 2010 to validate the identified options and prioritize these for pilot testing. The workshop also served as a venue for the signing of the Memoranda of Understanding (MoU) with each of the Municipal LGUs, showing the commitment of the local chief executives to support the project. The validation process started with a review of the good farmers' practices identified at the barangay level. These were then modified to qualify as a CCA option. Then, the identified options for each municipality were scored based on the criteria listed in the previous section. The scoring helped trigger discussions about the expected benefits of each option and was complemented with qualitative discussions. As a result, about five CCA options were prioritized for each demo site, three of them to be implemented during the wet season and two for the dry season. It should be noted that while CCA options were identified based on wet and dry cropping seasons, some of the CCA options included in the list were also classified as wet and dry being long-term options, such as

agro-forestry, forest enrichment, nurseries and livestock.

The validated, prioritized list was presented during local level meetings with the barangay councils and farmers for their concurrence held in July 2010. After a brief review of basic climate change concepts the CCA options were presented with clear explanations as to why they were considered as options for climate change adaptation.

Other matters agreed upon during the meeting include schedules for establishment of the options as well as procurement and delivery of inputs needed for the field-testing of options. Farmer cooperators were selected based on the set of criteria presented in the previous section.

This cycle of meetings for the identification and validation of the potential CCA options was repeated every season, every time adjusting and expanding the potential list of options for field testing. Validation meetings at the regional level remained formal events, allowing exchange between the MAOs, RPCMT, and project staff once per season and to identify new, more innovative options. In contrast, option identification and validation at the municipal and barangay levels became an integral part of the monthly local working group meetings and informal meetings among project stakeholders.

As the list of CCA options grew rapidly, there was a need to group similar options to facilitate communication. Therefore, in 2011, the CCA options were re-classified into five main categories, namely: agro-forestry and forest enrichment, crop production, livestock production, small-scale agricultural infrastructure, and soil and water management. Further, the set of criteria and indicator for pre-validation and monitoring and evaluation evolved over time. For example, in 2010 there was only one aggregated indicator for scoring contribution to climate resilience. In 2011, this indicator was differentiated into (1) capacity to address slow on-setting climate change impacts (such as increasing average temperature, shifts in distribution of pests and diseases); (2) reducing risk and impact of climate variability and extreme weather events (and other hazards); and (3) enhanced livelihood security (e.g. through increased income from livelihood diversification). These are discussed in detail in the compendium of Good Practice CCA Options.

Calves distributed for livestock CCA options. Tuba, Benguet (low elevation)

Procurement of inputs and materials needed for the establishment of the CCA options

The different kinds, volume and quality of inputs to be used in the establishment of the selected CCA options were discussed and agreed upon during the validation meetings. Arrangements for the distribution of inputs and schedule of deliveries were finalized. Subsequently, a procurement plan was prepared and submitted to the consultants for review and endorsement to DA and FAO for approval. Subsequent procurement was reviewed by the RPCMT and approved by the consultants. Procurement became a regular part of the agenda of the LWG meetings during the first three months of establishment and field-testing of the CCA options.

The agricultural inputs procured for the pilot demonstrations include: rice and vegetable seeds; fruit and forest tree seedlings; 70 day old calves, young goats, 45 day old piglets, chicks and ducklings; starter feeds for the livestock; tilapia and dojo fingerlings; construction materials for

greenhouse, composting shed, fruit and forest tree nurseries; concrete water tanks and for rehabilitation of irrigation canals; plastic water tanks, and organic fertilizers. Pesticides were not provided.

In addition, six Automatic Weather Stations (AWS were purchased and installed in six municipalities for environmental monitoring. PAGASA complemented the project's efforts by installing AWS in Banaue and Atok.

Procurement challenges encountered:

1. Not all the desired inputs could be found within the locality, which then required purchase of inputs from other areas as far as Metro Manila.

2. In some cases, the needed supply of required inputs could not be met, e.g. seed potatoes for the dry season were not sufficient to cover all the areas identified for potato production, one of the crop production CCA option.

3. Inputs bought did not always meet the specifications of the CCA options and had to be returned and replaced.

4. Although the inputs were delivered as scheduled, some farms were not yet ready, resulting in unused and wasted inputs.

5. Transporting the inputs from the source/supplier to the demo sites was difficult in some areas. For instance, the dojo fish, ducks, and chickens delivered to Mayoyao had high mortalities due to improper handling during transit.

Establishment of the CCA options

The establishment of CCA options per demonstration site was coordinated and supervised by the field coordinators and the Municipal Agricultural Officers. The pilot demonstration team inspected the farmers' plots before delivery of the inputs.

The number of farmer cooperators varied considerably between categories of options. Many options were managed by individual farmers, others by a group of people or members of an association. For the crop production and most of the forest enrichment CCA options, the average size of the demo plot was 500 to 1,000 sq. meters and the number of farmer cooperators, five to ten. Exceptions include the Agro-forestry options, which had one farmer cooperator each.

Construction of water storage tank for vegetable production. Buguias, Benguet (medium elevation)

For cattle and swine production, one head was given per farmer while two heads per farmer was provided under goat production. Five heads per farmer were given under poultry production. For cattle and swine, the livestock dispersal scheme of the MLGUs was followed, i.e. one offspring from the original stock will be dispersed to a second-in-line beneficiary. This was one approach to sustaining the livestock option.

There were a number of options in which the community was the beneficiary. These include the seed potato production greenhouse and composting shed in Loo, Buguias, fruit and forest tree nurseries, a number of small-scale irrigation facilities, and the micro-tillers to be used by rice farmers in their land preparation activities.

For the planting of heavy rainfall tolerant carrot variety in Atok, Benguet the farmer cooperator was the Parent Teachers Association (PTA) of the Chelo Haight Elementary School (CHES). The piloting was conducted at the sloping backyard of the school. Forty-five lemon seedlings were planted at the fringes of the carrot garden as a means for slope protection. At the height of the crop's growth, a strong typhoon (Typhoon Juan) hit the area causing crop damages. However, the crop survived the typhoon and a good crop was harvested in early December 2010. Proceeds of the sales went to the PTA fund where part of it was allocated for the next planting.

In total, 25 different CCA options have been implemented in 94 demonstration sites (41 in Benguet and 53 in Ifugao), directly benefitting 506 farmer cooperators. Of the total beneficiaries, 274 are men (55%) and 232 are women (45%). Not all of these options were included in the compendium of CCA options, as some of them did not perform well on farmers field. In terms of elevation, 40 demonstration sites were put up in high elevation areas (Atok, Banaue and Mayoyao); 23 in medium elevation (Buguias, Kiangan), and 31 in low elevation (Alfonso Lista, Sablan and Tuba). In terms of cropping seasons, 18 sites were established for the wet season, 48 sites for the dry season, and 28 sites for long-term options (i.e., wet and dry seasons).

A field coordinator coaching a farmer-cooperator about proper grafting procedure. Sablan, Benguet (low elevation)

Together with the establishment of the options a pre-implementation training and hands-on in-situ coaching of the farmer cooperators was conducted. These trainings covered the following CCA options: livestock, early transplanting of rice, forest enrichment (coffee, rambutan, citrus, bamboo), agro-forestry, organic banana, homestead gardening, apiculture, organic vegetable farming and composting, seed potato production, and nursery management.

To facilitate the introduction of the CCA Options, a season-long Farmers' Field School (FFS) on Integrated Pest Management was implemented in Atok. The training programs and on-site coaching were conducted to improve farmers' practices and when applicable, integrate science-based technologies. The FFS also served as a venue for introducing the following CCA options: a) planting of Ks Kuroda carrot and Lucky Ball cabbage as varieties resistant to heavy rainfall and associated diseases; b) crop rotation; and c) integrating citrus in vegetable farms. The resource persons during the trainings came from the project team (RPCMT and field coordinators), BPI, BSU, Offices of the Provincial and Municipal Agriculturists, PhilRice, Isabela State University and CORDEV (an NGO). The training sessions usually were one to two days long, the barangay halls served as the venue.

Seasonal monitoring of implementation of CCA options

Monitoring of the implementation of the CCA options was undertaken regularly by the field coordinators, RPCMT members, and municipal agricultural technicians. At the project level, the field coordinators used template monitoring sheets to record observations and recommendations. At the farmer cooperators level, the farmers were asked to fill out monitoring sheets to record the activities they undertook in implementing their respective CCA options. At the end of each season, a comprehensive assessment was carried out by the project team based on the gathered data and in consultation with members of the local working group. More information about the data

6.3 Preparation of Implementation Manual and Technical Guidelines

The field coordinators and RPCMT members drafted an implementation manual containing the step by step implementation process, starting with the validation of CCA options and selection of farmer cooperators, field-testing of good practice CCA options based on technical guidelines, and up to the monitoring of the CCA options.

The field-testing of good practice CCA options was underpinned by technical guidelines that served as reference in setting up the selected CCA options, specifying the objective and specific features of each option. The first draft of the technical guidelines was presented early July 2010. These were then updated and expanded by the RPCMT and project staff on a seasonal basis with the inputs from the stakeholder consultations. The final set of technical guidelines was included as Annex in the good practice compendium to guide future adopters of the good practice CCA options.

7. Monitoring and Evaluation of Good Practice Options for CCA

This section provides an overview of the procedure carried out to monitor and evaluate the performance and benefits of the good practice CCA options after establishment of the demonstration sites. Details about the M&E methodology can be found in the Manual on Field Monitoring and Evaluation of CCA options, which was published by the project.

7.1 Monitoring and Evaluation Design

A participatory monitoring and evaluation process was carried out to determine the performance of the field-tested CCA options.
The M&E aimed to:

- Evaluate the ability of good practice CCA options to promote or increase resilience with reference to the following criteria: Technological Suitability, Environmental Efficiency and Effectiveness and Socio-Cultural and Economic Acceptability.
- Evaluate a) the environmental benefits of adaptation practices related to optimizing land use and b) the effects of water and soil management on agricultural production based on economic valuation.
- Estimate the present and potential economic returns on production and household income as a result of Good Practices and Technologies.
- Document the socio-cultural acceptability of locally upgraded conventional farmer's practices (LUCFP) and proven scientifically released technologies (SRT) adaptation practices.

The M&E was based on a contextual vulnerability interpretation, which takes into account the broader definition of vulnerability, including links to livelihood and other factors that define human-security. Using an ex-ante and ex-post approach, a Multi-Criteria Analysis (MCA) Framework was used to monitor and evaluate locally upgraded conventional farmers' practices (LUCFP) and scientifically released technologies (SRT) in terms of the above mentioned criteria.

Indicators under the Technological Suitability Criteria include the biophysical characteristics of the demonstration sites such as vegetation, soil, and micro-topography. For Environmental Efficiency and Effectiveness, indicators include values associated with preventing soil erosion, enhancing soil fertility, labor savings and water use. The potential of a particular CCA option to reduce or remove greenhouse gas emissions was also included. Indicators under Socio-cultural Acceptability include Economic Benefits, Return on Investment and socio-cultural acceptability.

It is important to note, however, that the M&E methodology implemented in this project is a pioneering effort and is intended to contribute to the body of knowledge on CCA Monitoring and Evaluation, which others could further test and revise. Moreover, it should be underscored that the results of the M&E are not conclusive because of the limited or short period of time for the monitoring activities (i.e. two cropping seasons).

7.2 Monitoring and Evaluation Process

A field monitoring and evaluation team was assembled and consisted of three enumerators, two field coordinators, RPCMT members (by rotation) and the Monitoring and Evaluation Specialist hired by the project. The development of the M&E instruments started with the identification of the clusters of indicators of good practices and the identification of the aggregated indicators per cluster. These indicators per cluster were identified during a series of discussions and workshops with the NPCMT, RPCMT, Project Management Staff (manager and field coordinators), and consultants.

Subsequently, a farm operations manual and the design of a rapid methodology for gathering demonstration-site specific biophysical data were prepared. The farm operations manual served as the guide in gathering most of the quantitative M&E data. In addition, an interview schedule was defined to extract the qualitative data needed for contextualizing the quantitative data. The M&E instruments were pre-tested and calibrated with a pool of local experts. To satisfy ex-post M&E requirements, the list of data needed for economic valuation was added to the interview schedule.

Data was gathered through farm surveys and scoring workshops with local stakeholders including agricultural and natural resource management experts. Additional scoring and more detailed evaluation were carried out through a series of workshops involving DA (NPCMT and RPCMT) and FAO experts.

In the following, some key components of the M & E process will be described. The actual results of the M&E are included in the Compendium of Good Practice CCA options.

Data collection

First, the evaluation technique assessed the extent to which the technical guidelines were followed in the establishment and maintenance of the CCA options. Second, the questionnaire-based survey systematically generated data on the technological suitability, environmental effectiveness, economic efficiency, and socio-cultural acceptability of the chosen options. The basis of evaluation of the adaptation options was to compare benefits of the CCA options to common farmers practice.

The operational framework of the ex-ante and ex-post scoring

When the CCA options were chosen, it was assumed that they were compliant with good practices and technologies. Some options are common farmers practices, while most introduce new innovations and techniques for farmers to deal with impacts related to climate

variability and change without trading off economic benefits with environmental concerns. This ex-ante assumption is evaluated through an ex-post evaluation of the options. A differential metrics scale from 1 to 5 was used, where 1 is the lowest and 5 the highest, with a qualitative interpretation of the acceptability of the good practices ranging from low acceptability to very high acceptability, respectively.

The Multi-Criteria Analysis (MCA) scoring technique

The scoring technique involved the following steps:

1. Processing of data from the survey and interviews
   Content analysis of farmers feedback and comments
2. Encoding the results in the scoring template
3. Guiding the panel of experts during the evaluation workshop
4. Validation of the workshop results
5. Documentation of findings

The economic valuation of the CCA options analyzed the economic benefit from the CCA options on two levels: (1) the impact of the CCA option on farm profits; and (2) the contribution of the CCA option to household income.

Details can be found in the report entitled *A Framework for Monitoring and Evaluation of Good Practice Climate Change Adaptation Options in Agriculture: M&E Design, Methods and Analysis*.

8. Institutionalisation of Climate Change Adaptation Processes and Upscaling of Good Practices for Adaptation

This chapter summarizes the efforts of the project to put in place mechanisms for the institutionalization of adaptation processes and the upscaling of good practices for CCA. Specifically, it intends to answer the following questions:

A. What mechanisms did the project put in place to institutionalize adaptation processes and what has been done to ensure their sustainability after the end of the project?

B. How did the project ensure sustainability of the implemented options (in particular long-term options) and how did it foster replication?

C. How did the project derive recommendations about the upscaling potential of identified and field-tested good practice options?

8.1 Institutionalisation of CCA Processes

Successful institutionalisation is a complex task that requires time and depends on many factors. Key institutional mechanisms that were put in place by the project included:

- the formation of local working groups at municipality level and establishment of weather stations in six project sites, underpinned by MoUs between DA-RFO-CAR and the municipal LGUs
- the formation of the regional management component team in DA-RFO-CAR (RPCMT), underpinned by special orders
- partnership with SUCs through letters of agreement
- seasonal validation meetings at regional level for option validation and lesson sharing

These mechanisms were proven to be effective in enhancing collaboration among all concerned actors at the strategic and operational levels. Therefore, DA-RFO-CAR and most municipal LGUs are highly committed to maintain these mechanisms beyond the project duration. Moreover, stakeholders are committed to continue the action research approach and to further develop some of the established mechanisms in order to make climate change adaptation an integral part of their agricultural planning and to foster replication of the recommended CCA options.

In concrete terms, a renewal of the MoUs between DA-RFO-CAR and LGUs is being planned and the RPCMT will continue to exist as DA-RFO-CAR/s climate change team after the end of the project. BSU is very keen on further expanding the collaboration with DA-RFO-CAR, LGUs and the communities. Since the letter of agreement has been already fulfilled, a MoU might be the best way to institutionalize the collaboration. DA Central Office, DA-RFO-CAR and ATI will continue the development of a climate change module for Farmer Field Schools. The project held several workshops, one with the SUCs and another one with DA-RFO-CAR, to specifically discuss exit strategies and follow-up actions beyond the project, including the setting up of a DA-RFO-CAR climate change office and the appointment of a climate change focal person via a special order.

Another important step towards institutionalisation are the mainstreaming workshops conducted in January 2012 (Benguet) and February 2012 (Ifugao) through a Letter of Agreement between FAO and DA-RFO-CAR. Entitled "Mainstreaming Disaster Risk Reduction and Climate Change Adaptation into Local Development Planning," the workshop taught provincial and municipal agricultural and planning and development officers on how to effectively integrate DRR and CCA concerns into their existing agricultural development plans, land use plans, and disaster risk reduction and management plans. Workshop modules covered: a) Climate Change and its impacts in the Cordillera region; b) Disaster Risk Reduction and Climate Change Adaptation; c) Hazard mapping and analysis of current vulnerabilities per municipality; d) Framework and policy instruments for mainstreaming DRR and CCA; e) Overview of Good Practice CCA Options field-tested in the project and recommendations for adoption and upscaling; f) How to incorporate agricultural interventions that aim to address the twin goal of DRR and CCA; and g) Presentation of revised local development plans that incorporate agricultural DRR and CCA interventions.

Upscaling of good practices

The project put in place several mechanisms to ensure the sustainability of the field-tested CCA options. These included:

- contributions of the farmer cooperators to the field-testing of options (in form of labor as well as time for meetings and monitoring)
- standard livestock dispersal scheme as promoted by DA-RFO-CAR which benefits additional farmers
- targeted technical training to farmer cooperators to ensure proper handling of more innovative options (in particular long-term options)
- technical implementation guidelines and implementation plans to ensure proper technical implementation of the option
- use of locally available planting materials etc., whenever possible
- preparation of written agreements for community-based options such as nurseries, greenhouses, and irrigation canals.

Quantitative and qualitative monitoring and evaluation efforts allowed initial conclusions regarding the up-scaling potential of the tested options. Findings have been properly documented and disseminated through technical reports and communication materials.

Community mobilization efforts such as Farmers' Field Days were useful venues to engage other farmers and encourage replication. Spontaneous replication of the field-tested CCA options was observed in several occasions. In Mayaoyao, Ifugao where Early Transplanting of Tinawon Rice was field-tested, the farmer cooperator distributed some of the seeds of the indigenous rice variety after harvest to other farmers in the barangay, who in turn planted these and also carried out early transplanting, inspired by the yield increase that they have seen in the field demonstration. Another example is the Coffee for Forest Enrichment CCA Option field-tested in Ifugao. Seeing the future economic benefits of this option, three farmers who are non-cooperators used their personal funds and requested the field coordinators to also purchase coffee seedlings for them.

9. Knowledge Management

CCA processes are knowledge intensive. Therefore knowledge management was an important part of the project and was systematically addressed throughout the entire project duration under the leadership of the consultant for Development Communication.

Knowledge management comprises a range of strategies and practices used to identify, create, distribute, and use insights and experiences. This includes factual knowledge as well as knowledge about processes. At the center is the creation of a knowledge base through a process where capturing knowledge goes hand in hand with knowledge sharing and transfer (see Figure 8). The project website hosts a significant part of the knowledge base on good practices for climate change adaptation created through the project. Acquired process knowledge was documented through the Monitoring and Evaluation Process as well as several process documentation workshops with the different project stakeholders. The process knowledge was consolidated through the implementation process report of which this section is part.

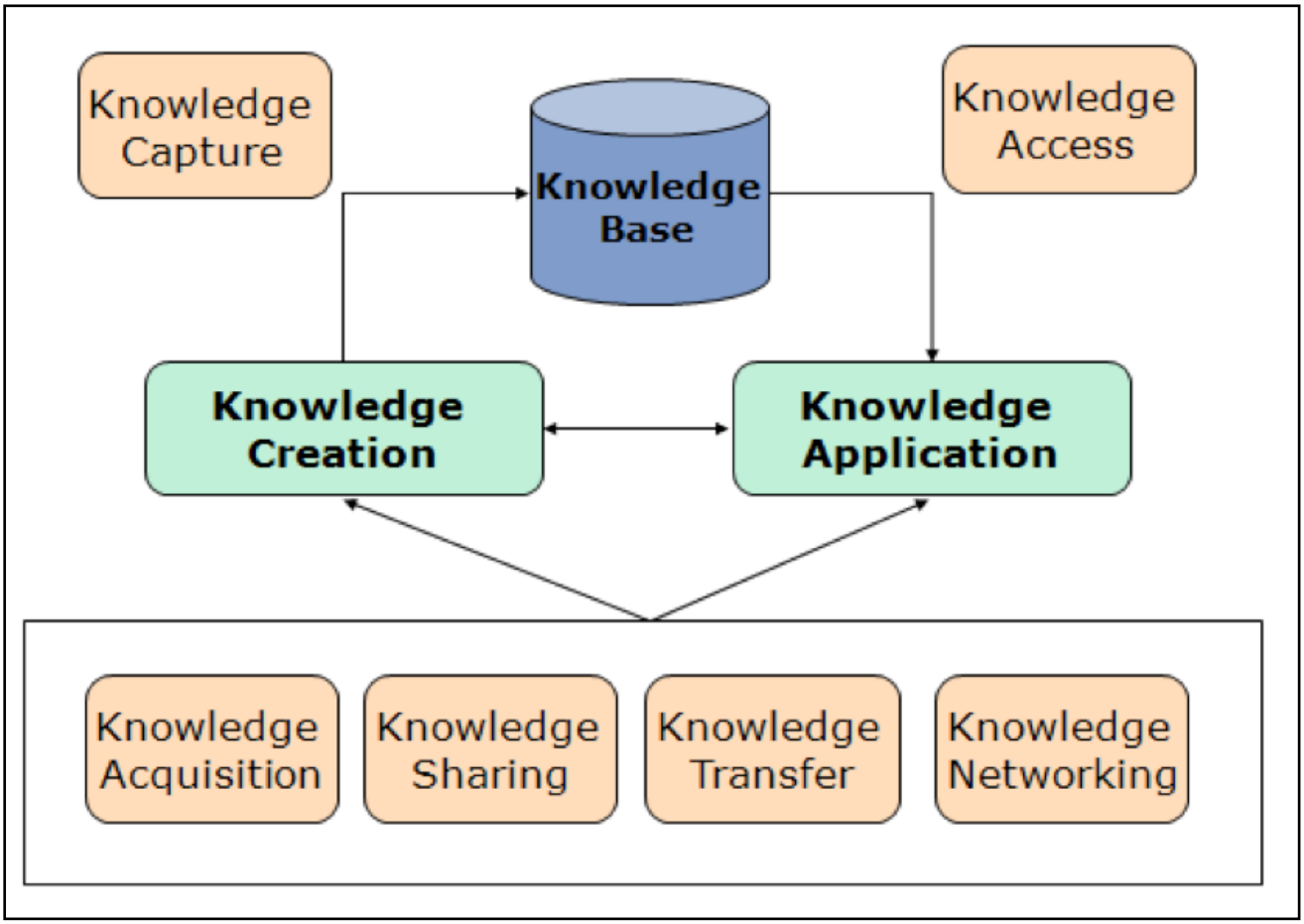

Figure 8: Framework for knowledge management (from Binesh Jose)

The various mechanisms used in the project to trigger knowledge sharing, knowledge transfer as well as learning have already been described in the capacity development section of this report. These include among others the following:

- local working groups as central vehicle for knowledge sharing and transfer
- Farmers' Field Days as a means for knowledge transfer to and exchange with other farmers
- seasonal validation meetings at various levels to capture knowledge and convert it into action

The knowledge management activities of the project allowed the systematic retrieval of lessons learned throughout the projects. Often, adjustments were made immediately.

The project produced a wide range of communication materials, including various flyers about the project and the field-tested CCA options, two videos, as well as various outreach activities through radio and press at several levels.

10. Success Factors and Lessons Learned

This section summarizes the process-related lessons derived from the implementation of the project as well as with regards to more general lessons for launching community-based adaptation processes.

Several process documentation workshops were held by the project (see Annex 2 for example results). The reflection of strengths and weaknesses of the project setup throughout the entire project duration allowed immediate adjustments leading to better performance of the project.

In the following, key findings related to the implementation arrangements of the project are summarized:

Facilitating factors for success included:

- creation of local working groups
- multidisciplinary expertise in project management teams
- farmer engagement from the beginning
- continuous process documentation and lesson learning
- criteria setting for selection of pilot sites, farmers and CCA options
- wide range of capacity building activities at all levels combining a range of methods and covering technical and organisational skills
- in most sites very active engagement by MAO and ATs although no allowances were given
- diverse mix of identified and tested CCA options in terms of numbers of beneficiaries (individual vs. communal), materialization of benefits (seasonal vs. longer-term) and category

Hindering factors for success included:

- complex project setup of mother MDG-F project with multiple layers and various committees sometimes delayed decision-making;
- initial set of project consultants based in Los Banos, Laguna constrained timely field visits; difficulties to find CC experts in the project region
- remoteness of some project sites in Ifugao especially during rainy season
- site selection criteria set did not include planned interventions of other projects in the area. This resulted in the overlap of three pilot communities with IFAD community-based project

stretching time resources of local stakeholders.

• inclusion of eight pilot sites instead of originally planned six pilot sites (for political reasons) dispersed human and financial resources;

• collaboration with regional collaborators such as DENR, BAI and BFAR remained partial and ad-hoc;

• sometimes difficult to explain philosophy and pilot nature of the project (criteria-based, limited number of cooperators, technical guidelines to be followed etc.)

• delay in assessment studies due to various reasons (release of funds, lack of experience of SUCs in engaging with LGUs and local communities, semestral schedule, etc.).

In the following, these findings are further generalized into recommendations with regard to the launching of local adaptation processes.

General Lessons Derived with regards to Launching Local Adaptation Processes

• Participatory action research is an effective way for initiating local adaptation processes. However, it takes time to make everybody involved understand that the adaptation learning process is as important as the content.

• Farmers are keen to engage in participatory action research and to contribute their local knowledge and share their observations of their farm and the environment among each other and with extension workers and researchers.

• Defined sets of criteria for pilot site selection, farmer selection as well selection of good practices for CCA are crucial to keep the project on track and not loose the focus on climate resilience and most effective practices with greatest upscaling potential.

• Vulnerability assessments are very important for adaptation planning. Local, participatory assessments are also a good venue for community mobilization. They can be complemented with modeling tools to project future vulnerabilities. However, sometimes the results of the modeling assessments may not be robust enough to guide decision making due to constraints in data and methodologies.

• Local working groups and technical validation meetings were successful mechanism to facilitate local CCA processes and build close partnerships between DA, LGUs, SUCs and research institutions, farmer groups and other local institutions. They were vital in the blending of indigenous and scientific knowledge.

• Setting up a proper M&E system is a challenging task but is essential to allow systematic learning and a multi-criteria analysis that is based on qualitative and quantitative analysis. The valuation of environmental services is a method with which most agricultural extension workers are not familiar with.

Annexes

Annex 1: Key training and learning activities implemented by the project

Regional/Provincial and LGU Level

DATE	ACTIVITY/ TRAINING TITLE	LOCATION	DURATION	PARTICIPANTS			
				Specific Groups	Female	Male	TOTAL
16-26 March 2010	Workshops on the Identification of Local Best Practices	Tuba, Atok, Bagulan, Alfonso Lista, Mayoyao, Buguias	1 day/ location	Dib-CAH, MLGUs and Farmers	57	96	153
07-09 April 2010	Workshops for the Assessment of Adaptation Options Research and Home LWUs	Baguio City, Lamut, Kiangan	1 day/ location	Dib-CAH, MLGUs and Consultants	20	59	07
26-30 April 2010	E-learning Training on Community-Based Adaptation to Climate Change	La Trinidad, Benguet; Lamut, Ifugao	2 days/ location	BSU, DSU, MLGUs, BPI, BFAR, Project Staff	12	36	48
28 July 2010	Orientation on Automatic Weather Station	Baguio City	1 day	RPCMT, Project Staff, MLGUs	5	22	27
20 December 2010	Orientation on Climate Change	Baguio City	1 day	RPCMT, RPCMT, Project Staff	10	12	22
12-13 January 2011	Project Implementation & Monitoring Workshop	CFSF, Baguio City	2 days	RPCMT, RPCMT and Project Staff	9		
20-21 January 2011	Training on AWS Operation and Maintenance and Data Utilization Through the Climate Field School Approach	CFSF, Baguio City	2 days	LGU staff, RPCMT and Project Staff	21	11	10
27-28 January 2011	Workshop on the Integration of Consolidated Studies to State Universities	CFSF, Baguio City	2 days	SUC, PENRO, DENR,RPCMT, project Staff & RPCMT	32	20	12
05 April 2011	Wet season CCA Options Assessment	Baguio City	1 day	RPCMT, RPCMT, SUCs, LGUs and Project Staff			
06-07 April 2011	Workshop on Process Documentation	Baguio City	2 days	RPCMT, RPCMT, LGUs and Project Staff			
03-05 May 2011	Briefing & Orientation of new RED Sta. Catalina; Presentation of M & E; Finalization of Options for Wet Season	Baguio City	2 ½ days	RPCMT, RPCMT, and project staff			
19 May 2011	PMC Meeting and Field Learning Visit	Buguias, Mayoyao	1 day	PMC members	90	26	55
24-25May 2011	AWS Workshop	BSU, La Trinidad	1.5 days	RPCMT, LGU, PMO, SUC	20	9	19
26 -27May 2011	Workshop on Follow-Up Activities of SUC to Enhance Climate Resilience of Agriculture Sector in the Cordillera	Baguio City	1.5 days	SUCs, MLGUs, PLGUs, Project Staff, RPCMT, RPCMT	16	6	10

Community Level

DATE	ACTIVITY/ TRAINING TITLE	LOCATION	DURATION	PARTICIPANTS			
				Groups	Female	Male	TOTAL
24 August 2010	Homestead Gardening Training	Alfonso Lista	1 day	Farmers	21	5	26
10-13 August 2010	Livestock Production Training in Ifugao	Alfonso Lista, Mayoyao, Banaue, Kiangan	1 day/ location	Farmers	64	48	112
13 August 2010	Training on Cattle Raising	Baguio City	1 day	Farmers	0	5	5
23 September 2010	Training on Composting Using Trichoderma	Bagnias	1 day	Farmers	5	15	20
23 October 2010	Seed Potato Production Training	Bagnias	1 day	Farmers	9	14	23
29 October 2010, 25 November 2010	Forest Enrichment	Banaue	1 day/ location	Farmers	22	38	60
15 December 2010	Highland Rice Production Training	Mayoyao	1 day	Farmers	12	11	23
23 December 2010	Farmer's Field Day: Atok	Atok	1 day	Farmers	12	20	32
25 January 2011	Farmer's Field Day: Bagnias	Bagnias	1 day	Farmers	27	72	99
23 February 2011	Vegetable Production Training	Mayoyao	FAO	Farmers	20	13	7
23 March 2011	Farmer's Field Day: Tuba	Tuba	1 day	Farmers	24	11	35
30 March 2011	Farmer's Field Day: Alfonso Lista	Alfonso Lista	1 day	Farmers	48	16	64
18-20 May 2011	Farmers' Field Day cum Project Management Committee (PMC) Field Visit	Banaue	2 days	Farmers	35	65	100
23 June 2011	Citrus Management Training	Kiangan	FAO	Farmers	17	7	10
19 July 2011	Farmers' Field Day-Mayoyao	Mayoyao	1 day	Farmers	48	38	18
16 August 2011	Farmers' Field Day-Kiangan	Kiangan	1 day	Farmers	49	23	37

Annex 2 Process documentation workshops – example results

In the following a few selected results to illustrate the template that was used during the process documentation workshops.

UPLIFT Component 1A Process Documentation – Desk study assessment tools

PROCESS ACTIVITY	STATE OF AFFAIRS	CHALLENGES, ISSUES & KEY QUESTIONS	PROBLEMS ENCOUNTERED	SOLUTION TO ADDRESS PROBLEM/S	LESSONS LEARNED AND RECOMMENDATION
Collection of reference materials	Materials collected	No material focusing on agricultural sector		Integrate agricultural variables to the selected material	Develop new assessment tool
Setting of criteria for tool screening	Criteria set		Criteria not met by materials collected	Select relevant variables and methods	
Methodology Development	Several frameworks for vulnerability index collected	Collection of best framework		Adapt best framework and integrate good features of other tools	Develop operational framework from the conceptual framework

UPLBFI Component 1B Process Documentation – Local knowledge and assessment tools

PROCESS ACTIVITY	STATE OF AFFAIRS	PROBLEMS ENCOUNTERED	SOLUTION TO ADDRESS PROBLEM	LESSONS LEARNED AND RECOMMENDATIONS
Coordination work for FGD/KII				Patience to listen since there are lots of data to share from participants Devise tools for seeking information from participants; Posing questions
Coordination with collaborating agencies	The project coordinator facilitated the activity with the FAO-PMU in Baguio for the activity in Ifugao	Failure to situate this activity as part of the on-going program in CAR. Hesitation from the community to participate	Proper coordination with concerned agencies	A local coordinator is a must □ For a project like this with other agencies working in the same area, proper coordination with involved agencies/stakeholders is needed □ LGUs/Stakeholders/Communities must be informed properly of the on-going activities □ If possible, the SCUs activities should be synchronized and the questions/data should be shared to avoid duplication and hesitation from the community

UPLBFI Component 2A Process Documentation – Development of assessment tool

PROCESS ACTIVITY	PROBLEMS ENCOUNTERED	SOLUTION TO ADDRESS PROBLEM/S
Data gathering	□ Data La Trinidad have short time series (1976-1990), no forecasted data for 2020 and 2050 □ Data Buguias have short time series (1979-1995), no forecasted data for 2020 and 2050 □ Data on Baguio have short time series (1971-2000) and there is no data on solar radiation	Synthetic weather data were combined with the historical data

UPLBFI Component 2B Process Documentation - Community-based Crop Loss and Damage Assessment Models

PROCESS ACTIVITY	STATE OF AFFAIRS	CHALLENGES/PROBLEMS ENCOUNTERED	SOLUTION TO ADDRESS PROBLEM/S	LESSONS LEARNED AND RECOMMENDATIONS
Data gathering	BAS data on rice per province and reported on a per quarter basis;	◻ Coordination with field project staff. Identifying groups that actually obtain and store data ◻ Rice yield data were available for Benguet (La Trinidad and Tublay) and Ifugao (Banaue) from 1993 to 2009 including date of sowing and number of days to harvesting but daily weather data was available only for La Trinidad. ◻ Vegetable data reported by quarter. No date of planting and harvesting ◻ Weather data	NCT data was used	◻ Sites or farms where hazards occurred should have been identified ◻ Yield data from the farms may be monitored by the MAOs including the important dates
Modeling	PAGASA data for temperature, rainfall, relative humidity,	Solar radiation only for BSU and none for the other sites or municipalities; data gaps for some years	New variables created by breakdown into vegetative, reproductive and ripening stages growth stages	Monitoring or identification of farm sites that may be good source of data

UPLBFI Component 3A and B Process Documentation- Training Modules

PROCESS ACTIVITY	STATE OF AFFAIRS	CHALLENGES/PROBLEMS ENCOUNTERED	SOLUTION TO ADDRESS PROBLEM/S	LESSONS AND RECOMMENDATIONS
Project management	Module preparation	Some of the topics to be presented are not yet completed No speakers on some modules	The problems identified in Ifugao were addressed in Benguet	Proper coordination from the start of the project
Project management	Selection of participants and Coordination with the LGU and concerned agency	Few participants, No participants in some municipalities/barangays due to poor coordination	Identified coordinator must be given enough/ample time for coordination	Meeting of all concerned should be done before the training (on-line meeting, if possible)
Mobilization of project collaboration	No identified project collaboration	identified collaborators did not do their job Limited participants	Collaborators must be given appointments	Meeting on-line to brief collaborators
Identification of pilot sites	Farmers did not participate in selecting pilot projects	Farmers asked who identified the projects to be implemented in their area Very hard for farmers to get involved	Farmers should be partners in the selection process	Farmers are willing to identify projects that will be beneficial in their area. Proper monitoring and evaluation should be implemented
Capacity building	Farmers are willing to train and be involved	Invitation did not reach the farmers	Farmers must be consulted and be involved in planning and implementation and M&E	Trainors are willing to share their expertise but very few attendees; Proper monitoring and evaluation should be implemented

UPLBFI Component 4 Process Documentation – Overall Project Management

PROCESS ACTIVITY	STATE OF AFFAIRS	CHALLENGES/PROBLEMS ENCOUNTERED	SOLUTION TO ADDRESS PROBLEMS	LESSONS LEARNED AND RECOMMENDATIONS
Coordination of data gathering and training events	◻ Coordinate with participants in the Benguet and Ifugao	Timing and organizing events Communications to remote participants	◻ Identified an able coordinator and give enough time and resources to do the work ◻ Coordinate with local SDC for venue and resources needed ◻ Coordinate with MAO directly ◻ Coordinate with SPICACC field coordinators	◻ Conduct courtesy calls to Mayors to explain the project and get their cooperation ◻ Transmit Invitations through political channels ◻ Meeting of all concerned should be done before the training (on-line, if possible) ◻ Reaction time must be fast; 1 month lead-time ◻ Coordinate with DA to avoid conflict with their own activities/overburdening of farmers
During data gathering and training events	◻ Participants have conflict in schedule ◻ Participants coming from remote areas	◻ Limited participants due to conflicts in schedule	◻ Go to the communities where the participants are ◻ Contact farmer groups or cooperatives	◻ better to seek the participants at community level than workshops at provincial level ◻ Participants need to be compensated for their time; explain to the participants the importance of the event to them
Report writing	◻ Conflicts with other duties ◻ Receiving comments from FAO	◻ Submit proper report on time ◻ Receiving FAO comments until final acceptance	◻ Remind researchers of project deadlines ◻ Communicate FAO comments clearly and promptly	◻ Faculty researchers in UPLB could do more work during summer and semester breaks ◻ Unrelenting follow-up is essential. ◻ Choose researchers with less work load ◻ Create mechanisms to allow addressing of all comments

Annex 3

MEMORANDUM OF UNDERSTANDING
(Example)

KNOW ALL MEN BY THESE PRESENTS

This Memorandum of Understanding is entered into by and between:

The DEPARTMENT OF AGRICULTURE (DA) represented herein by [NAME], in his capacity as Undersecretary for Operations and Chairman of the Project Steering Committee of "Enhanced Climate Change Adaptation Capacity of Communities in Contiguous Fragile Ecosystems in the Cordilleras", the component 3.1 of the "Strengthening the Philippines' Institutional Capacity to Adapt to Climate Change (SPICACC)" Program, hereinafter referred to as DA-SPICACC

and

The MUNICIPALITY OF (Name Of Municipality), represented herein by the Honorable [name of mayor in all caps and bold] in his capacity as mayor, hereinafter referred to as LGU-[name of municipality].

WITNESSETH

WHEREAS, the Government of the Philippines through the Department of Agriculture, the Food and Agriculture Organization (FAO) of the United Nations (UN) and the Government of the Kingdom of Spain, have formally agreed to implement the joint project Enhanced Climate Change Adaptation Capacity of Communities in Contiguous Fragile Ecosystems, under the MDG-F 1656 program entitled "Strengthening the Philippines' Institutional Capacity for Adaption to Climate Change (SPICACC);

WHEREAS, the project will be led by the DA Regional Field Unit in the Cordillera Administrative Region (DA RFU CAR);

WHEREAS, this project is to be undertaken in the Cordillera Autonomous Region (CAR) with focus on Benguet and Ifugao and is implemented to: (1) showcase the development of adaptation options for a number of interacting sectors (agriculture, forestry, biodiversity, water and or contiguous ecosystems); and (2) demonstrate the development of adaptation strategies through information and skills, technology and equity;

WHEREAS, the establishment and monitoring of the demonstration sites and the monitoring and evaluations of the project status requires involvement of the LGU-[name municipality] and relevant staff from the respective office of the Municipal Agriculture Office (MAO) and the Community Environment Natural Resource Office (CENRO);

WHEREAS, the Local Government Code of the Republic of the Philippines expressly mandates that the capacities of local government units (LGU), shall be enhanced by providing them with opportunities to participate actively in the implementation of national programs and projects;

WHEREAS, in connection with the implementation of the projects, LGUs are additionally mandated under the same code to share with the national government the responsibility in the management and maintenance of ecological balance within their territorial jurisdiction, subject to the provisions of the code and national policies;

WHEREAS, within their respective territorial jurisdictions as stated in the code, the LGUs shall ensure and support, among other things, the preservation and enrichment of culture, enhance the right of the people to a balanced ecology, encourage and support the development of appropriate and self-reliant scientific and technological capabilities, enhance economic prosperity and social justice, promote full employment among their residents and preserve the comfort and convenience of their inhabitants.

WHEREAS, such LGU mandates are respected in the abovementioned DA-SPICACC Outcome 3.1 Project;

NOW, THEREFORE, for and in consideration of the foregoing premises and considerations provided for in this MEMORANDUM OF UNDERSTANDING the PARTIES hereto agree as follows:

A. DA-SPICACC agrees to:

1. Administer the project "Enhanced Climate Change Adaptation Capacity of Communities in Contiguous Fragile Ecosystems in the Cordilleras";
2. Facilitate and coordinate the exchange of information among all participants in the project;
3. Meet periodically with the LGU to plan, evaluate and consider improvements to the program.

B. LGU-[name of MUNICIPALITY] agrees to:

1. Allow its staff from the appropriate units (e.g. OMAG, MARO, MENRO, MPDO, etc) to participate in the conduct of the project; specifically to:
   a. Participate in the selection of pilot sites and good practices to be demonstrated in the sites and for possible upscaling and active engagement in the local working group set-up for the project;
   b. Assist in the gathering of secondary and primary data and in monitoring the pilot sites that shall be established;
   c. Contribute appropriate support mechanisms to the development of a knowledge management (KM) system; and
   d. Provide technical assistance, as needed for the various activities of the Project.
2. Cooperate with and support other identified local partners as appropriate under the project (like the Department of Agriculture – CAR, Benguet State University, Ifugao State University, etc.);
3. Provide counterpart resources for the conduct of specific activities in the project (time and services of staff involved, use of facilities/vehicles, etc.).

The PARTIES warrant the implementation and compliance with the foregoing covenant in good faith, to carry out the higher purposes and objectives of this agreement, save only in case of force majeure or factors beyond the control of the parties.

The PARTIES likewise warrant that they are duly authorized by law to enter into this agreement.

DATE OF EFFECTIVITY AND TERMINATION

This Memorandum of Understanding shall take effect upon signing of the Parties and witnesses and shall be terminated upon the satisfactory fulfillment of all terms of conditions embodied herein.

IN WITNESS WHEREOF, the PARTIES have hereunto affixed their signatures this [DATE] at [LOCATION].

DEPARTMENT OF AGRICULTURE MUNICIPALITY OF _____

_____ _____

Undersecretary for Operations
& Chair, Project Steering Committee

Municipal Mayor

Signed in the presence of:

DEPARTMENT OF AGRICULTURE

_____
Regional Executive Director
Regional Field Unit – Cordillera Administrative Region

FOOD AND AGRICULTURE ORGANIZATION

_____
FAO Representative
Co-chair, Project Steering Committee

_____
Municipal Agriculturist
Municipality of [name of municipality]

For more information, contact:

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