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ENVIRONMENT [CLIMATE CHANGE] ENERGY MONITORING AND ASSESSMENT

Mainstreaming Disaster Risk Reduction into Agriculture

A case study from Bicol Region, Philippines

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Mainstreaming Disaster Risk Reduction into Agriculture

A case study from Bicol Region, Philippines

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EXECUTIVE SUMMARY

The Philippines is one of the most disaster-prone countries in the world, due to its geographic location and physical environment. It experiences an average of 20 typhoons annually, which trigger landslides, flash floods, mudslides and widespread flooding, resulting in the destruction of and damage to homes, public infrastructures and the agriculture sector.

Within the Philippines, Bicol Region is one of the most disaster-prone areas, due to its geophysical location. The natural hazards in Bicol Region, mainly storms and floods, put the lives of vulnerable households at risk. Those who rely predominantly on agriculture are the ones who usually suffer the most because it is the sector that is most vulnerable to natural hazards. In 2006 alone, the loss of investment caused by Typhoon Reming was estimated at PHP 817.42 million, not including the lives of more than one thousand individuals. The devastation caused by Typhoon Reming was the trigger for the Government's request to the Food and Agriculture Organization of the United Nations (FAO) for the project "Strengthening Capacities for Climate Risk Management and Disaster Preparedness in Selected Provinces of the Philippines (Bicol Region)".

The long-term objectives of the project were to: (a) enhance the institutional and technical capacities within the Department of Agriculture (DA), the Philippine Atmospheric, Geophysical and Astronomical Services Administration (PAGASA) and local institutions to better manage climate-related risks and promote local preparedness against recurrent natural hazards such as typhoons, floods and drought; and (b) improve the livelihood resilience and food security of the farmers and fisherfolk who are highly vulnerable to the frequent occurrence of extreme climatic events. The project was implemented from September 2009 to December 2011 in three provinces in Bicol Region (Albay, Camarines Sur and Sorsogon), covering the municipalities of Guinobatan, Buhi and Gubat in each province, respectively, and three barangays per municipality. The DA was the main implementing agency, with technical assistance provided by Bicol University, Central Bicol State University of Agriculture (CBSUA) and PAGASA.

The project was designed in accordance with FAO's Disaster Risk Reduction for Food and Nutrition Security (DRR for FNS) Framework Programme, that builds on and supports the implementation of the Hyogo Framework for Action 2005–2015, to reduce risks in the agriculture sector. The DRR for FNS Framework consists of four thematic pillars: (i) enable the environment; (ii) watch to safeguard; (iii) apply prevention and mitigation measures; and (iv) prepare to respond.

The project delivered six interrelated and mutually supportive outputs by working closely together with concerned local government units (LGUs) and other project partners:

(a) improved local capacity in the use and interpretation of early warning messages and weather forecasts for enhanced disaster preparedness in the agriculture sector;
(b) strengthened capacity of PAGASA for the provision of site-specific short- and long-term climate and weather outlooks/forecasts;
(c) strengthened capacity of the DA Regional Field Unit V (DA-RFU V) and LGUs in the area of post-disaster damage assessment for the agriculture and fishery sectors;
(d) community-based disaster risk management (CBDRM) plans were developed in selected municipalities;
(e) agricultural practices for improved disaster risk reduction and management (DRR/M) were identified, pilot tested and disseminated through the DA and LGU extension services; and
(f) policy recommendations were developed and shared with major stakeholders.

Strategic partnerships with national institutions, institutional and technical capacity development, knowledge management, communication and gender equity were addressed as cross-cutting priorities throughout all project activities.

The first six months were devoted mainly to capacity building activities, detailed work planning, an in-depth situation and risk assessment in the project area and the pre-identification of potential good practice options (GPOs) for DRR and climate change adaptation (CCA). In total, nine institutional and

technical capacity building activities were implemented involving close to 500 participants. In addition, technical briefings with LGUs and municipality agricultural officers were conducted by the national consultants and partner agencies before the start of the cropping season.

The project promoted PAGASA and the DA to jointly prepare enhanced climate information and early warning services tailored to the needs of agriculture. Before the start of the project, PAGASA had provided six types of forecasts catered to the agriculture sector, including tropical cyclone warning, flood warning, gale warning, El Niño/La Niña advisory, monthly weather forecasts/outlooks and ten-day weather forecast. An innovation triggered by the project was the provision of three monthly forecasts delivered at the beginning of each cropping cycle to facilitate strategic crop choices of farmers before each cropping season. The DA translated these climate forecasts into concrete agricultural advice and information bulletins.

Results from an early warning system (EWS) outreach study revealed that the information generated through the EWS issued by PAGASA usually takes a substantial amount of time before reaching the barangays. As a result, the barangays and the intended end users (i.e. farmers and fisherfolk) are unable to receive advanced warnings which can be used for DRR. The weakness of the existing EWS flow is compounded by the lack of a communication system. A model was proposed to address the existing weakness by enabling barangay officials and intended end users to access information directly from the PAGASA regional centre.

Further, the project promoted community participation as a critical element of sustainable disaster risk management (DRM). In line with the new government act Republic Act 10121 (concerning local DRR planning) and with locally perceived needs to implement the act, the project assisted in the development of integrated barangay DRR/M action plans, which specifically focus on DRR/M in agriculture. This was done through facilitation support provided by CBSUA and with LGUs in 9 barangays and 3 municipalities. The CBDRM plans promote a bottom up approach in the planning and implementation of DRM activities. The process provided communities with

an opportunity to evaluate and analyse their own hazardous conditions, vulnerabilities and capacities. CBSUA also provided training sessions for technical staff in the DA, LGUs and DRR/M councils to support the horizontal scaling up of the development of local DRR/M plans across the region.

In addition, the project assisted the DA-RFU V in reviewing the existing damage and needs assessment methodology used in the Philippines from an agriculture sector perspective. This yielded an improved version of the methodology in the form of detailed guidance notes including baseline, manual and Web-based application software to further facilitate the implementation of the agriculture-specific, post-disaster needs assessment (PDNA) methodology. A database was built up with the three pilot LGUs. The improved PDNA will allow a more comprehensive assessment of the impacts of natural disasters on agriculture and can also be used to predict the potential production losses. The barangays will be the basic political units from which the data will be gathered and analysed. Two types of information are required for damage, loss and needs assessments: pre-disaster baseline information and post-disaster information on damages and losses.

Action research-based pilot testing of selected GPOs for DRR was undertaken during three cropping seasons. The pilot-tested GPOs were identified from various sources, including research and extension centres, the DA, academe and local knowledge from the pilot communities and the Internet. Before pilot field testing, the GPOs were pre-evaluated according to their agro-ecological suitability, economic and social feasibility, resilience against impacts of climate hazards and estimated carbon balance. Technologies which passed the pre-evaluation were introduced to the pilot communities for field validation. Final technical evaluation of the technologies was done by the technical working group before endorsing them to the project steering committee for approval. Only those which passed the evaluation process were implemented by selected farmer-cooperators.

During the three cropping seasons, five different GPOs were tested in the lowland irrigated rice area with 198 farmer-cooperators; three preselected GPOs were tested by 278 farmers in the upland/rainfed agro-ecological zone;

and four GPOs were field tested by 70 farmer-cooperators in the fisheries/aquaculture sector for one cropping season. The project demonstrated the potential of the selected GPOs to enhance livelihood resilience under variable climatic conditions, as manifested by their performance and the results of field evaluation. For the performance of validated technologies, better understanding of climate/weather forecasts and the timely delivery of advisories to LGUs and farmers are essential to enhance local disaster preparedness. During the first cropping season, GPOs established in the upland/rainfed areas were mostly destroyed by extreme weather events due to inadequate weather advisories. Seasonal weather forecasts provided by PAGASA and the farm weather bulletin prepared by the DA-RFU V enabled farmers to take strategic decisions on proper crop choice, cropping schedule and cultural management practices, and to adopt and use mitigating measures. Damage to the field demonstrations established during the second and third cropping seasons was averted because of the farm weather bulletin provided by the DA-RFU V to LGUs and farmers.

This technical project summary report provides a consolidated overview about the specific project activities, the implementation processes, main findings and the establishment of institutional mechanisms that were established to promote ongoing collaboration between farmers, agriculture extension workers, researchers and local government officials.

ACRONYMS

AT	Agricultural Technician
BDRRMC	Barangay Disaster Risk Reduction and Management Council
BFAR	Bureau of Fisheries and Aquatic Resources
BU	Bicol University
BUCAF	Bicol University College of Agriculture and Forestry
CBDRM	Community-Based Disaster Risk Management
CBSUA	Central Bicol State University of Agriculture
CCA	Climate Change Adaptation
DA	Department of Agriculture
DA-RFU V	Department of Agriculture Regional Field Unit V
DCC	Disaster Coordinating Council
DRR for FNS	Disaster Risk Reduction for Food and Nutrition Security
DRR/M	Disaster Risk Reduction and Management
EFP	Existing Farmers' Practice
EFV	Existing Farmers' Variety
EMRV	Early Maturing Rice Variety
EWS	Early Warning System
FAO	Food and Agriculture Organization of the United Nations
FGD	Focus Group Discussion
FNS	Food and Nutrition Security
GPO	Good Practice Option
HVCC	High Value Cash Crops
LD	Long Duration
LGU	Local Government Unit
LOA	Letter of Agreement
M&E	Monitoring and Evaluation
MBCR	Marginal Benefit–Cost Ratio
MD	Medium Duration
NGO	Non-Governmental Organization
NPC	National Project Coordinator

OCD	Office of Civil Defense
PAGASA	Philippine Atmospheric, Geophysical and Astronomical Services Administration
PAO	Provincial Agriculture Office
PAR	Philippine Area of Responsibility
PDNA	Post-Disaster Needs Assessment
POA	Plan of Action
PSC	Project Steering Committee
SD	Short Duration
TWG	Technical Working Group

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