

# Climate Change Adaptation Strategies of the Department of Agriculture in Davao Region, Philippines

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## Abstract:

Climate change is becoming increasingly common in Philippines resulting in a huge effect and damages in agriculture sector in various parts of the country. Through the Department of Agriculture, several incidents of climate related disasters were recorded which suggest that climate change has accelerated the intensity and frequency of hazards of drought, floods and landslide in most agricultural lands of the country. This paper intends to assess the adaptation strategies of the Department of Agriculture on Climate Change at the level of the regional office in Davao Region. Key Informant Interview with the Agency’s personnel directly implementing the climate change adaptation programs and paper review were conducted to gather relevant information for this study. The research findings indicate that the adaptation strategies of the Department of Agriculture Region XI focus on technology transfer through the Agricultural Training Institute on its Climate Smart Farm Business School project and mainstreaming of the Climate Resilient Agri-fisheries – AdaptationMitigation Initiative in Agriculture (CRA-AMIA) through the coordination and management of the Department of Agriculture System-wide Climate Change Office (DA-SWCCO). The analysis of these findings will help the department to prepare programs on related to climate change that may include protection and enhancement of ecosystem services to secure food and water resources and livelihood opportunities to the whole Davao Region community.

**Keywords — Climate Change Adaptation Strategies, Climate Change, Department of Agriculture, Davao Region, Climate Change and Agriculture**

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## I. INTRODUCTION

Climate change and its effects showed considerable variability across the world. It is considered as the most critical global challenge of the century, which predicted that the global temperatures will increase further between 1.4 and 5.8°C by 2100. However, most of the poorest countries and their people are likely to suffer the earliest because of their low adaptive capacity and

dependence on agriculture, which is highly reliant on climatic factors (Manandharet *al.*,2011, Devkotaet *al.*, 2013).

Agriculture and food security are key sectors for intervention under climate change. Agricultural production is highly vulnerable even to 2°C (low-end) predictions for global mean temperatures, with major implications for rural poverty and for both rural and urban food security (Vermeulenet *al.*, ND).

Moreover, climate change will hinder agricultural productivity growth. It is expected to change agricultural productivity by affecting cropping calendars, yield quality and levels, the proliferation of pests and incidence of diseases, livestock and fisheries production, and infrastructure (OECD, 2017).

Despite all this, the Philippine Government has taken major steps in addressing climate change vulnerability and impacts through an ambitious policy and institutional framework that focuses on food security, resilience building, and disaster risk reduction. It is seen that by 2050 climate change and variability is estimated to cost the Philippine economy approximately PHP 26 billion yearly (Dikitanan *et al.*, 2017)

In fact, the Philippine Government crafted the National Framework Strategy on Climate Change. It is committed towards ensuring and strengthening the adaptation of natural ecosystems and human communities to climate change. In the process, the Framework aspires to chart a cleaner development path for the Philippines, highlighting the mutually beneficial relationship between climate change mitigation and adaptation. As a matter of principle, the Framework aggressively highlights the critical aspect of adaptation meant to be translated to all levels of governance alongside coordinating national efforts towards integrated ecosystem-based management which shall ultimately render sector's climate-resilient.

As the world stands at the threshold of an important juncture in the history of the planet and the international community grapples for a lasting global solution to the climate crisis, the threats to humans and nature have become unprecedented.

The international community stands at a point where even the most aggressive and immediate actions to mitigate climate change will not stop the impacts at least for the next half of this century. While deep cuts in greenhouse gas emissions may buy time for human and natural systems to adapt in the decades ahead, human and natural systems have begun to reel from the unfolding impacts.

The aim of this national process is to build a roadmap that will serve as the basis for a national

program on climate change and establish an agenda upon which the Philippines would pursue a dynamic process of determining actions through the National Climate Change Action Plan process.

## **II. OBJECTIVE OF THE STUDY**

This paper review aimed to address the following questions:

1. What are the adaptation strategies does the Department of Agriculture employ in addressing agricultural problem brought by climate change? and
2. What significant adaptation strategies that need improvement to facilitate future agricultural challenges related to climate change?

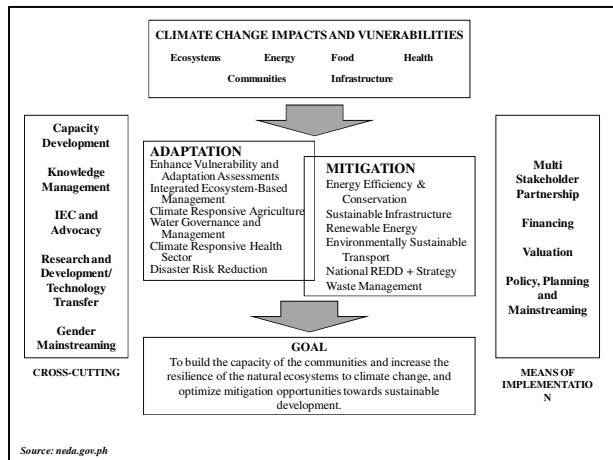
## **III. METHODOLOGY**

In this study, a paper review was used to gather secondary data from the Department of Agriculture on their agricultural climate change adaptation interventions. Key Informant Interview (KII) from the key personnel of the agency handling the programs related to climate change was also used to validate climate change strategies. After which, a textual analysis was done in identifying the significant adaptation strategies being employed by the DA in the whole Davao Region.

## **IV. RESULT AND DISCUSSION**

The National Framework 's diagram illustrates a more specific aspect of the Climate Change Framework, taking into account how climate change impacts and vulnerabilities shall be addressed by adaptation, mitigation and cross-cutting strategies and supported by the means of implementation—which would eventually lead to the achievement of the National Goal.

FIGURE I  
THE PHILIPPINES NATIONAL CLIMATE CHANGE FRAMEWORK



For the Department of Agriculture in Davao Region (DA-XI) combating climate change is an utmost priority. The agriculture sector has been the forefront agency which caters to the needs of the farmers. Their top concern is uplifting the lives of the farmers through rendering immediate technical and marketing assistance to disaster victims whose agricultural and fishery products have been destroyed, damaged or lost; Facilitation of immediate release of funds for crop insurance to commensurate losses suffered and; Assurance for the rehabilitation for agriculture, agri-livelihood rehabilitation and other related programs (DA-DRRM, RFO XI 2016).

A. *The Climate Smart Farm Business School (CSFBS).*

In September 21-30, 2016, the Department of Agriculture XI through the Agricultural Training Institute (ATI) conducted a training of Trainers on Climate Smart Business School (CSFBS) held at Datu Abdul, Panabu City. A total of 34 Agricultural Extension Workers (AEWs) graduated from the training. The participants hail from different cities and municipalities in Region XI, particularly in Davao City, Davao del Norte, Davao Oriental, Davao del Sur and Compostela Valley Province. The training aims to provide the participants the appropriate knowledge on business farming technology which is resilient to climate change with

the trust in transforming the farmers into agripreneurs and equipping them to face the challenges of climate change which is prevalent worldwide. Knowledge and skills imparted to the participants were through lecture-discussion, workshop activities, reporting, interaction and sharing of ideas, actual courtesy call to the LGUs (protocol) and field benchmarking and surveys (Austria, 2016).

B. *The Climate Resilient Agri-fisheries – Adaptation Mitigation Initiative in Agriculture (CRA-AMIA).*

The establishment of the CRA-AMIA Villages in the three piloted barangays located in the SuawanKulafu sub-watershed in Marilog District, Davao City. Started in 2015, CRA AMIA villages were established with five farming associations which were closely coordinated by the Department of Agriculture Region XI Research Team and office of the Municipal Agriculture Support services were provided through provisions of farm inputs to support the farming; conducted a series of climate resilient field schools (CRFS) training workshop in their own field and exposed farmers to technologies in various research stations and farm tours. Capacitated farmers with relevant information to climate changes and livelihood. AMIA is a flagship program of the Department of Agriculture for climate adaptation and mitigation coordinated and manage by the System-wide Climate Change Office (DA-SWCCO) which aims to respond to the challenges posed by climate change. DA issued a memorandum that mandates the mainstreaming of Climate Change in the DA Programs, Plans and Budget. It envisions of a Philippine agriculture, fisheries sector that enables local communities to cope up climate risks while pursuing sustainable resilient livelihoods.

The sensitivity of the regional agriculture sector to the impacts of climate change cannot be overstated. The increasing frequency and intensity of extreme weather events affecting the Davao Region continue to devastate and threatens the region's food and water resources. Addressing these vulnerabilities in both the short and long-term requires building the resilience of our food

production systems through the mainstreaming of sustainable agriculture and aquaculture and related developments in the sector.

In order to address these future challenges, the Department of Agriculture of Region XI should intensify its program approaches on climate change adaptation. This may include protection and enhancement of ecosystem services to secure food and water resources and livelihood opportunities to the whole Davao Region community.

This may also include the following strategic approaches to be prioritized in programming climate change adaptation:

1. Strengthen convergence strategies with other agencies like the Department of Environment and Natural Resources to reduce climate change risks and vulnerability of natural ecosystems and biodiversity through ecosystem-based management approaches, conservation efforts, and sustainable ENR-based economic endeavors such as eco-tourism;
2. Increase the resilience of agriculture communities through the development of climate change sensitive technologies, establishment of climate-proof agricultural infrastructure and climate-responsive food production systems, and provision of support services to the most vulnerable communities;
3. Improve climate change resiliency with the Bureau of Fisheries and Aquatic Resources through the restoration of fishing grounds, stocks and habitats and investment in sustainable and climate change-responsive fishing technologies and products;
4. Expand investments in aquaculture and in other food production areas;
5. Strengthen the crop insurance system as an important risk sharing mechanism to implement weather-based insurance system;

6. Strengthen sustainable, multi-sectoral and community-based resource management mechanisms; and
7. Link with the academic institution to establish a concrete programming through inclusion of the Climate Smart Farm Business in schools, colleges and university's curriculum.

## V. CONCLUSION

Addressing the region's multiple agricultural vulnerabilities to climate change requires an integrated ecosystem based management approach which not only acknowledges the interrelationships across the regional ecosystems, but also strengthens the integrity of decision-making processes towards the formulation of comprehensive adaptation strategies from ridge-to-reef.

This paper review concludes that the Department of Agriculture XI needs more interventions in mainstreaming climate change adaptation programs since the regional agency is still at the piloting level at the moment. Therefore, the researchers set recommendations below in order to strengthen the agency's flagship program. .

## REFERENCES

- [1] Austria, R.E. (2016). *34 AEWs Attended the Training of Trainers on Climate Smart Farm Business School*. Department of Agriculture XI – Agricultural Training Institute. Retrieved on 12/02/2018. <http://www.ati.da.gov.ph>
- [2] DA-SWCCO (ND). *Climate Change Agriculture (CRA)*. Retrieved on 12/3/2018. <http://www.swcco.da.gov.ph>
- [3] DA-RFO XI (2016). *Disaster Risk Reduction Management System*.
- [4] Dikitanan, R. et al. (2017). *Climate-Resilient Agriculture in Philippines*. CSA Country Profile for Asia Series. International Center for Tropical Agriculture (CIAT); Department of Agriculture – Adaptation and Mitigation Initiatives in Agriculture, Government of the Philippines. Manila, Philippines. 4 p. Retrieve on 11/02/2018. <https://ccafs.cgiar.org/publications/climate-resilient-agriculture-philippines#W9rVFtRfIU>
- [5] JICA (2017). *Data Collection Survey for Strategy Development of Disaster Risk Reduction and Management Sector in the Republic of the Philippines*. Final Report
- [6] NEDA (2013). *National Framework Strategy on Climate Change, 2010-2022*. Retrieved on 12/3/2018. [www.neda.gov.ph/2013/10/nfscs\\_sgd](http://www.neda.gov.ph/2013/10/nfscs_sgd)
- [7] OECD (2017). *Agricultural Policies in the Philippines*. OECD Publishing, Paris. Retrieved on 10/26/2018. <http://dx.doi.org/10.1787/9789264269088-en>