The AMIA Experience: Supporting local actions for Climate Resilient Agriculture

Rene Vidallo, Ruvicyn Bayot, Magnolia Rosimo, Emilita Monville-Oro, Julian Gonsalves, Alicia Ilaga, Leocadio Sebastian, U-Nichols Manalo, Perla Baltazar

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KEY LESSONS

1. Addressing uniqueness of local context
2. Understanding vulnerability at different scale levels
3. Understanding different aspects of and the importance of diversification
4. Implementing best-bet CRA technologies and practices with the farmers
5. Capacitating farmers to implement CRA technologies and practices
6. Investing in systems and mechanisms to facilitate community adaptation and create an enabling environment
7. Sustaining and operationalizing CRA technologies and approaches
8. Developing capacities for sustainability
9. Establishing and maintaining partnerships
10. Mainstreaming gender
11. Identifying champions

The Philippines ranks 5th in the long-term global climate risks index.[1] It is highly vulnerable to increasing frequency of extreme weather events and temperature, extreme rainfall, and sea level rise.[2] Flood, drought, and soil erosion are the most common climate-related risk factors that affect the country's agriculture and fisheries production. These are reflected in the results of the climate-risk vulnerability assessments (CRVA) in almost all AMIA villages facilitated by the International Center for Tropical Agriculture (CIAT), partner state colleges and universities, and the Department of Agriculture – Regional Field Offices (DA-RFO).

The damaging effects of climate change are worst among the poor and vulnerable smallholder farmers and fisherfolk. Hence, climate resilient agriculture (CRA) incorporates food security, adaptation and mitigation agenda in the implementation of sustainable agricultural practices. DA's System-Wide Climate Change Office (SWCCO) implemented the Adaptation and Mitigation Initiative in Agriculture (AMIA) Program to respond to the challenges of climate change in the agriculture and fisheries communities. The initiative enables and capacitates local communities to manage climate risks while pursuing sustainable livelihoods. This is being

Mainstreaming climate change adaptation in DA's programs, plans, and operations requires a paradigm shift that deviates from 'business-as-usual' approaches. Top-down directives to implement changes must be supported by lessons and evidences from the field. DA-SWCCO and regional focal persons have led in ensuring that lessons and evidences are reflected and translated into the programs, plans, and operations of the DA offices.

[1] Global Climate Risk Index 2019 https://germanwatch.org/sites/germanwatch.org/files/Global%20Climate%20Risk%20Index%202019_2.pdf

[2] USAID/ Philippines Environment Project 2017-2021 Redacted Concept Paper as of January 25, 2017 https://www.usaid.gov/sites/default/files/documents/1861/Concept_Note_Environment_PAD_redacted.pdf

achieved through the use of CRA technologies and practices, and provision of highly responsive support services within an AMIA village.

The AMIA Program started in 2013 and was implemented in phases. AMIA Phase 1, which commenced in 2014, focused on strengthening the capacity of creating DA's enabling environment to mainstream climate change adaptation at the operational and institutional levels. The development of the National Color-Coded Agricultural Guide Map (www.farmersguidemap.gov.ph) was one of the highlights of this phase. This map aims to inform the decision-making of farmers on the crops and crop management practices suitable and appropriate in a given location. This was launched in 2017.

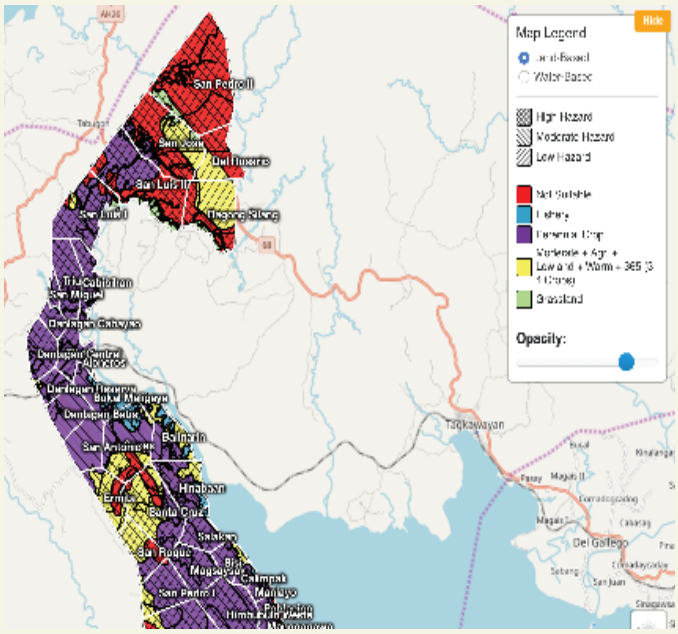

Figure 1. National Color-Coded Agricultural Guide Map

AMIA Phase 2 was implemented in 2016. This phase focused on the implementation and evaluation of CRA technologies and practices in targeted areas. Methodologies on climate-risk vulnerability assessment were implemented using modeling tools and participatory approaches for identifying agricultural areas with high vulnerability to climate risks and identifying and evaluating CRA technologies and practices based on location and context.

A climate information service to farmers was also implemented under AMIA 2. Climate data and information from the Philippine Atmospheric, Geophysical and Astronomical Services Administration (PAGASA), automated weather stations, and other sources were harvested and analyzed. Advisories were generated based on the data and climate information (usually a 10-day forecast and advisory) was delivered to farmers through various modalities (i.e., flyers, notices in bulletin boards located in town halls, social media platform, etc.).

The Climate Change Adaptation and Financing Program was also initiated through DA's Agricultural Credit Policy Council (ACPC). The ACPC provided funds to local banks to administer loans to small farmers to encourage them to adopt climate change adaptation technologies and practices.

Moving forward, given the results and lessons gained from the AMIA project, DA is focused on mainstreaming CRA in regional field operations. DA-SWCCO has been engaging the DA community in activities such as strategic planning, wide-scale application of decision support tools and advisory services, and capacity building activities.

Climate resilience is now recognized among the outcome areas of the successor Agriculture and Fisheries Modernization Plan 2018-2023. There are already enough experiences on the ground that will provide bases for mainstreaming CRA within DA. The DA-RFO-II (Cagayan Valley) has already shown initial evidences of mainstreaming when several regional programs and units contributed resources to villages in their regions where the AMIA Program was implemented.

The AMIA Village approach

Addressing climate risks needs a systems approach and a sustainability mindset. The AMIA Program takes the landscape approach by establishing and sustaining at varying levels 21 AMIA villages across the country. The villages were selected based on their level of vulnerability to climate risks, people's

capacity to adapt to climate change, and the capacity of local institutions to provide support services. The AMIA villages served as local platforms for action research and scaling of adaptation approaches. An AMIA villages is both a laboratory and a showcase of learning and outcomes on climate change adaptation and food security improvement. It is not solely a demonstration of the most laudable CRA technologies and practices, but a location where learning and sharing of lessons happen. Through this iteration of the learning process, the AMIA village concept and practices are brought to scale.

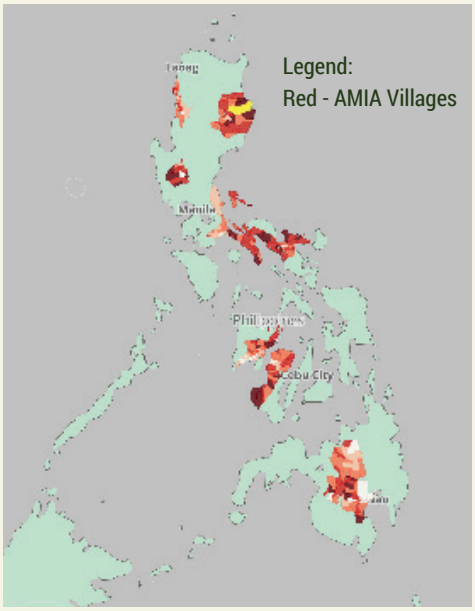

Figure 2. Map of AMIA Villages in the Philippines

The implementation of CRA technologies and practices and provision of support systems in each village are being coordinated by DA-RFOs through LGUs.

Color-coded maps, commodity specific risk projections, and region-wide CRVA outputs are available at www.ciatph.github.io. These serve as basis for planning interventions with LGUs and farmers. Given the technical requirement for using such products, technical backstopping and guidance are required. The challenge is to be able to make these methodologies usable in DA through its banner programs and in the LGUs. Developing the capacity of DA and the LGU to continuously implement and develop these methodologies should be part of the sustainability program.

Key lessons from the AMIA Program implementation

1. Addressing uniqueness of local context

The level of vulnerabilities and risks differ from one village to another. Each village takes its own holistic approach and relevant interventions are appropriately targeted based on the village's context. In the 'business-as-usual' scenario, technologies (such as climate risks-tolerant crops) or practices (such as soil and water conservation practices) are introduced. But more often than not, other interdependencies, such as traditional farmer knowledge, markets, financing, institutions, and policies were not looked at during implementation. Those interdependencies were taken into consideration in an AMIA village.

The common diversified systems introduced in the AMIA villages are crop rotation, alternate cropping, crop–livestock/poultry -fishery integration, and agroforestry in the uplands. These systems provide livelihood diversification, hence alternative livelihood sources in case of crop failure due to climate-related calamities. The most common alternative livelihood in AMIA villages is the native pig production. Some AMIA villages, mostly participated by the women, also developed agri-enterprises to increase income, such as coffee production (CAR); beekeeping and soybean production (Region I – Ilocos); and corn cob charcoal briquetting, soybean processing, and ube powder processing (Region IVA-CALABARZON).

2. Understanding vulnerability at different scale levels

Various tools and methodologies have been developed in partnership with research and development programs and institutions to assess and understand climate risk vulnerabilities. At the national level, the National Color-Coded Agricultural Guide Map (www.farmersguidemap.gov.ph) provides commodity specific risk projections. The Climate Risk Vulnerability Assessment (CRVA) tool, which was developed by CIAT and CCAFS and implemented by state colleges and universities, was used to identify priority vulnerable areas within a region where CRA technologies and practices are tested and/ or implemented. At the community level, location-specific impacts and appropriate interventions where identified through participatory approaches.

At local (municipal and community) levels, there are simple ways to help farmers and extension agents understand location-specific risks and vulnerabilities and objectively find ways to address it.

3. Understanding different aspects of and the importance of diversification

A stable and resilient system is complex and diverse; hence diversification is a cross-cutting management strategy of the impacts of climate change in agriculture. At least two forms of diversification exist in an AMIA village -- commodity diversification and livelihood diversification. Benefits from farm level diversification includes low incidence of pests and diseases, maximized use of arable areas, reduced soil erosion, enhanced soil fertility and condition, reduced risk of market failure when some crops got damaged, and overall increase in agricultural productivity. Diversification provides a variety of available food, which is important in improving human nutrition.

Given the importance of diversification in adapting to climate risks and resilience building, diversification should be explicit in the implementation of the commodity programs of DA. The DA-RFO-X (Northern Mindanao) has already demonstrated interface between the AMIA program and the Corn and Cassava Banner Program implemented in their region.

4. Implementing best-bet CRA technologies and practices with the farmers

There are already available, mature, and scalable technologies and practices that are being implemented on the ground. Most of these technologies are already highlighted in the banner programs of DA. These include planting of drought tolerant varieties, planting of rice varieties that can withstand long periods of submergence, organic farming, agroforestry system, alternate wetting-and-drying technology to optimize use of irrigation water in rice production and reduce greenhouse gas emission, sloping agricultural land technology (SALT), rainwater harvesting, and agricultural mechanization, to name a few. These interventions are being tested and implemented by the farmers.

Farming communities are inherently innovative and are eager to try new technologies and practices, especially when faced with adverse conditions. This gives a potential to enhance research output utilization. This requires working with LGUs and the agriculture extension system, and developing their capacities to provide mechanisms in sharing these research outputs to the farming communities.

There are enough experiences on the ground from both AMIA and regular DA commodity programs to provide basis for mainstreaming CRA within DA system. While the SWCCO leads the mainstreaming effort at the national level, the RFOs play an important role in ensuring that their respective plans and policies include CRA.

The promotion of a CRA technology or practice should also take into consideration the market potential of the commodity. Aside from having the potential to survive climate challenges, the commodity should also have the potential to generate livelihood and increase farmers' income. Competitiveness, productivity, and sustainability all directly or indirectly contribute to resilience.

DA-SWCCO has developed brochures that feature nine adaptive strategies facilitated on the ground: agricultural diversification, climate resilient crops, sustainable mechanization; enterprise development; climate information services; agricultural financial services; learning platform; farmers database; and soil and water management.

5. Capacitating farmers to implement CRA technologies and practices

The immediate goal of the AMIA Village approach is for farmers to fully appreciate and practice climate resilient approaches in agri-fisheries. This learning process is facilitated by the formation of a learning alliance. The village of Guinayangan in Quezon Province (Region IVA – CALABARZON) has farmer learning groups comprised of 10 to 12 farmer-members. These farmers participate in the field testing of selected CRA technologies and practices and they meet once a month to share their experiences with one another. Through this process, learning and knowledge emanate amongst the group, and later on, the community. Members of these learning groups become capacitated to support local extension workers to accelerate the adaptation of technologies and practices in the community.

In some regions of the country, farmer learning groups were transformed into organized groups, such as associations and cooperatives. In Region III (Central Luzon), farmer field school participants became members of organized registered cooperatives. This set up allows them to access more interventions and support from the government.

6. Investing in systems and mechanisms to facilitate community adaptation and create an enabling environment

Creating an enabling environment helps farmers become more competitive and build their resiliency to climate risks. In an AMIA village, farming and fishing communities receive strong support from the LGU. They serve as the conduit of services for creating facilities, and support to accelerate agricultural production. Examples of these are community seed bank (e.g., Community Seed Bank of Cagbunga Riverside Farmers Organization in Pamplona), and crop insurance (Region VI – Western Visayas). These two support systems are also part of the disaster risks reduction program of the government.

A community innovation fund aimed at supporting and encouraging smallholder farmers field test innovations on their farms was started in Guinayangan, Quezon. The fund also covers opportunity costs to farmers. The innovation fund was also used to build community support facilities, such as community animal breeding facility, seedling nurseries, and coffee processing facility, among others.

7. Sustaining and operationalizing CRA technologies and approaches

There are already a number of methodologies, tools, models, and systems that have been developed within the AMIA program. The National Color-Coded Agricultural Guide Map, commodity specific risk projections, region-wide CRVA outputs, participatory risks and vulnerability assessment, and climate information serviceto farmers could already be used a bases for planning interventions with the LGUs and farmers. How these are sustained and operationalized within the DA and the LGUs should be given utmost attention. A usability assessment of these toolkits would be useful to kickstart the planning for the

operationalization.

Part of sustaining CRA is the increasing investments on infrastructures and mechanization to enhance the community's adaptive capacity. Some AMIA villages have invested on automated weather stations, solar powered irrigation system, and drip irrigation system. DA-RFO-V (Bicol) invested in infrastructure development, such as building of dikes to avert storm surge and massive inundation in their rice fields.

8. Developing capacities for sustainability

Developing the capacities of both the farmers and the agricultural officers on using CRA technologies is as important as the development of the product. However, the extension system was considered to be below the required capacity level in terms of number and technical understanding. This was found to be crucial and a common challenge among the AMIA villages.

In the development of climate information service to farmers, capacities of the DA-RFOs and LGUs to generate, interpret, and deliver useful climate information need to be developed further. This delivery of climate information service to farmers requires collaboration with the banner programs for the formulation of advisories, and with the Agricultural Training Institute for the development of training programs.

The DA-RFO-V (Bicol) AMIA team members are currently serving as the resource persons for the development of climate information service to farmers in other DA-RFOs. They have already come up with a manual, which will be published by the Bureau of Agricultural Research.

9. Establishing and maintaining partnerships

At the center of AMIA's partnership network is the LGUs. It has the most direct reach to farmers and it serves as a conduit of government support and services to the farmers. The critical issue is if this mandate of the LGU is appropriately supported by DA.

Private sector and other institutions should also be well placed in the network of linkages, especially if building resiliency also involves establishing linkages to markets and to other nodes in the commodity value chain. Partnerships should be clearly identified and defined.

We are reminded though that reaching out to farmers is still a mandate for LGUs because of devolution. This includes helping farmers understand risks and vulnerabilities. So what do we need to do to contribute to LGUs delivering this mandate?

10. Mainstreaming gender

Women and men differ with regard to their respective perceptions of and reactions to climate change impacts. Within a community, women are disproportionately at risk. Climate change aggravate gender inequality through increase unpaid wok and increased vulnerability. Understanding these varying levels of vulnerabilities can lead to the development of appropriate approaches and technologies that addresses gender-related issues. There should be an in-depth analysis and understanding of the opportunities and constraints of women in accessing and controlling resources and services using gender disaggregated data, gender-sensitive data collection, gender-sensitive M&E indicators, and gender-equitable budgeting. In addition, there should also be an understanding of the cultural and social stereotypes and restrictions of women in a particular community.

11. Identifying champions

All these interventions can be successfully

implemented with the help of champions. Champions help drive efforts, such as advocacy, and establish linkages between policy and investments. In the course of the AMIA Program, some champions have already been identified. At the LGU level, the local chief executives of Guinayangan, Quezon and Pamplona, Camarines Sur have already showed support to the sustainability of the program by incorporating climate resilient agriculture approaches in their government programs. At the DA-RFO level, AMIA teams at the directorate level from DA-RFO-II, DA-RFO-IVA, DA-RFO-V, and DA-RFO-VI, have shown full support to the program by engaging other existing DA programs in the implementation and by providing additional investments.

Conclusion

The Department of Agriculture implemented the AMIA Program in 2014 to enable the small agriculture and fisheries communities in the Philippines to adapt to the challenges of climate change and sustain their livelihoods. To do this, the AMIA Program established 21 AMIA villages across the country to implement CRA tools and practices with farmers according to their village's context. The AMIA villages were selected based on modeling tools and participatory approaches and were considered vulnerable to climate crises.

The AMIA village is more than just a demonstration of CRA tools and practices on the ground. It is a 'go-to' place for learning. Farmer-to-farmer learning is facilitated within a village. Farmers share their experiences amongst their learning groups to continuously improve their practices. They also serve as resource persons during field days. This supplements the capacity of the current agriculture extension system to facilitate knowledge delivery and sharing.

Aside from CRA tools and practices, other interventions were facilitated on the ground. This includes seed bank, crop insurance, development of climate resilient infrastructure, support to mechanization, establishment of irrigation and water saving facilities, access to credit, among others. These were implemented in the village through DA-SWCCO, DA-RFOs, the LGUs, and other program partners.

There are already a number of lessons and outcome stories emerging from the AMIA Village experience to inform the DA and its family of agencies of the importance of local platforms for adaptation in the form of climate smart villages towards overall resilience building of the sector.

Adapting to climate change needs a systems approach and a sustainability mindset. Interventions should take into consideration long-term value and impact. Fortunately, Climate resilience is now recognized among the outcome areas of the successor Agriculture and Fisheries Modernization Plan 2018-2023. The AMIA village experience has demonstrated the elements of CRA that can and should be mainstreamed within the DA system. While the SWCCO, with the cooperation of the regular programs, leads the mainstreaming effort at the national level, the RFOs play an important role in ensuring that their respective plans and policies also promote CRA. ■

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For more information on the NAP-Ag Project, you may contact the FAO Country Office: fao-ph@fao.org.

DA-SWCCO (Systems-Wide Climate Change Office)
4/F DA Bldg., DA Compound, Elliptical Rd.,
Quezon City, Philippines
Telephone: +63 (2) 273-2489
Trunkline: +63 (2) 928-8741 to 64 loc. 2489
Email: daswcco@gov.ph
Website: www.swcco.da.gov

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