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Multidimensional Approach in Identifying Best Practices and Initiatives for Organic Agriculture Promotion in the Philippines

MARIANNE R. DE LUNA[1,2*], EDNA LUISA A. MATIENZO[1,3], and MYRNA A. TENORIO[1,4]

ABSTRACT. Various efforts of different organizations to promote organic agriculture (OA) were being implemented even before the enactment of Organic Agriculture Act of 2010 in the Philippines. This paper used case studies to document and analyze best practices in OA promotion using a multidimensional approach. The case studies include: a) Provincial Initiative: Organic Village Model in Victorias City, Negros Occidental; b) Municipal Level Experience: Tublay, Benguet's Program in Promoting and Implementing Organic Agriculture; and c) Private Sector Initiative: The Sta. Josefa Integrated Organic Farmers Association's (SJIOFA) Experience in Implementing an Organic Agriculture Program. The case studies showcased a combination of strategies that worked well to their advantage and appropriate to their present situation. In summary, the factors which facilitated the promotion and advocacy on OA include strong support from the local government, strong linkages with national and international organizations who collaborate for OA, presence of organized farmers' group advocating for OA, and presence of relevant infrastructure support like the Learning Center and technology demonstration farms or organic trading posts. Using the multi-dimensional approach, it was shown that OA can be promoted and adopted by means of responding to the interrelated needs of different factors by each stakeholder in the community. Assessing the determinants of OA adoption and ensuring inclusive participation of multi-stakeholders through holistic systems approach are useful for unified planning, implementation, and evaluation of sustainable OA programs in the country.

Keywords: *Best practices, case studies, multi-dimensional approach, organic agriculture, promotion*

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[1]*College of Agriculture and Food Science*
University of the Philippines Los Baños
Laguna, Philippines
[2] *https://orcid.org/0000-0003-1725-6013*
[3] *https://orcid.org/0000-0002-9989-8871*
[4] *https://orcid.org/0000-0002-9062-1649*
**Corresponding author: mrdeluna@up.edu.ph*

INTRODUCTION

The University of the Philippines Los Baños, College of Agriculture and Food Science through the Agricultural Systems Institute (ASI) implemented the project titled *Multidimensional Approach in Assessing Farmers' Barriers to and Factors Influencing Organic Agriculture (OA) Adoption* from December 2014 to October 2017 in six project sites in the Philippines. The project was funded by the Department of Agriculture-Bureau of Agricultural Research (DA-BAR).

The project aimed to identify influencing and constraining factors for OA adoption using a multidimensional approach. The project sites were in Luzon (Tublay, Benguet and Sabtang, Batanes); Visayas (Dao, Capiz and Victorias City, Negros Occidental) and Mindanao (Sta. Josefa, Agusan del Sur and Braulio E. Dujali, Davao del Norte).

This paper forms part of the project component on *Best Practices and Initiatives in Promoting, Implementing, and Scaling-up Organic Farming Among Smallholder Farmers/Groups*. The study sought to examine best practices and initiatives in the promotion of OA in selected municipalities in the country based on the identified facilitating and constraining factors on adoption. Case studies and results of the participatory workshops were used in the analysis.

Even before the enactment of the Organic Agriculture Act (Republic Act 10068), there were already undertakings mostly by non-government organizations (NGOs) and by the private sector to promote OA. Currently, there are more initiatives in advancing OA headed by government agencies, state colleges and universities, local government units, private sector, NGOs, and peoples' organizations. There were also multi-stakeholder partnerships in implementing OA programs.

There are many researchable areas and complex issues that have to be addressed in OA. One concern is that organic agriculture is often viewed merely as a production system, missing out on other integral components that will make the agricultural system function as a whole. The interactions of the holistic components of the organic agricultural system are important in understanding what motivates farmers to adopt or not.

Investigating the interconnectedness of different components of OA requires a systems approach due to its complexity, especially when one looks at how each component is linked to OA adoption or

non-adoption. The organic farm and the farmer should be viewed with a systems perspective and in a holistic manner with interrelated/ interactive components, i.e., social, technical, economic, environmental, and political aspects.

Although numerous studies have been conducted across the world on the adoption and subsequent economic impacts of organic farming, there remains a dearth of studies that focus on the determinants of the adoption and non-adoption of organic farming practices and technologies.

Likewise, best practices in promoting OA are rarely documented and examined. The approaches and scope of intervention may also differ and determinants of OA adoption may not be well understood. Thus, analyzing best practices and initiatives for the promotion of OA adoption by different organizations requires a participatory and stakeholder-driven approach. It is hoped that recommendations from this study will be useful in the formulation of policies, program designs, and strategies to promote adoption of organic farming.

Organic Agriculture

According to the IFOAM General Assembly (2008), OA is defined as "a production system that sustains the health of soils, ecosystems and people. It relies on ecological processes, biodiversity, and cycles adapted to local conditions, rather than the use of inputs with adverse effects. Organic agriculture combines tradition, innovation, and science to benefit the shared environment and promote fair relationships and a good quality of life for all involved."

Organic farming is practiced in more than 100 countries and is continuously growing (Yussefi & Mitschke, 2003). Based on the 2003 Stiftung Oekologie & Landbau survey, there were about 23 million ha organic farms worldwide (Yussefi, 2003). In Asia, however, the area that is managed organically remains very low (almost 600,000 ha). One positive thing to note is that there is an increasing area "in conversion." China, India, and Indonesia are among the Asian countries growing organic products on a large scale.

Based on the Rodale Institute's (2011) study, yields from organic farming were almost the same as those from conventional farming, after a three-year transition period. However, organic farms manage to earn three times more than conventional farms due to higher prices paid for

organic produce and the lower input costs incurred. The study also noted that organic systems used 45% less energy and production efficiency was 28% higher. On the other hand, the conventional systems emitted nearly 40% more greenhouse gases (GHG) per pound of crop produced. Less energy used means less greenhouse gas emissions. Thus, it shows that organic farming is climate-friendly. An organic farming business will, therefore, incur less expense with respect to energy use, which translates to cost savings.

Organic farms were also found to have lesser nitrate leaching and emissions from nitrous oxide and ammonia per unit of field area. However, they have higher leaching and emissions per unit product based on a meta-analysis of environmental quality parameters (Reganold & Wachter, 2016). Since organic systems generally require far less energy and have higher soil organic matter, they make ideal blueprints to develop methods to limit fossil fuel emissions and build soil carbon stores. These are important tools in addressing climate change.

Organic production is mainly suited for smallholder farmers, who comprise the majority of the world's poor (Panitchpakdi & Steiner, 2008). It makes them less dependent on external resources, and it gives them higher and more stable yield and income. Organic agriculture in developing countries encourages the continuity of farmers' rich heritage of traditional knowledge and traditional agricultural varieties. It also strengthens communities and gives youth an incentive to keep farming, which lessens rural-urban migration.

A review of methods used to analyze conversion to organic farming suggests that in analyzing conversion and transition in agriculture as multidimensional issues, interdisciplinary approaches and a redefinition of some central research topics are required if we try to include production and social practices (Lamine & Bellon, 2009). Also, the system-oriented and participative concept of OA presents a great potential as a climate change mitigation and adaptation strategy if combined with new sustainable technologies (IFOAM Insider, 2009).

Organic agriculture is linked with different rates and constraints in adoption. Briones (2004) noted areas under low-external input sustainable agriculture (LEISA) have a high potential for conversion towards organic farming. These are rice and vegetable production areas; hence, there are several studies that show the high adoption rate of OA among rice and vegetable farmers.

Organic Agriculture in the Philippines

The 2003 Stiftung Oekologie & Landbau survey showed that the Philippines only has 2,000 ha in organic production, which is 2% of the total agricultural area, and has identified about 500 organic farms (Yussefi, 2003). Fresh vegetables and rice, which command a 30%-50% price premium in specialized stores and supermarkets, are the local organic products available in the Philippines.

Based on the *National Organic Agriculture Program (2012-2016)*, the OA sector in the Philippines remains in its formative years. The production of OA products remains marginal with less than 1% of the country's agricultural land devoted to organic farming. The expected outcomes of NOAP include improved quality of life and increased in income of farmers, increased market presence of organic products in local and international markets, and increased contribution of organic products to agricultural output (National Organic Agriculture Board, 2013).

Maohong (2018) identified different models of OA developed in the Philippines. The first is the organic farm model set up by corporations for commercial agricultural production, which aims to produce organic products for the national and international organic markets. The second model is organic farming that developed out of commercial plantations. The third model is an organic farm that was transformed from a small-scale family farm that had sought to increase income and secure food and nutritional demands. The fourth model is a traditional organic farm that existed widely in the Philippines, predating the Spanish colonial period. The intentional development of OA became a reaction to the failures of the existing agricultural structures.

Republic Act 10068 (Organic Agriculture Act of 2010) intensifies the country's policy "to promote, propagate, develop further, and implement the practice of organic agriculture in the Philippines," (Presidential Communications Operations Office, 2010). Executive Order No. 481 (Promotion and Development of Organic Agriculture in the Philippines) also envisioned to launch an OA program, which shall adopt and develop organic production markets, educate more farmers, provide extension assistance to individuals and groups who are practicing and promoting these methods, and document and evaluate the programs.

Meanwhile, Republic Act 11511 (An Act Amending the Organic Agriculture Act of 2010) was approved on December 23, 2020 and

became effective on January 21, 2021. Section 18 of the Organic Agriculture Act, as amended by RA 11511, states that "products which are certified and 'guaranteed' by a third-party organic certification system and Participatory Guarantee System (PGS) shall be allowed to be labeled and sold as organic," (Presidential Communications Operations Office, 2020). The PGS, under Section 3 of RA 11511, is a locally-focused quality assurance system, which is developed and practiced by people engaged in OA. It is built on a foundation of trust, social network, and knowledge exchange. This system is used to certify producers and farmers as actual and active practitioners of OA.

Another legal instrument is the creation of the Bio-organic Farming Authority under the Office of the Philippines President. Other bills pertaining to the various aspects of OA such as training programs at the barangay (village) level to educate more farmers, extending extension service to groups practicing organic farming, establishing training facilities in every barangay, and granting of special loans to farmers are pending in the Philippine Congress. At the municipal and barangay levels, local government units are encouraged to engage in organic farming through various resolutions, masterplans, and programs.

Challenges in Organic Agriculture

Lirag and Bordado (2016) found that information needs on demand and supply was a major concern in the Bicol region in the Philippines. Identified research gaps include the absence of a whole research chain on OA for a specific commodity, the lack of research with components on developing a centralized, web-based information system, and the inadequate research on policy and governance on OA.

Pantoja et al. (2016) found that factors that hindered the utilization of organic rice production practices include farmers' perceptions that yield declined with their use and that organic production practices were more laborious and time-consuming than conventional practices. These were worsened by production problems (e.g., pests and diseases, natural calamities, and lack of irrigation water), lack of workers competent in organic farming, and limitations on access to organic inputs such as fertilizer, seeds, and delay in the delivery of inputs. Their study showed that organic rice production, which is classified into certified organic and in-conversion (into organic rice but product not certified), obtained lower average rice yields than conventional rice production. However, their cost and return analysis indicated that organic rice production had higher mean gross income than conventional rice production due to higher prices received.

Landicho et al. (2014) found that the majority of the farmers in their study had moved from conventional agriculture to organic farming practices due to their health and food safety concerns, cheaper inputs, and the preservation of their local agricultural practices. Challenges in OA adoption include issues relating to financial and technical capacity of the smallholder farmers, problem on the marketing and product labelling of organic food products, and the quality of the organically produced agricultural products.

Despite various initiatives of the government and different organizations to encourage the adoption of organic farming, small farmers hesitate to adopt the practice. The benefits of OA seem to be outweighed by the negative opinion of some farmers, which shows the limited knowledge and misconceptions of farmers on OA. The core orientation that OA is a multi-dimensional yet holistic management system is often glossed over (Salazar, 2005).

METHODOLOGY

Through case studies, the best practices and initiatives in promoting OA adoption were documented and analyzed. Case studies are used to explore trends in many scientific disciplines or as a preliminary/exploratory stage of a research project.

The project chose case studies at the provincial, local government, and people's organization levels. From the six sites, three case studies of best practices/initiatives for OA promotion were selected to represent each island group. Several criteria were used in selecting the cases (Table 1).

Moreover, Figure 1 shows that the following sites met all the selection criteria:

1. Provincial initiative - Organic Village Model in Victorias City, Negros Occidental;
2. Municipal level experience - Tublay, Benguet's program in promoting and implementing organic agriculture; and
3. Private sector initiative - The Sta. Josefa Integrated Organic Farmers Association's (SJIOFA) experience in implementing an organic agriculture program

The study used the framework on the multidimensional approach on OA promotion and adoption (Figure 2). The framework

Table 1. Criteria in selecting the case study sites

CRITERIA	LUZON		VISAYAS		MINDANAO	
	Tublay, Benguet	Sabtang, Batanes	Dao, Capiz	Victorias City, Negros Occidental	Sta. Josefa, Agusan del Sur	Braulio E. Dujali, Davao del Norte
a) Recipient of several awards on OA	✓	✓	✓	✓	✓	✓
b) Comprehensive OA program with holistic and systems perspective	✓	✓	✓	✓	✓	✓
c) Wide network with local and international agencies/organization	✓	-	-	✓	✓	-
d) Has strong commitment to sustain the OA program/initiative	✓	✓	✓	✓	✓	✓

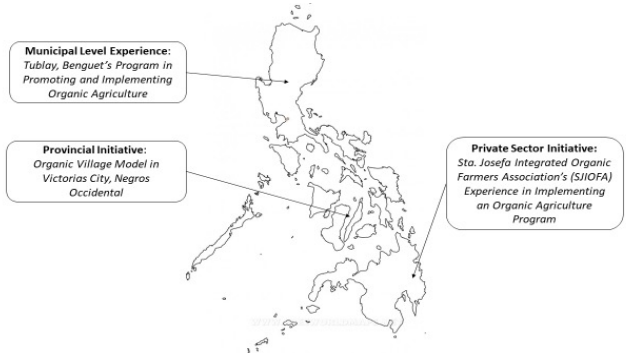

Figure 1. Location of the case study sites

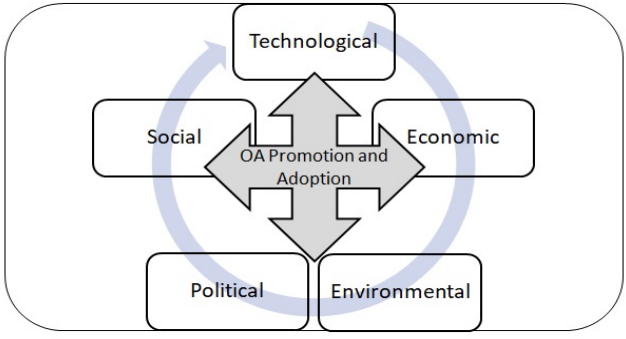

Figure 2. Multidimensional approach on OA promotion

considers the various factors using the social, technical, economic, environmental, and political (STEEP) analysis. It illustrates how the STEEP factors can influence each other and affect the promotion of OA among smallholder farmers.

The data from the farmers' survey and project partner interviews were used to validate findings or discussion in the case studies. The results of interviews and analyses of secondary data were discussed and consolidated. Recommendations were made based on the findings of the individual case studies (Figure 3).

Copies of secondary data and photos about the farmers' OA programs and their accomplishments were also collected. The secondary data, such as the basic agricultural profile of the area, were confirmed through farm visits, participatory video documentation, and dialogue with case respondents.

The result of the participatory data validation and action planning workshops conducted in the six project sites became an important basis in the analysis of the case studies. Facilitating and constraining factors for OA adoption were initially categorized into components of production, marketing, capacity building, and institutional support services, but the STEEP framework was used in the final analysis.

In analyzing best practices and initiatives for OA promotion and sustainable adoption, several guide questions were framed and discussed with case respondents to include the following: organization's officials, focal persons on OA, and key officials of the barangay, municipal, and provincial governments involved in OA program for the case analysis and video documentation.

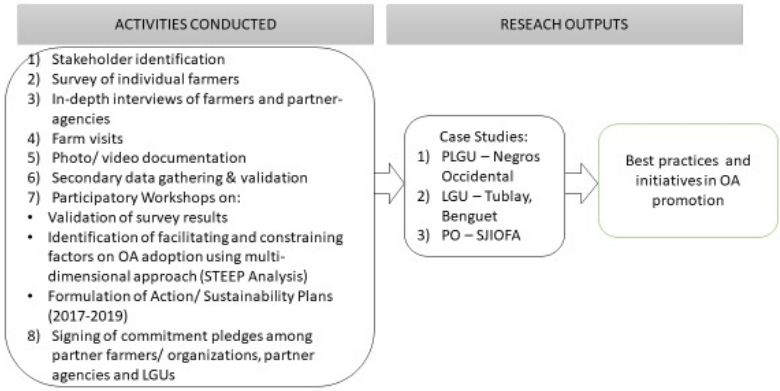

Figure 3. Operational framework

Information on the following were obtained: 1) history of OA program; 2) OA roadmap; 3) highlights of their accomplishments on OA; 4) the processes and problems they have encountered; 5) linkages or partners in the implementation of OA program; 6) plans to sustain the program; and 7) messages to farmers, partners, and local government units (LGUs).

The participatory video documentation involved the case respondents as actors/smart folio resource persons and scriptwriters where they shared their best practices in OA promotion. The research team prepared guide questions for them to provide answers, and later the script was shortened and edited together with them. The final output was a wider sharing of the best practice for OA promotion from their own perspectives and experiences. The synopses of the three case studies were prepared as supplementary references of the video documentation.

The following participatory rural appraisal (PRA) tools were used to further analyze their best practices/initiatives: 1) Venn Diagram or social/institutional network diagram; 2) marketing channels and mechanisms; 3) income statement from organic rice project; and 4) STEEP analysis for the facilitating and constraining factors on OA adoption and promotion, and for their sustainability plans.

RESULTS AND DISCUSSION

Highlights of Case Studies

Provincial Initiative: Organic Village Model in Victorias City, Negros Occidental

Negros Occidental in Western Visayas (Region VI) is located in the northwestern portion of Negros Island, which is considered the fourth biggest island in the Philippine archipelago. Negros Occidental has 13 cities and 19 municipalities. It is considered as a first class province in terms of income, and has a total land area of 792,607 ha. As of May 2020, it has a total population of 2,623,172 (Philippine Statistics Authority, 2021). Negros Occidental reported the highest population in Region VI on the same year.

Negros Occidental's economy is mainly agricultural. About 98% of the province's alienable and disposable land is used for agriculture while 2% for inland fishery/fishpond. The province has 27,340 farms and 26,572 farmers with 186,906 ha area for agriculture (2014 Negros

Occidental Socio-Economic Trends/NOSET). About 79% of the farmers own 0.01-5.00 ha while less than 1% own more than 100 ha of land.

In the mid-1980s, a food sovereignty movement emerged in Negros Occidental to address the problem of hunger that stemmed from the monoculture-based sugar industry. Organic agriculture became the means to diversify the province's rural economy, restore the degraded resource base, and attain food security among the constantly hungry food producers. The Negros Occidental experience made OA part of its own food sovereignty movement.

The late Negros Occidental Governor Joseph G. Maranon believed that chemical farming was hazardous to both humans and the environment. He strongly promoted organic farming systems to provide healthy and safe food for the Negrenses while rehabilitating the environment from the ill consequences of chemical farming.

The province of Negros Occidental also collaborated with NGOs, LGUs, and the academe in the Negros Sustainable Agriculture Network. They pooled their resources and instituted the movement by holding the Organic Trade Fair from 2000 to 2005. The theme "Organik na Negros" served as an invitation for all Negrenses to advocate and practice organic farming.

After the signing of a Memorandum of Agreement (MOA) between the late Gov. Joseph G. Maranon and the former Gov. George Arnaiz of Negros Oriental in August 2005 to establish the Negros Island as the "Organic Food Bowl of Asia," the province of Negros Occidental formulated its Food Sufficiency and Security Program highlighting OA.

The Organic Village Model. Negros Occidental's ultimate goal is to become the "Organic Food Bowl of Asia." The OA development is among the 13 main development programs of the Provincial Agriculture Office of Negros Occidental. The establishment of organic villages was among its strategies in implementing the OA program. The objectives of the organic villages were to serve as the entry-point/approach on OA, showcase different diversified and integrated OA technologies, and motivate other farmers to adopt OA.

The Provincial Agriculture Office of Negros Occidental established 10 pilot organic villages in three municipalities and seven cities of the province in 2017 to showcase the OA program. They met with barangay officials and farmers and encouraged them to join the pilot villages. They conducted value formation training and capability

building for farmers before organizing them. Meetings with local agricultural technicians of the pilot villages were done to solicit regular feedback on the status of the sites.

Figure 4. Organic village map (2017)

An average of 30-35 farmers joined each organic village, more than their initial target of 20-25 farmers per village. The Provincial Agriculture Office helped the farmers acquire a legal personality by registering them with the Department of Labor and Employment as an Organic Village Association.

Village-level laboratory and production centers for biological agents/decomposers and organic fertilizer production were installed in each organic village. They also advocated for mushroom culture and production at Panaad Park, people's organizations, and individual farms and the establishment of One-Stop Laboratory Center for various analysis on soil, water, fertilizer, plant, heavy metals, and microbials to support the OA program.

The OA Program of Negros Occidental boasts of various accomplishments as of 2015. They have about 9,621 organic practitioners composed of people's organizations, non-government organizations, private individuals, and certified organic producers in the province. Eleven organic farms were certified by the Negros Island Certification (NICERT). These groups produced various organic products, such as rice, vegetables, root crops, coffee, sugarcane, herbs, milkfish, and swine. Also, there has been an increasing in-flow of agri-tourists within and outside the province to learn organic farming technologies from their different farms.

One of the identified expansion sites of the organic villages was the LGU-led Minuro Organic Village Association (MOVIA) in Victorias City, Negros Occidental. The City of Victorias, often referred to as Victorias City, is a fourth class city in the province of Negros Occidental. It is 34 km from Bacolod and is approximately 357 nautical miles from the south of Manila. It is considered as the sugar capital of Negros Occidental. It has a total land area of 133.92 square kilometers, with 26 barangays. A 2020 data by the Philippine Statistics Authority note that the population of Victorias City is 90,101.

The City Agriculture Office has provided technical training on OA, internal control systems and organic feed formulation to farmers, among others. They have also conducted various training programs at the MOVIA farm, which was one of their farm tourism sites. Also, a notable accomplishment of the city government of Victorias was their initiative to provide a PhP 10,000.00 thesis fund as thesis support on OA for Central Philippines State University students in 2016 where 18 students (10 students in 2016 and 8 students in 2017) were supported.

There were also provisions of production inputs like fertilizers, seeds and equipment/shredder from the City Agriculture Office, and the production of organic fertilizers and other farm inputs at the barangay level. An Organic Market and Pasalubong Center was established at Victorias City and its major concern was to supply organic food, vegetables, livestock, and other organic products. The City Agriculture Office has also identified several farm tourism sites, which included the Minuro Organic Village Association (MOVIA) farm.

Minuro Organic Village Association. The MOVIA was organized on November 27, 2012 with 30 members coming from Barangays 10 and 14. They were registered at the Department of Labor and Employment (DOLE) on February 11, 2013 with Registration No. RO601-201302-WA-002. They were later accredited as a legitimate workers' association by the Office of the Sangguniang Panglunsod as signed by Vice Mayor Jerry L. Jover on September 24, 2015.

MOVIA's goals are to promote organic production in Victorias City, alleviate the farmers' livelihood, educate the Filipino people regarding organic farming, and link with Victorias' LGU and other institutions in promoting organic farming. The City Government of Victorias recognized MOVIA as a learning site or demonstration farm and as a farm tourism site. Their partnership with Nanjo City in Okinawa, Japan provided them an opportunity to participate in exposure trips in Japan and be taught on proper packaging, labeling, and display of their organic products.

Additionally, the Central Philippines State University students provided the needed research counterpart on OA. The MOVIA was also prioritized in terms of funding support from the City Government and in providing a space in the Organic Market and Pasalubong Center in Victorias City.

The MOVIA participated in various events and trainings on OA. They were also able to strengthen the members' knowledge in organic farming by continually conducting seminars such as on vermicomposting, production of foliar concoctions, and swine production. MOVIA also sent one of their members to Japan to attend an organic farming seminar in February 2015. Moreover, the MOVIA farm was selected to be an Agricultural Training Institute-accredited learning site on OA integrated diversified organic farming systems and a farm tourism site of the LGU.

The MOVIA farm also became a farm tourism destination for guests of the LGU and other visitors who were interested to learn about OA. It also served as a venue for the summer practicum program of agriculture students of the Central Philippines State University, aside from being an area for students who are conducting their thesis.

The Agricultural Training Institute reported that the MOVIA Learning Site had already accommodated 1,845 guests since 2012. The site has also conducted 26 training programs and hosted 27 meetings in the area. The MOVIA Learning Site has helped 32 Central Philippines State University agriculture students to graduate by providing a practicum area and other means of support. They also accommodated the conduct of four research studies and facilitated two summer practicum for Central Philippines State University students. The MOVIA Learning Site has thus far benefitted an estimated 2,457 individuals from within and outside Victorias City (ATI report, 2014).

During the DA-Negros Island Region's 1st Regional Organic Agriculture Congress held in May 2017 at the Provincial Capitol in Bacolod City, Mr. Rodrigo Sumugat, president of MOVIA, received the Outstanding Organic Farming Family award. He also received a cash reward for implementing additional projects in organic farming.

In addition, Victorias City was awarded as an Outstanding Organic City in the Negros Island Region. In recognition of the support of the city to organic farmers, Ms. Leni Lacuesta, one of their agricultural extension workers, was awarded as Regional Outstanding City Focal Person on Organic Agriculture.

Facilitating Factors on Organic Agriculture Adoption. The STEEP analysis for organic village was summarized in Appendix A. The strong political support and linkage with appropriate agencies of the organic villages have facilitated the adoption of OA in Negros Occidental. The learning sites demonstration farms and farm tourism sites became the venue for learning of farmers and students on OA. The annual Negros Island Organic Farmers' Festivals and the organic markets promoted the products produced by the organic villages. Environmental protection and conservation were promoted by using locally available materials for composting. The awards/recognitions received by the organic villages proved that they are on the right track.

Constraining Factors on Organic Agriculture Adoption. Constraining factors affecting organic villages include the increasing inactive members and the *wait-and-see* attitude of farmers. The insufficient funds for training of farmers and students, and lack of facilities and technologies on processing and value-adding have also affected the promotion of OA. In addition, the limited knowledge on certification, the poor farm-to-market roads, the inactive Local Technical Committee on OA, and the inadequate fund support for OA in the barangay level contributed to the delay in the adoption of OA.

Another issue was the frequent change in the organizational structure of the Provincial Agriculture Office which oversees the sustainability of the organic villages. The organic villages depend on the agricultural extension workers for preparing and processing documents related to certification, thus, hindering the organic product certification process.

Sustainability Plans. The sustainability plans for the organic village include the continual training and values reorientation seminars for farmers, encouraging more farmers to adopt OA, and developing more local farmer technicians. They hope to establish more organic villages, demonstration farms or farm tourism sites, and/or learning sites. They plan to install more composting facilities in the barangays and biological control laboratories to facilitate the production of organic fertilizers. Included also in their plans is to establish a breeding station for their livestock program and to produce their own organic seeds.

Aside from the continual promotion of organic products through the Negros Island Organic Farming Festival and other trade fairs and exhibits, they hope to establish organic markets at the village level. Certification can still be processed through the Participatory Guarantee System. Furthermore, the acquisition of cold storage facilities will help

preserve the organic products. They also wanted to encourage more LGUs to establish organic villages. There is a need to encourage fund sourcing or lobbying for the improvement of their farm-to-market roads and to establish premium price for their organic projects.

The designated OA focal persons per municipality should work devotedly on OA. More so, the Provincial Agriculturist should assign an OA team that has a clear delineation of roles with the other programs of the Provincial Agriculture Office. This will ensure that the projects and activities of the organic villages will be sustained, and OA will be promoted in the whole province. On the other hand, Victorias City should continue providing thesis support to Central Philippines State University's agriculture students to enable documentation of their organic agriculture experience. An agreement with the university should be formalized to encourage more research on OA.

These sustainability plans capture the multi-dimensional aspect of OA. The approaches integrate the production, marketing, capacity building, institutional support services, and political aspects affecting OA adoption. Sustained capacity enhancement of farmers in the organic villages, providing necessary production and marketing support and facilities, and linkage with agencies and organizations were crucial factors to sustain the organic villages and the OA program. This will help fast-track the adoption of OA in Victorias City and Negros Occidental as a whole and will hopefully lead to increased production and income to organic farmers, particularly those in the organic villages.

Municipal Level Experience: Tublay, Benguet's Program in Promoting and Implementing Organic Agriculture

Tublay is a fifth class municipality in the province of Benguet, Northern Philippines. It is located 263 km north of Manila and 13 km north of Baguio City. The total land area is 10,255 ha with 34.76% agricultural area (3,565 ha) and a population of 17,592 people (2014 census). It is composed of eight barangays, namely: Ambassador, Ambongdolan, Ba-ayan, Basil, Caponga, Daclan, Tublay Central, and Tuel. As of 2017, the estimated number of farmers in Tublay was 7,629 with 7,171.26 ha (69.93% of total land area). The town is considered as as an agricultural area based on the municipality's Comprehensive Land Use Plan for 2014-2023.

Tublay has dominantly steep to hilly mountainous terrain with a slope ranging from 25 degrees and over, covering about 4,678.33 ha (45.61%) and an elevation of 1,400 m or 4,600 ft above sea level. Tublay

has two pronounced seasons, i.e., dry and wet, with a temperature coldest at 6.5 °C (43.7 °F) and warmest at 27.5 °C (81.5 °F). Almost all crops produced by Benguet Province can be grown in Tublay. These include rice, vegetables, root crops, cut flowers, fruits, and plantation crops. Only one barangay of Tublay is not producing rice. In terms of rice-growing environments, 39% of the rice area is irrigated while the rest is rainfed. The estimated average productivity of rice in 2010 was 2.62 mt per ha.

Tublay's Organic Agriculture Program started in 2008 when their Municipal Agriculture Office initiated the organization of farmers to engage in OA. They convened interested farmers, local government officials, and other stakeholders. They prepared a Municipal OA Development Plan for 2008-2012 with a budget of PhP 8.37 million from various sources. With the help of the Provincial Agriculture Office of Benguet, they formulated the Tublay OA Roadmap for 2011-2016, detailing the plan of action of the municipality in implementing their OA program from 2011-2016. Tublay had five major programs on OA as enumerated in their roadmap. They were: 1) institutionalization, development, and promotion; 2) production and technology support services; 3) extension, capability-building, advocacy, and education; 4) market development; and 5) research and development.

Local policies and projects to promote OA were accomplished, such as the enactment of Municipal Ordinance No. 2014-02, creation of Municipal Local Technical Committee (MLTC) through Executive Order No. 15, series of 2011, inclusion of OA and GAP as priority projects in the Executive and Legislative Agenda (ELA), integration of organic farming as vital component of the Municipal Nutrition Program called Tublay SHINES, integration of OA in the Disaster Risk Reduction Management Plan, assistance in the organization of the Tublay Organic Farming Practitioners Association, inclusion of OA in the programs of other sectors (senior citizen, women, and youth), and the formation of volunteer associations that may be tapped by the Municipal Agriculture Office in implementing the OA program.

The Municipal Learning Center of Tublay served as a learning site for different sustainable agriculture technologies and practices, such as organic farming. They received a Learning Site Certificate as an integrated organic farm from the ATI. The learning center consists of different facilities for composting, vermi-composting, concoction; and a Mokusaku facility. Mokusaku or wood vinegar is a Japanese technology used in organic vegetable production. A municipal plant nursery was also maintained in the learning center. They have also established barangay-based organic production facilities (i.e., vermi-composting facilities)

to further encourage farmers to continue and enhance production of organic products.

Tublay's capability-building initiatives led to the formation of six barangay-based OA associations out of its eight barangays. They participated in observation studies in Japan where young farmers, Tublay officials, and staff members were dispatched in Nagano, Kochi, Aichi, and Ehime Prefectures under the Benguet Young Farmers Training program. From 2012 to 2013, the LGU of Tublay conducted 21 training programs with 1,107 farmers; 5 agricultural extension workers; and 232 students, teachers, and parents as participants.

Their market development component included assistance to marketing of OA products such as facilitating the establishment of regular market days in different local outlets; participation to Benguet Agro-Industrial Trade and Tourism Fairs; encouragement to farmers for market/consumer-based crop production programming; linkages and networking to different markets; establishment of Tublay Agri-Marketing and Food Processing Center or Organic Trading Post; and the procurement of vehicles and equipment for marketing.

In terms of research and development, Tublay provided assistance to Tublay Organic Farming Practitioners Association in developing member's farm as research and demonstration sites for OA practices; formed linkages with Benguet State University for other OA-related researches; gave assistance to 10 Benguet State University students who took agriculture courses for research studies on OA technologies from 2014 to 2016; developed appropriate substrates for both compost and vermicompost at the municipal facility in partnership with Benguet State University; and integrated OA to the elementary and high school curricula through *Gulayan sa Paaralan*.

Tublay's efforts on OA paid off when they received awards in 2013 from the Department of Agriculture as the *Outstanding Municipal LGU on Organic Agriculture* and the O*utstanding Focal Person on Organic Agriculture* at the national level. They received PhP 1 million for the LGU and PhP 30,000.00 for the focal person on OA as prizes for their award.

On November 21, 2016, the municipality of Tublay was recognized by the Provincial Government of Benguet as the *Best Performing Municipality in Organic Agriculture* for their contribution and unwavering support in attaining the vision and goals in the development of the agriculture industry in the province.

Tublay won for the 2nd time the *National Organic Agriculture Achievers Award* for the city/municipality category during the 15th National Organic Agriculture Congress at the Waterfront Hotel in Cebu City on November 13, 2018.

Facilitating Factors for Organic Agriculture Adoption. The STEEP analysis for Tublay, Benguet was summarized in Appendix B. The training and organization of farmer groups in the social aspect were further enhanced by the establishment of demonstration farms and use of OA facilities at the barangay level. However, production will not be sustained without market; hence, the marketing and processing facilities, including market outlets and trading posts, contributed to the economic development of the Tublay organic farmers. The environmental conservation component of OA complemented the need for raw materials for composting. All the efforts on OA will not push through without the support of the local government. The OA roadmap, the budget allocations, inclusion of OA in other LGU programs, and involvement of other stakeholders contributed towards Tublay being recognized for its efforts on OA. All these factors coalesced and influenced the adoption of OA in Tublay.

Constraining Factors for Organic Agriculture Adoption. Production of organic crops decreases if there is limited manpower to oversee the OA facilities and mechanization or if the facility improvement for production is not affordable to farmers. This can be further aggravated by climate change that leads to soil erosion and insufficient source of water for irrigation. The inadequate farm-to-market roads also constrained OA adoption by farmers.

The OA adoption can also be limited by the unstable market supply, absence of market study/business plan, and organic certification. It can also be hampered by an unorganized Municipal Technical Working Group, and not sustained data collection/updating on OA which were needed to get more funding support.

Sustainability Plans. The LGU of Tublay would religiously provide enhancement training programs and seminars on OA provided that their agricultural extension workers and farmers must focus on climate change mitigation practices, monitoring and evaluation, project proposal presentation, and data profiling to support the gap on research and documentation on OA.

Strengthening of barangay-based OA associations will be through continual training and study tours on new OA technologies to

promote the use of their composting facilities and increase the production of inputs in their barangay. Likewise, it will encourage the practice of water-saving and soil conservation technologies to manage the effects of erosion on crop production. This will facilitate the allotment of OA funds in each barangay.

The operation and maintenance of the OA facilities (e.g., organic trading post, market outlets, and organic processing facilities) will be a major concern for the sustainability of their OA program. Thus, they have considered referring to market or feasibility studies and business plans to fully operationalize these facilities and generate income for the farmers.

To increase production and systematize marketing of organic products, they hope to implement crop production programming with provisions on crop insurance. To ensure a steady supply of organic seeds, they have partnered with US-based organization called Friends of Enrique and Carmen in establishing an organic seed bank. Tublay would also like to focus on implementing the Participatory Guarantee Systems while processing the farmers' third party certification.

Aside from tapping the resources of partner-agencies, the LGU of Tublay plans to include OA in different LGU development plans to ensure its promotion, funding support, and active involvement of different stakeholders. They will sustain the Seal of Good Barangay Governance awards in the barangays and suggest a provincial OA award during the Benguet Foundation Day to recognize efforts made by the municipalities in promoting OA in Benguet.

Private Sector Initiative: Sta. Josefa Integrated Organic Farmers Association's Experience in Implementing an Organic Agriculture Program

The province of Agusan del Sur is surrounded by Agusan del Norte in the north, by Compostela Valley in the south, by Misamis Oriental and Bukidnon in the west, and by Surigao del Sur in the east. Agusan del Sur is subdivided into 13 municipalities and 1 city. Its approximate area is 896,550 ha or 8,965.50 m^2. Agusan del Sur's total agricultural area is about 44,383 ha where main crops include corn, banana, mango, calamansi, vegetables, and root crops.

Sta. Josefa is a third class municipality under Agusan del Sur and has a total land area of 34,180 ha. In 1990, a non-government organization called the Ecotech Foundation initiated the implementation

of the Organic Rice Production program in Sta. Josefa by adopting the *Magsasaka at Siyentipiko para sa Pag-unlad ng Agrikultura* (MASIPAG) varieties. MASIPAG "is a farmer-led network of people's organizations, non-government organizations, and scientists who would like to improve the quality of life of resource-poor farmers (MASIPAG, 2013).

This project was also supported by the Health, Education, and Entrepreneurship Development Foundation, another NGO, through their farmers' group called Sayon Organic Farmers Association. These farmers were local plant breeders of MASIPAG or farmer-scientist partnership rice varieties. This initiative was strongly supported by Rev. Father Pio Eugenio, SVD, parish priest of Sta. Josefa, who convinced farmers in the municipality to convert to OA.

The LGU of Sta. Josefa continued the program by starting a 20-ha organic rice demonstration farm, with a balanced fertilization strategy. Later, the Catholic Relief Services, through their Land Care and InFres programs, also implemented organic rice, vegetable, and livestock production in five pilot barangays of Sta. Josefa. A series of training was conducted on Natural Farming Technology System. Further, the Bureau of Soils and Water Management implemented the balanced fertilization strategy in the 50-ha compact area so as to promote organic technology. Training on OA was also conducted by the Agricultural Training Institute starting 2012.

A PhP 500,000 funding from the Department of Agriculture was given to the LGU of Sta. Josefa for the organic rice production project. The Municipal Technical Committee on OA was created in October 2011, which led to the development of the OA Roadmap of Sta. Josefa (2012-2017). It consisted of five components: 1) production support, 2) market development, 3) extension support/education and training/ institutional development, 4) equipment and facilities support, and 5) research and development.

Sta. Josefa Integrated Organic Farmers Association. The Sta. Josefa Integrated Organic Farmers Association (SJIOFA) was organized on November 23, 2013 with an initial membership of 57 farmers. It was registered at the Department of Labor and Employment under Registration Certificate No. CARAGA-ADS-2014-07-WA-106 dated July 23, 2014 and was later accredited by the LGU of Sta. Josefa under Sangguniang Bayan Resolution No. 227-2014, series of 2014 dated September 1, 2014. They later became the proponent of the bottom-up budgeting project on organic rice production.

The association's vision was for Sta. Josefa to become "an OA municipality of Agusan del Sur populated by healthy, productive citizens adopting safe, clean, and ecologically balanced community." Its mission is to promote and implement OA programs and projects through active participation of the rural-based organizations geared towards equitable and stable economic growth based on agri-industrialization and sustainable environmental management.

SJIOFA's major programs and activities in OA include expansion of membership and strengthening of other OA organizations in Sta. Josefa by means of providing OA training programs to them. The association participated in OA-related training programs given by the Agricultural Training Institute from 2011 to 2013. They have been involved in the preparation of documents for the processing of application for the third party certification and in the submission of proposals. In addition, they helped in establishing the organic trading post.

The SJIOFA became the proponent of the *Bottom-up Budgeting (BuB) on Organic Rice Production Projects*. They ensured that their organic rice was packaged, labelled, and promoted to their market outlets. The association identified the marketing channels for their organic rice production project. It buys the organic palay of farmers at a premium price. Main stakeholders were farmers, market outlets, and the consumers. SJIOFA buys the organic palay of farmers at a premium price (an additional PhP 2.00 per kg to the prevailing buying price of palay). They sell the milled white and colored/special organic rice at their market outlets and directly to their consumers. The milled rice was packed into 1-, 25-, and 50-kg bags.

The organization also provided different kinds of loans to members such as rice, input, equipment, and seed loans. All loans are interest-free and the loanable amount will be deducted from the sale of their paddy rice (*palay*) during harvest. Rice consumers within Sta. Josefa can directly buy organic rice at SJIOFA warehouse or they can call for delivery and pay by installment. SJIOFA had two market outlets in 2015: in Panabo City and in Davao City. They delivered 480 bags of organic rice to these two outlets. SJIOFA delivered the milled organic rice at their market outlets through hired trucks on cash and installment bases. Installment payment ranges from 2 weeks to 1 month.

Mr. Nilo Acupinpin, SJIOFA Chairman, was awarded as *Outstanding Individual Organic Farmer* during the Regional Organic Congress held at Butuan City on August 4, 2017. He was also given a PhP 50,000.00 cash award for his projects on OA.

Facilitating Factors for Organic Agriculture Adoption. The STEEP analysis for SJIOFA was summarized in Appendix C. The initiative of a people's organization like the SJIOFA in implementing a project on organic rice production and marketing has proven that farmers can do their part in promoting and implementing government-led programs.

Even at only four years of inception, SJIOFA managed to implement their organic rice production and marketing project. They provided loans and services to members and to the Sta. Josefa community. Their experience as a smallholder farmers' group was considered as one of the best initiatives in the promotion of OA because it was a result of different complementing and multi-dimensional social, technical, economic, environmental, and political factors, which helped enhance the promotion of OA among farmers.

Based on the experience of SJIOFA, the social, technological, economic, environmental, and political/institutional aspects were all addressed. The training on OA as well as the exposure tours have made the farmers knowledgeable on making organic fertilizer and botanical pesticides, and on rice plant breeding. Composting enabled the farmer-members of SJIOFA to recycle farm wastes and use locally made materials. This has led to increased production of inputs; thus, it reduced input costs and provided higher income for farmers. The loans provided by SJIOFA to its members have greatly reduced the input costs of farmers and prevented them from borrowing capital from loan sharks. As a registered and accredited farmers' group, SJIOFA identified premium prices for their organic rice.

The SJIOFA partnered with NGOs and the private sector with initiatives on OA, which provided technical assistance, fund support, facilities, and equipment for OA. Meanwhile, the LGU helped in the promotion and adoption of OA by formulating policies, creating the Municipal Technical Committee on Organic Agriculture, ensuring fund allotment on OA, and formulating their OA roadmap.

Constraining Factors for Organic Agriculture Adoption. There were, however, challenges that the association encountered in the OA adoption of its farmer-members. SJIOFA's lack of operational guidelines in their organic rice production and marketing project resulted in the increasing number of receivables because there was no one in charge of following up loan payments. Additionally, they had to contend with the limited supply of organic rice, which can be attributed to effects of climate change, lack of raw materials for composting, lack of molasses for concoctions, lack of source of organic fertilizer (i.e., vermicast), delayed delivery of seeds, and the inadequate postharvest facilities.

Sustainability Plans. The SJIOFA has plans to sustain what they started. They want to increase their membership by participating in technical and organizational development training. To sustain their production of quality organic seeds, SJIOFA would like to increase the area for organic production and attain a sustainable production of organic inputs and a functional irrigation system. To systematize marketing and delivery of organic rice products, SJIOFA hopes to improve the processing, packaging and labeling of their organic rice products and establish more organic rice outlets. A doable unified OA Program would mean all partners will work harmoniously towards one goal.

Analysis Using the Multidimensional Approach

As stated in the methodology, this study looked at the facilitating and constraining factors in OA adoption/promotion and their sustainability plans to respond to issues that may be identified using a multidimensional approach. From the separate participatory workshops conducted in each site, the researchers have consolidated the responses from the three case study sites and analyzed them using the social, technical, economic, environmental, and political framework. The consolidated output of the different factors and plans from the three case studies was summarized in Appendix D.

Consolidated Facilitating Factors

The facilitating factors on OA promotion and adoption in the three cases included social factors such as training programs and seminars, barangay-based farmers' associations or organic villages, and Municipal Learning Center or demonstration sites. These social factors became a necessary requirement in the technological aspect in acquiring organic agriculture facilities like composting, vermicomposting, shared service facility, postharvest, processing facilities and equipment, and in producing organic inputs like fertilizer and concoctions.

The adoption of OA technologies led to the production of organic crops that were promoted during the agricultural trade fairs and exhibits in their municipalities and in their respective organic trading posts. The economic aspect, which includes organic certification, market delivery system, market demand survey/access and the input/production loans to farmers contributed to the increased sale of organic products and income for organic farmers.

The promotion of OA technologies facilitated environmental protection and conservation. The implementation of municipal ordinance

on OA, plus the OA roadmap, provided an enabling environment as far as the political aspect is concerned. An active provincial or local technical committee on OA and a committed Municipal Agriculturist can help make the OA program run smoothly. Other contributing factors include the presence of strong collaboration with support agencies and the OA awards and recognition from the Department of Agriculture. The registration and accreditation of all organic villages or farmers associations also became a contributing factor in the acquisition of postharvest, processing, and packaging facilities from partners.

On the other hand, the involvement of different stakeholders such as the senior citizen, out-of-school youth, and religious organizations in the OA advocacy; the incorporation of OA in other programs of the LGUs; and the inclusion of OA as requirement in the Seal of Good Barangay Governance Award for Tublay have promoted OA in a wider scale. The partnership with state universities and colleges on research related to OA and the presence of *Sisterhood Agreements* with international partners also served as facilitating factors in the political aspect. These facilitating factors are interconnected, which contributed to the promotion of OA in the barangay, municipal, and provincial levels.

Consolidated Constraining Factors

From the cases studied, the constraining factors identified in the social, technological, economic, environmental, and political aspects were shown to have hindered the promotion of OA adoption. The limitations in the social aspect, such as the lack of organizational development training programs, the negative attitude of farmers towards OA, and lack of manpower to look after the organic production facilities, have led to the decrease in production of organic crops. The reduction in yield may also be due to the lack of inputs, equipment, facilities, and postharvest/processing and packaging technologies that would help ensure the quality of the organic products.

The reduction in the supply of organic products reduced the income from marketing at the organic trading posts and agricultural trade fairs and exhibits. Another constraint is the limited capital to fund organic farming activities and the expensive processing of organic certification.

Promotion of OA was further slowed down by inactive local technical committee on OA, the limited promotion and advocacies on OA, the inadequate budget support for OA, and the inadequate farm-to-market roads. The weak implementation of local ordinances related to OA also hindered its wide adoption in the municipalities.

Consolidated Sustainability Plans

The different social, technological, economic, environmental, and political aspects reinforce one another to facilitate the adoption process. All aspects are equally important and contribute to the overall success of the OA program in each case study. The full implementation of the following sustainability plans necessitates the wide and committed support of concerned agencies and stakeholders. Strengthening of barangay-based OA associations will be done through continual training programs on new OA technologies and through study tours that will further promote the use of their composting facilities and increase their production of inputs in their barangay. It will also facilitate the allotment of OA fund in each barangay and encourage the practice of water-saving technologies as well as the implementation of soil conservation technologies to reduce the effects of erosion on crop production.

The three cases intend to strengthen their partnership with local and international agencies to support their OA programs. In this regard, organic farmers can increase their membership and federate themselves among other OA practitioners. Strong linkage can help bring funds that can provide rain shelters and greenhouses to selected organic farmers. The operation and maintenance of the OA facilities (e.g., organic trading post, market outlets, and organic processing facilities) will be a great concern for the sustainability of their OA program. Thus, the three cases have considered referring to market/feasibility studies and business plans to fully operationalize these facilities and generate income for the farmers.

To increase production and systematize marketing of organic products, the LGU of Tublay will implement crop production programming with provisions on crop insurance. Common among the three cases was the focus on the implementation of the Participatory Guarantee Systems while processing the farmers' third-party certification.

There is a need to reorganize the Municipal Local Technical Committees due to changing members after elections and some are inactive in attending meetings and activities on OA. This committee needs to review and assess the progress of implementation stated in the OA roadmap. In addition to this assessment, the LGU of Tublay would like to conduct a *convergence initiative* among partners on OA. This initiative is expected to lead to a Deed of Commitment among partner-agencies.

Aside from tapping the resources of partner-agencies, the LGU plans to include OA in different LGU development plans to ensure its promotion, funding support, and continual involvement of different

stakeholders. Tublay also wanted to sustain the Seal of Good Barangay Governance awards in the barangays and suggested a provincial OA award during the Foundation Day to recognize efforts made by the municipalities. Thereby, sustaining their enthusiasm to further develop and promote OA in their municipalities.

A doable unified OA program would mean all partners and projects will work harmoniously towards one goal. LGUs and partners can sponsor OA events such as trainings, festivals, and exhibits to promote the OA advocacy.

SUMMARY AND CONCLUSION

The factors which facilitated the promotion and advocacy on OA include:

1. Strong support from the local government – The assurance of funds and provision of relevant policies from the government are clear indications of their commitment in the implementation of their OA program. Strong LGU support in terms of approved ordinances and programs, and budget allocations coupled with partnership with local and international organizations as well as involvement of other stakeholders will also facilitate the promotion of OA. The LGU's efforts to include the barangays in the implementation of OA program and the formation of barangay-based OA associations and organized farmer groups widen the mass base for the adoption of OA.

   Also, the involvement of other stakeholders such as the youth, senior citizens, and religious groups in the implementation of their OA program as well as the inclusion of OA in the mainstream program of the municipality have been shown to yield favorable results. Indeed, strengthening the community facilitates a bottom-up approach in development.

2. Strong linkages with national and international organizations that advocate for OA – These partners provided training and assistance, equipment, vehicles, and funds for the construction of organic trading posts or market outlets. These linkages may provide opportunities for research collaboration, and regular and systematic updating of data on OA. They have to harmonize all initiatives and systematize the overall framework of their OA program. The sustainability plans hope to enhance the facilitating factors and overcome the constraints

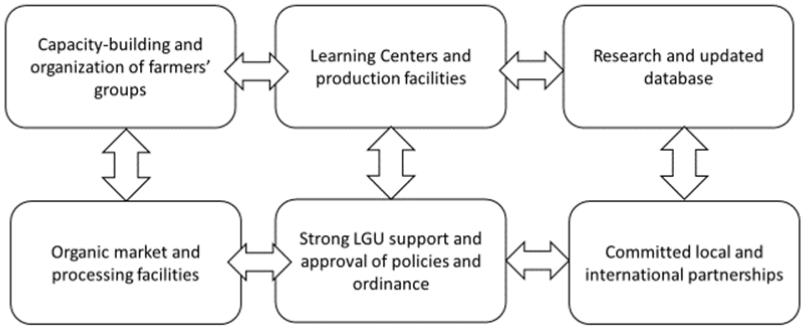

Figure 5. Best initiatives for a sustainable organic agriculture program

to fast-track the adoption of OA and hopefully lead to increased production and income of organic farmers.

3. Organized farmers' group advocating for OA – Building the capacities of organized groups of farmers to sustain their activities on OA is important. As a collective, the farmers would be able to efficiently manage the production and marketing facilities. Further, in the sustainable development of OA in the country, engaging various stakeholders for active participation is important. Planning for the OA roadmap and programs should be a joint process where farmers, partner-agencies, and other stakeholders collaborate and plan as partners. The decision to plan together was a crucial step for binding multi-stakeholder commitment to implement action plans towards achieving unifying goals to fast-track sustainable OA adoption and uplift the life of farmers in the country.

4. Presence of relevant infrastructure support such as the learning center, technology demonstration farms, and organic trading posts – Having a showroom of OA technologies is beneficial for the farmers because they can learn and have actual experience in doing the technologies. The OA adoption can be fast-tracked if farmers are socially prepared, technically equipped, and have a legal identity. Sustained education should be provided both for the farmers and the agricultural extension workers for sustained implementation of the OA program.

   Organic production facilities and demonstration farms provided opportunities for farmers to visualize and learn about OA and apply their knowledge in their own farms and communities. A complete marketing system involving marketing equipment and facilities, regular market outlets, and organic certification will

facilitate further adoption of OA. The OA promotes environmental protection and conservation by means of recycling of wastes and use of locally available resources.

The three case studies showcased what factors facilitated and constrained them in OA promotion and the eventual adoption of farmers. This implies that, in some cases, they used a combination of strategies that worked well to their advantage and appropriate to the present situation of OA implementation in the specific area.

The social, technological, economic, environmental, and political factors or determinants are in a constant interrelationship with each other. The OA adoption process is dynamic and any change in one factor affects the other factors positively or negatively. The constant interaction can facilitate or constrain the OA adoption of farmers. This multi-dimensional nature of factors affecting OA adoption requires the wide participation of stakeholders in drawing together their own OA sustainability action plans. They were also aware of challenges in OA promotion where they need to find solutions.

The case study sites' initial success on OA program implementation were the result of different complementing and multi-dimensional factors that helped enhance the promotion of OA among farmers. The multi-dimensional approach has clearly proven that OA can only be promoted and adopted by means of responding to the interrelated needs of different factors by each stakeholder in the community. Enabling factors are keys to realizing the full benefits that OA offers.

As stated in the National Organic Agriculture Program, organic agriculture should be localized. Organic agriculture should be integrated in the local development plans as well as the national and regional programs of the sector. The firm commitment and mutual understanding among key stakeholders (from government and private organizations) is very vital to effectively carry out the promotion, propagation, development, and implementation of OA in the Philippines.

There is also the demand for sharing and dissemination of best practices, broad research and development programs, prolonging the shelf-life and freshness of commodities, cold chain system, greenhouses/common services facilities, and mechanism for price monitoring. Building capacities to understand what works and what does not work in OA promotion and adoption from different perspectives was possible with the participatory approach. Other local government units, peoples' organizations, farmers, and other stakeholders can learn from the best practices and adapt practices which are suitable to their situation.

The project concluded that a combination of best initiatives enabled OA promotion and advocacy. Facilitating factors included organizing farmers' groups; building their capacities through learning sites and technology demonstration farms; provision of production, processing, and marketing facilities; strong LGU support and committed institutional partnership with local and international networks; and policy support. The researchers found that integrating OA into the overall agricultural policies and programs, including market development, are key to realizing the full benefits of OA.

Assessing the determinants to OA adoption are useful for unified planning, implementation, and evaluation of sustainable OA programs in the country. Ensuring inclusive participation of many stakeholders through a holistic systems approach will ultimately benefit organic farming communities.

RECOMMENDATIONS

Based on the results of the case studies, this research paper would like to propose the following:

1. Provision of funds – The project sites need stricter implementation of the Implementing Rules and Regulations of RA 10068, now amended as RA 11511, which means provision of funds for the implementation of OA program activities. Given the target on land areas that must be converted to OA (percentage of land area), the growing number of farmers willing to convert to OA, and the numerous organizations providing support and funding, there should be an office/section in the LGU (specifically Municipal/City Agriculture Office) solely focusing on OA program, with adequate manpower and funds to efficiently manage the implementation of different OA projects of the municipality or province.

   Further, the LGUs will have added responsibilities in implementing the Participatory Guarantee System. While technical and financial assistance will be provided to the Participatory Guarantee System groups and the farmers, the LGUs specifically the OA office/section of the Municipal/City Agriculture Office should also be strengthened. The physical and social infrastructure should be in place for the organic farmers to benefit from the advantages of the Participatory Guarantee System.

   Pantoja et al. (2016) recommended a steady supply of organic inputs, sustained training of farm owners and farm hands,

establishment of demonstration farms, and wider information campaign to encourage organic rice production.

2. Designation and role of focal person on OA – Due to various concerns of the Office of the Municipal Agriculturist, there is a need to designate one OA focal person (without any other assignment), other than the Municipal Agriculturist, with an office/section solely aimed at efficiently managing the implementation of OA program and projects funded by different agencies. In most areas, the municipal agriculturist or a designated agricultural technologist will act as the focal person on OA in addition to their respective duties/tasks.

   Another recommendation is the hiring of personnel per program/project/activity to serve as the OA team leader. Other activities can be done in collaboration with other offices under the LGU. The designated agricultural technologist/focal person will coordinate and facilitate the effective implementation of the projects and activities. For instance, in the enactment of policies to protect organic zones and organic practices of farmers, the local policymakers behind this will be the OA focal for such policies. Organizational and human resource concerns on the ground should also be addressed by the National Organic Agriculture Board.

3. Policy review and assessment of the Implementing Rules and Regulations on the section of creation of local technical committees – This committee is tasked to "review, consolidate, and endorse local OA plans, programs, projects and activities to the NOAB" (Rule 14.3). Oftentimes, the local technical committees on OA are inactive due to frequent changes in leadership, among other reasons. Landicho et al. (2014) suggest the need to review the institutional support system for the adoption of OA and enhance smallholder farmers' capacities.

4. Regular monitoring of the OA focal person/extension service providers on the development of non-practitioners' intent of converting to organic farming and the progress of OA action plan implementation in their respective municipalities are important. The project recommends a follow-through (after-project support) to assess the degree of OA action/sustainability plan implementation at the project sites and to identify the needed support along the STEEP aspects to sustain the plans.

   Buena and Whitney (2017) recommended farmers to actively participate in marketing activities within their localities, improve production, and take advantage of expanding markets. The farmers' organization leaders should encourage members to

increase production and entice conventional farmers to transition to organic production. The MASAGANA organization should act as a support institution by helping farmers design appropriate programs to reinforce good business management.

Shimoguchi and Mojica (2016) recommended integrating farm operations, crafting strategies to increase and sustain production through ecological means, adopting keen market sensing strategies, increasing financing through joint ventures, and strengthening community relations by involving them in the various financing and operations activities.

5. Regular review/updating of OA roadmaps – Because of changing demands and resources, there is a need to regularly review the municipal and provincial OA roadmaps. This will make the roadmaps responsive to local conditions, challenges, and opportunities. With the inclusion of the Participatory Guarantee System in the RA 11511, there should be a section on this in the roadmap indicating how farmers can have their products certified through the Participatory Guarantee System and labelled as organic produce.

   Participatory monitoring and evaluation of OA programs/projects will provide information whether objectives are met and if necessary actions need to be undertaken. Tracking of progress indicators to prevent pitfalls and project failures would redound to program efficiency. Enabling institutional services and policy development should be an integral part of the OA roadmap for the continuity and sustainability of the programs and funding to assist farmers/organizations. Implementation of OA programs/roadmap must be unique for every municipality. Multi-stakeholder partnership and processes structures are varied.

6. Convergence plan – Development of a convergence plan for a unified OA program should integrate all initiatives of relevant agencies working on OA. The convergence plan should consider the interrelationship of all social, technical, economic, environmental, and political factors in the design and implementation of the unified OA program. This would delineate roles and services provided to farmers and a clear assignment of responsibilities towards a common goal of improving the lives of farmers through OA adoption.

   Develop built-in sustainability plans for all organic agriculture programs/projects including facilities as safeguard for internal and external threats, such as changes in local leadership, membership in technical committees/working groups on OA,

designation of focal person, priorities in agricultural programs, and allocation of funds for OA program implementation.

7. Bottom-up approach in planning – Ensure a bottom-up approach and capacity building of farmers in identifying determinants directly affecting their OA adoption. These approaches will help them develop their action plans to enhance the facilitating factors and overcome constraining factors. Plans should come from farmers to ensure sustainability and sense of ownership and accountability of OA programs. Involve stakeholders in the value chain and in the identification of determinant factors on OA adoption.

   The United Nations Conference on Trade and Development study noted that action plans, programs, and projects should develop from the overall policy and that all the various aspects of development such as production, marketing, supply chain, training, and research are considered. An action plan for the organic sector should be developed based on analysis of the state of the sector, participatory consultations, a needs assessment, and proper sequencing of actions. The action plan should state measurable targets for the organic sector to help agencies and stakeholders focus their efforts.

   Goswani and Ali (2011) suggest that participatory methods may prove to be helpful at the exploratory phase of developing a working adoption model for OA. Analysis using participatory exercises facilitated the development of a potential pool of factors that may be used for developing an effective adoption model for OA.

8. Continual capacity-building – Continual organizational strengthening of organic farmers' associations/organic villages should be done on both technical and social aspects including values formation, management, record-keeping of financial transactions, and simple economic analysis, among others. Regular and comprehensive capacity-building program to enhance the knowledge and skills of Municipal/City Agriculture Office staff member and focal person on OA on the latest relevant technologies, research and documentation, and monitoring and evaluation. In the amended RA 11511, organic farmers and the members of the Participatory Guarantee System groups will be provided with technical assistance and training on Participatory Guarantee System.

9. Research component of OA – LGUs should establish partnerships with state colleges and universities to provide the needed research components like process documentation, profitability analysis,

and impact assessment. This will ensure that the OA projects underwent the research process and are, thus, science-based. Innovate for other forms/means of information dissemination for OA promotional campaigns towards widespread adoption in the community. Important and diverse stakeholders are being involved in OA implementation, thus, advocacy should be strategic and inclusive. Thus, a process documentation and assessment research to capture the different models of OA program implementation is proposed. Lirag and Bordado (2016) suggest a more focused action research on market opportunities and market knowledge, coupled with continued aggressive information dissemination campaigns to strengthen awareness on OA.

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APPENDICES

Appendix A. STEEP analysis for Organic Village

DIMENSION	FACILITATING FACTORS FOR ORGANIC VILLAGE	CONSTRAINING FACTORS FOR ORGANIC VILLAGE	SUSTAINABILITY PLAN FOR ORGANIC VILLAGE
Social	PAO and Victorias City • Continuous training programs/hands-on seminars on OA and value formation activities for farmers with corresponding funds from LGU/ partners • Organized farmers in OVs • Active participation in OA events PAO • Organized commodity-based groups • Formation of Local Farmer Trainers Victorias City/MOVIA • Exposure trips/study on OA in Japan of farmers and AEWs	PAO and Victorias City • Limited knowledge on organic certification • Lack of training updates • Insufficient fund for training programs • Negative/ "Wait-and-see" attitude of farmers • Few members of MOVIA and other Organic Village Victorias City/MOVIA • Total dependence to CAO staff	• Training programs/ seminars on food processing, packaging/labeling • Strengthen farmers groups through continual training programs/proposal making and dissemination of IEC materials • Encourage more farmers to adopt organic farming • Values reorientation to farmers • Develop more LFTs • Establish more Organic Villages • Increase membership in Organic Villages
Technological	PAO and Victorias City • Establishment of LS/ demonstration farms as venue for training of farmers • Provision of seeds/ inputs/equipment • Provision of vermi-composting facilities and bio-control laboratories Victorias City/MOVIA • LS/Demonstration farms as venue for on-the-job training/ practicum/thesis of CPSU BS Agriculture students	PAO and Victorias City • Lack of postharvest facilities and organic feeds for livestock • Limited bio-control laboratories • Lack of source of molasses (in retail) for concoction • Insufficient technologies on processing and value-adding • Insufficient supply of organic products • Insufficient water supply/irrigation facilities	• Establishment of breeding station for livestock dispersal program • Establishment of more demonstration farms • Production of own organic seeds • Continual production of organic inputs • Monitoring/ inspection/farm visits

Appendix A Continued...

DIMENSION	FACILITATING FACTORS FOR ORGANIC VILLAGE	CONSTRAINING FACTORS FOR ORGANIC VILLAGE	SUSTAINABILITY PLAN FOR ORGANIC VILLAGE
Technological	• Techno-van/ Livelihood promotions		Victorias City/MOVIA • Continued provision of thesis support on OA to CPSU students • Document learnings on OA through research with CPSU
Economic	PAO and Victorias City • Annual NIOFF and participation in other agri trade fairs/exhibits • Organized PGS as alternative certification • Designated organic market (Provincial OTP) • Increased sale of organic products • Market demand survey/access Victorias City and MOVIA • Organic Market and *Pasalubong* Center • Skill on proper packaging, labeling and display of organic products	PAO and Victorias City • Inadequate processing/ marketing facilities • High cost of certification • Poor farm-to-market roads • Insufficient promotion for organic products • Same pricing for organic and non-organic products	• Cold Storage facilities • Certification of organic products (even PGS) • Establishment of Organic markets • Continuous promotion of organic products through NIOFF
Environmental	PAO and Victorias City • Recycling of wastes • Use of locally-available materials Victorias City • Establishment of farm tourism sites	PAO and Victorias City • Climate Change • Recurrence of pests and diseases • "Monocropping" for sugarcane	• Continual implementation of climate change mitigating strategies from OA • Promotion of chemical-free farming • Promotion of healthy lifestyle and environmental protection
Political/ Institutional Support	PAO and Victorias City • All OVs were registered under DOLE and accredited by their respective LGUs • Strong political will - provincial, city, and barangay levels	PAO • Inactive LTCOAs in some areas • Inadequate budget support on OA • Weak implementation of local ordinances (e.g., burning of rice straw and solid waste management)	• Encourage more LGUs to establish OVs • Submission of project proposals to LGU/PLGU • Fund sourcing/ lobbying for improvement of farm-to-market roads

Appendix A Continued...

DIMENSION	FACILITATING FACTORS FOR ORGANIC VILLAGE	CONSTRAINING FACTORS FOR ORGANIC VILLAGE	SUSTAINABILITY PLAN FOR ORGANIC VILLAGE
Political/ Institutional Support	PAO and Victorias City • Strong collaboration/ linkages between local and international partners with policies/ordinances and funding support • Concrete OA program/roadmap • Active PTCOA/LTCOA • Involvement of different stakeholders like the senior citizen and out-of-school youth in the OA advocacy • Integration of OA into "Gulayan sa Paaralan" program of DepEd • Awards/Recognition from DA Victorias City • Sisterhood agreement with Nanjo City, Okinawa, Japan • Partnership with CPSU on organic research	PAO • Change in structure of PAO/ responsibility to oversee the sustainability of Organic Villages	• Lobbying for premium price of organic products • Designate Office in PAO in-charge of sustainability of Organic Villages • Designation of OA Focal person per municipality • Formalize partnership with CPSU for OA research

Acronyms:

AEWs – Agricultural extension workers
CAO – City Agriculture Office
CPSU – Central Philippines State University
IEC – Information, education, and communication
LFT – Local farmer trainers
LS – Learning sites
LTCOA – Local Technical Committee on OA
MOVIA – Minuro Organic Village Association
NIOFF – Negros Island Organic Farming Festival
OTP – Organic trading post
OV – Organic village
PAO – Provincial Agriculture Office
PGS – Participatory Guarantee Systems

Appendix B. STEEP analysis for Tublay, Benguet

DIMENSION	FACILITATING FACTOR	CONSTRAINING FACTOR	SUSTAINABILITY PLAN
Social	• Municipal-wide orientation seminars and regular training programs on OA for farmers • Barangay-based OA associations (6 out of 8 barangays) • Barangay-based OA facilities (SSA, composting, vermicomposting) • Municipal Learning Center • Regular staff training in Japan • OA farmers organization and AEW staff to implement OA	• The OA facilities in the barangays does not function continuously • Nobody is in-charge of the operation of the composting facility in the barangay • Lack of manpower/ tool/equipment for the operation of the municipal OA learning site • Lack of AEWs/ technical staff • Lack of/few members of TOFPA	• Conduct enhancement training for AEWs and farmers • Continue barangay-based training/ seminars on OA • Activate barangay-based OA facilities • Hire additional AEWs focusing on OA • Strengthen partnership • Increase TOFPA membership and form federation
Technological	• Barangay-based vermicomposting facilities • Municipal Learning Center featuring technologies on composting, vermicomposting, Mokusaku, concoction, and multiplier farm • Crop production programming • OA laboratory farms/ demonstration farm/ seed banking	• Low level of farm mechanization (tiller, hand tractor, shredder with wheels, etc.) • Lack of rain shelter/ greenhouse to maintain year-round production • Insufficient data on production (cost and returns analysis) • Lack of research and documentation on OA	• Provision of rain shelters/green houses • Strict implementation of Crop Production Programming • Establishment of Organic Seed Bank • Maintenance of OA facilities/learning sites • Conduct of regular M&E and documentation/ research on OA
Economic	• Marketing and processing facilities (food terminal, OTP, refrigerated truck, crates, and others) • Market outlets (municipal hall, Capitol, UC, UP, and others)/trading post • Market delivery system • Interested buyers • Interested agencies for marketing products (ATI, Japan, DTI, DA, PLGU, and Baguio Benguet Diocese) • Participation in fairs/ exhibits • Ongoing organic certification process	• Insufficient production • Unstable market supply • Absence of a market study with OMAg staff • Unfinished business plan for all the market facilities • Costly procedure and many requirements for Third Party Certification on OA • Limited postharvest facilities (footpath)	• Implement Participatory Guarantee System (PGS) • Assistance to Third Party Certification • Operationalize Organic Trading Post and other facilities on marketing • Conduct market study and market matching • Finalize business plans/feasibility studies • Designate a secured and presentable organic market at the Capitol

Appendix B Continued

DIMENSION	FACILITATING FACTOR	CONSTRAINING FACTOR	SUSTAINABILITY PLAN
Environmental	• Recycling of wastes • Use of locally available products • Chemical-free agriculture/ products • Integration of organic coffee and bee-culture as a way of diversification	• Climate change • Recurrence of pests and diseases • Soil erosion • Insufficient source of water for irrigation	• Implement soil conservation technologies • Practice water-saving technologies • Implement climate change mitigation strategies for OA program
Political	• Municipal ordinance on OA • Inclusion of OA to the Seal of Good Barangay Governance Award for Tublay • Reorganization of Municipal Technical committee on OA/ council for OA • OA awards • Tublay-OA roadmap • Strong political will • Municipal OA Development Plan with corresponding budget from the LGU • Incorporation of OA in other programs of LGU • Involvement of different stakeholders like the senior citizen, out-of-school youth, and religious organizations in the OA advocacy • Support agencies such as DA, PLGU-Benguet, ATI, DAR, DTI, DOLE, BSU-SUCs, UPLB, and others • Committed MAO	• Institutional support and services • Not fully organized Municipal Technical Working Group/ Council (MTWG/C) • Not sustained data on OA • Inadequate farm to market roads	• Reorganization of MLTCs (due to change in membership last May 2017 election) • Review/Assess OA roadmap with partners • Conduct Convergence Initiatives among partners • Formulation of deed of commitment among partner agencies • Policy formulation on marketing • Ensure OA fund in barangay level • Inclusion of OA in various LGU development plans • Sustain SGBG awards/ suggest Benguet provincial OA awards

Appendix B Continued

Acronyms:
AEW – Agricultural extension worker
ATI – Agricultural Training Institute
BSU – Benguet State University
DA – Department of Agriculture
DAR – Department of Agrarian Reform
DOLE – Department of Labor and Employment
DTI – Department of Trade and Industry
LGU – Local Government Unit
MAO – Municipal Agriculture Office
M&E – Monitoring and evaluation
MTLC – Municipal Local Technical Committee
OTP – Organic trading post
OMAg – Office of the Municipal Agriculturist
PLGU – Provincial Local Government Unit
SGBG – Seal of Good Barangay Governance
SUC – State universities and colleges
TOFPA – Tublay Organic Farming Practitioners Association
UC – University of the Cordilleras
UP – University of the Philippines
UPLB – University of the Philippines Los Baños

Appendix C. STEEP analysis for SJIOFA

DIMENSION	FACILITATING FACTOR	CONSTRAINING FACTOR	SUSTAINABILITY PLAN
Social	• Hands on training on sustainable OA • Training on plant breeding • Exposure tour on OA farm and events • Programs and trainings on OA were implemented by LGU, NGO, ATI-DA • NGO/Private sector initiatives on OA	• Insufficient training on OA • Lack of reading materials • Inactive members of SJIOFA • Lack of operational guidelines/ procedures • Lack of organizational training (values formation and planning, monitoring and evaluation)	• Increase SJIOFA membership and conduct organizational development training programs • Prepare training design on OA • Continue conduct of training programs on sustainable OA, organic plant breeding, processing, packaging and labeling of organic products, management and maintenance training on postharvest, and storage and processing facilities • Request for OA reading materials
Technological	• Organic rice and rice seed production • Knowledgeable in making organic fertilizer and botanical pesticides	• Lack of raw materials for composting • Lack of molasses for concoctions • Lack of source of organic fertilizer (vermicast) • Low production of organic crops	• Sustainable production of quality organic seeds • Sustainable production of organic concoctions (vermitea) • Project proposal preparation – requesting for financial assistance (c/o DA)

Appendix C Continued

DIMENSION	FACILITATING FACTOR	CONSTRAINING FACTOR	SUSTAINABILITY PLAN
Technological	• Municipal demonstration farm • Postharvest storage and processing facilities	• Delayed delivery of seeds -- low germination rate of seeds	• Request letter to the DA to provide molasses and vermicast and provide one unit of rice mill and mechanical dryer
Economic	• Identified premium price for organic rice • Marketing of organic rice • Postharvest, processing, packaging, and storage facilities • Regular market outlets for organic rice • Input and production loans for members	• Lack of capital • Limited supply of organic rice • Increasing number of receivables (SJIOFA loans) • Lack of proper record-keeping • Nobody in-charge of following up loans • Inadequate postharvest facilities (rice mill and mechanical drier)	• Processing, packaging, and labeling of organic products • Increase area for organic production • Systematize marketing and delivery of organic rice products • Systematic recording of financial transactions • Develop more organic rice outlets
Environmental	• Recycling of farm wastes • Use of locally-available materials • Ban on burning of rice straw	• Climate change	• Sustainable irrigation system • Conduct information education campaign on GMO issue
Political	• Fund allotment for OA • OA roadmap • LTCOA • Policy/Ordinances in promotion of OA	• Lack of information on local ordinances • Inactive LTCOA • Limited promotion and advocacies	• MAO to request meeting with DA regional office regarding the timing of delivery of seeds • LGUs should sponsor OA events (training, festivals, exhibits, etc.) • Doable unified OA Program • Formulate local ordinances and policies in the promotion of OA at the barangay and municipal level • Conduct farmers' forum (GMO issue)

Acronyms:
ATI-DA – Agricultural Training Institute - Department of Agriculture
GMO – Genetically-modified organism
LGU – Local Government Unit
LTCOA – Local Technical Committee on Organic Agriculture
MAO – Municipal Agriculture Office
NGO – Non-government organization
SJIOFA – Santa Josefa Integrated Organic Farmers Association

Appendix D. Consolidated output of the different factors and plans from the three case studies

DIMENSION	FACILITATING FACTORS	CONSTRAINING FACTORS	SUSTAINABILITY PLAN
Social	• Presence of Municipal Learning Center • Continual municipal-wide training programs/hands-on seminars on organic agriculture and value formation activities for farmers with corresponding funds from LGU/ partners • Formation of Local Farmer Trainers • Presence of barangay-based OA associations/ organized farmers in Organic Villages/ commodity-based groups and organic farmers' organization • Knowledge in making organic fertilizer and botanical pesticides • Exposure trips to OA farms/study tour on OA of farmers and AEWs in Japan • AEW staff to implement OA program/projects • Input and production loans to members of farmers' organizations • Existence of private sector initiatives on OA*	• Negative/ "Wait-and-see" attitude of farmers and total dependence of farmers to MAO/CAO staff • Lack of operational guidelines/procedures on the management of facilities and equipment for OA program/projects • Barangay-based OA facilities does not function continuously/ nobody is in-charge of the operation of the composting facility in the barangay • Lack of manpower and tools/equipment for the operation of the Municipal OA Learning Center • Lack of AEWs/technical staff • Lack of OA reading materials • Lack of organizational development training programs (i.e., values formation and planning, monitoring, and evaluation) • Few/Inactive members of organized farmers' groups (TOFPA, SJIOFA, MOVIA, and other Organic Villages) • Limited knowledge on organic certification • Insufficient fund for continual training programs on OA	• Regular training programs/ seminars on OA technologies, organizational strengthening, and skills on project management • Continual study tours on new OA technologies • Develop more local farmer trainers • Increase membership in Organic Villages/ establish more Organic Villages • Encourage more farmers to adopt organic farming • Sustained dissemination of IEC materials • Tap young volunteers and hire additional staff to help implement the OA program
Technological	• Establishment of DA-ATI Learning Sites and municipal demonstration farms • Establishment of biological control laboratories by OPAg • Establishment of OA laboratory farms • Provision of seeds, inputs, and equipment	• Delayed delivery of seeds and low germination rate of seeds* • Lack of raw materials for composting • Lack of source of molasses (in retail) for concoction* • Lack of source of organic fertilizer (vermicast)* • Limited bio-control laboratories*	• Sustainable production of quality organic seeds • Continual production of organic inputs/ concoctions/ • Request DA to provide molasses and vermicast

**External factor influencing the OA initiative*

Appendix D Continued

DIMENSION	FACILITATING FACTORS	CONSTRAINING FACTORS	SUSTAINABILITY PLAN
Technological	• Production of organic rice and rice seeds by farmers/organic vegetables, coffee, and seedlings by LGU • Establishment of municipal organic seed banking project • Production of organic fertilizer and botanical pesticides by farmers and LGU • Provision of barangay-based vermi-composting facilities • Availability of postharvest, storage, and processing facilities • Implementation of crop production programming • Availability of Techno-van for OA projects and livelihood promotion	• Lack of rain shelter/ greenhouse to maintain year-round production* • Low level of farm mechanization (tiller, hand tractor, and shredder with wheels, etc.)* • Inadequate postharvest, processing, and marketing facilities (like rice mill and mechanical drier)* • Insufficient water supply/irrigation facilities* • Low production of organic crops • Lack of organic feeds for livestock* • Insufficient technologies on processing and value-adding* • Lack of research and documentation on OA/insufficient data on production including cost and returns analysis	• Sustainable production of quality organic seeds • Continual production of organic inputs/ concoctions/ request DA to provide molasses and vermicast • Request DA to provide postharvest facilities like rice mill and mechanical dryer • Establishment of breeding station for livestock dispersal program • Establishment of more demo farms • Monitoring/ Inspection and farm visits • Continued provision of thesis support on OA to college students • Document learnings on OA through research with SUCs* • Update data on OA in partnership with local agencies like the local civil registry and the Philippine Statistics Authority (PSA)*
Environmental	• Recycling of wastes • Use of locally available and farm generated materials • Chemical-free agriculture products • Integration of organic coffee and bee-culture as a way of diversification • Establishment of Organic Farm Tourism Sites • Ban on burning of rice straw	• Climate change* • Recurrence of pests and diseases* • Soil erosion* • Insufficient source of water for irrigation* • "Mono-cropping" for sugarcane	• Continual implementation of climate change mitigating strategies on OA • Promotion of chemical-free farming • Sustainable irrigation system • Promotion of healthy lifestyle and environmental protection • Conduct information education campaign on GMO issue

**External factor influencing the OA initiative*

Appendix D Continued

DIMENSION	FACILITATING FACTORS	CONSTRAINING FACTORS	SUSTAINABILITY PLAN
Political	• Strong political will from provincial, municipal up to barangay level • Active PTCOA/ LTCOA • Committed MAO/ CAO and focal person on OA • Fund and policy support from partner agencies for marketing products (ATI, Japan, DTI, DA, PLGU)* • Concrete OA roadmap/ Municipal OA Development Plan with corresponding budget from the LGU • Incorporation of OA in other programs of LGU/ integration of OA into "*Gulayan sa Paaralan*" program of DepEd/inclusion of OA to the Seal of Good Barangay Governance Award specific for LGU Tublay, Benguet • All Organic Villages/ farmers associations were registered under DOLE and accredited by their respective LGUs • Involvement of different stakeholders like the senior citizen, out-of-school youth, and religious organizations in OA advocacy • Presence of municipal ordinance on OA • OA awards/ recognition from DA	• Inadequate budget support on OA • Inactive/Not fully organized LTCOAs • Not sustained collection/ generation of data on OA • Inadequate farm to market roads* • Limited promotion and advocacies • Changes in structure of PAO/ responsibility to oversee the sustainability of Organic Villages • Weak implementation of local ordinances (e.g., burning of rice straw and solid waste management)	• Designation of OA focal person per municipality/city • Include OA in different LGU development plans to ensure active involvement of different stakeholders • LGUs should sponsor OA events like training, fora, festivals, and exhibits. • Submission of project proposals on OA to LGU/PLGU for funding • Encourage more LGUs to establish Organic Villages/ barangay-based associations • Designate Office in PAO in-charge of sustainability of Organic Villages • Federation of organic farmers group within municipality and province • Review and assess the progress of implementation of the OA Roadmap • Formalize partnership with SUCs for OA research • Strengthen partnership with local and international agencies to support the OA program • Doable unified OA Program/conduct a "Convergence Initiative" among partners on OA which will lead to a "Deed of Commitment" among partner agencies

**External factor influencing the OA initiative*

Appendix D Continued

DIMENSION	FACILITATING FACTORS	CONSTRAINING FACTORS	SUSTAINABILITY PLAN
Political	• Strong collaboration and partnership with support agencies such as DA-RFOs, PLGU-Benguet, DA-ATI, DAR, DTI, DOLE, BSU, UPLB, and other SUCs for research on OA* • Linkages between local and international partner organizations/ Sisterhood Agreement of Victorias City, Negros Occidental with Nanjo City, Okinawa, Japan*		• Formulate local ordinances and policies in the promotion of OA at the barangay and municipal level/ lobbying for premium price of organic products • Sustain the Seal of Good Barangay Governance (SGBG) awards in the barangay level and have a provincial OA award during the Benguet Foundation Day to recognize efforts made by municipalities in Benguet

*External factor influencing the OA initiative

Acronyms:

AEW – Agricultural extension workers
BSU – Benguet State University
CAO – City Agriculture Office
DA – Department of Agriculture
DA-ATI – Department of Agriculture-Agricultural Training Institute
DA-RFO – Department of Agriculture- Regional Field Offices
DAR – Department of Agrarian Reform
DepEd – Department of Education
DOLE – Department of Labor and Employment
DTI – Department of Trade and Industry
GMO – Genetically-modified organism
IEC – Information, Education and Communication
LGU – Local Government Unit
LTCOA – Local Technical Committee on OA
MAO – Municipal Agriculture Office
MOVIA – Minuro Organic Village Association
NIOFF – Negros Island Organic Farming Festival
OPA – Office of the Provincial Agriculturist
PAO – Provincial Agriculture Office
PGS – Participatory Guarantee Systems
PLGU – Provincial Local Government Unit
PTCOA – Provincial Technical Committee on OA
SJIOFA – Santa Josefa Integrated Organic Farmers Association
SUC – State Universities and College
TOFPA – Tublay Organic Farming Practitioners Association
UPLB – University of the Philippines Los Baños