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Editor's Note

The Journal of Public Affairs and Development (JPAD) is a double-blind peer-reviewed journal published annually by the College of Public Affairs and Development. Published in both print and online format, the journal aims to provide a venue to discuss topics related to public affairs and development, particularly, development management and governance, strategic planning and public policy, agrarian and rural development studies, agricultural and extension education, community development, and education management.

The first research article in JPAD Volume 5 is a case study that examines the supply chains of the Philippine markets for chicken meat, chicken egg, and pork. **Elca, Gordoncillo, Neric, and Curibot** noted commonalities and uniqueness among these supply chains. Moreover, the authors identified several competition issues that present or may lead to potential violations of the Philippine Competition Act (PCA). To address these competition issues, the authors recommended exploring the following corrective measures: 1) promoting backyard farming to increase participation of backyard farmers; 2) pursuing a credit guarantee system between the private sector and the government that will benefit small scale producers; 3) upgrading locally registered meat establishments to National Meat Inspection Service-accredited facilities; 4) incorporating the dimension of smuggling as a competitive issue; and 5) overhauling the system of livestock auction markets to ensure that these livestock auction markets remain faithful to their functions.

Atando's paper, on the other hand, reviewed the governance strategies in managing the potential impacts of earthquakes in Panay Island in the Philippines. Using case study research design, Atando found that through good governance resulting from collaborations among various societal institutions, the vulnerability of communities in Panay Island to tsunami and earthquake hazards can be reduced. He reported that in the case of Panay Island, collaborators were all involved in planning and carrying out earthquake countermeasures. Atando thus concluded that limitations of local governments to address the threats of earthquakes can be addressed through successful collaborations and partnerships. Accordingly, he presented organization, technical, practical, and policy recommendations to improve the level of preparedness against destructive earthquakes.

In their paper, **Gasmen, Baconguis, and Quimbo** examined the Agricultural Training Institute (ATI) personnel's organizational identification during the peak of ATI's rationalization process. Data

were primarily collected through a survey among staff members of ATI's operating units. Their research findings are as follows: 1) ATI personnel had an overall moderate OID score; 2) highest rating was on its affective component indicating their OID was largely based on emotion; 3) OID scores appeared higher with males, management, administrative, central office, and affected personnel categories; and 4) technical and non-affected personnel had low scores despite being favored by the rationalization. Considering the findings of the study, Gasmen et al. argued that efforts to mitigate the negative impacts of organizational change is critical in improving personnel OID during a major restructuring. Management must thus explore ways to create an environment to improve personnel OID.

Meanwhile, **Alinsunurin** analyzed the time-use of women beneficiaries and the program effects on household beneficiaries of the *Pantawid Pamilyang Pilipino* Program (4Ps). Using a time-use analysis approach and qualitative information from in-depth household interviews and observations, the study was conducted among selected 4Ps beneficiaries in Calauan and the City of San Pablo in Laguna, Philippines. Results show that "meeting program co-responsibilities have an impact on their household tasks, especially in supporting children's education." Furthermore, Alinsunurin found that "despite the transfers, gender and power dynamics within the household remain the same." Accordingly, she concluded that while there is evidence that 4Ps responds to the practical needs of women and children, it falls short on transforming women's positions within their family. As the results of the study reveal the persistence of inequalities despite the increased roles and responsibilities of women beneficiaries, it was recommended that policy design must be proactive in responding to these realities.

Using data from survey, key informant interviews, and review of secondary data, **Dy** assessed the knowledge and practices on family development among the 4Ps beneficiaries in hard-to-reach areas in Camarines Sur. Results indicate that there is a high satisfaction level among respondents who attended the family development sessions. These sessions contributed to increased awareness, knowledge, and practices towards holistic well-being of families. In addition, almost all respondents considered the family development sessions effective, relevant, interesting, and easy to apply. Respondents also shared that they conveyed to their children the lessons that they learned from these sessions. While the assessment is generally positive, Dy noted that the 4Ps as a human development approach of the government for overall community development can still be improved. Hence, monitoring and evaluation is crucial in ensuring that 4Ps remains adherent to its mandates, goals, and objectives while catering to the needs of its beneficiaries.

The final article in this volume used case studies to document and analyze best practices in organic agriculture. There have been various initiatives to encourage the adoption of organic farming; however, small farmers still hesitate to adopt the practice. **De Luna, Matienzo, and Tenorio** used the framework on the multidimensional approach to examine the facilitating factors in OA adoption and promotion and the sustainability plans to respond to issues that may be identified. Responses from the three case study sites were consolidated and analyzed using the social, technical, economic, environmental, and political framework. Through this study the authors were able to identify factors that facilitate OA promotion and advocacy: 1) Support from the local government; 2) strong linkages with national and international organizations that advocate for OA; 3) organized farmer's group advocating for OA; and 4) presence of relevant infrastructure such as the learning center, technology demonstration farms, and organic trading posts. Recommendations were also forwarded to improve the OA promotion and advocacy, which may consequently improve farmers' adoption of OA.

All in all, the research articles in JPAD Volume 5 emphasize the relevance of empirical research not only in understanding issues and challenges in public affairs and development but more so in formulating policies that could help address these issues and challenges. The research findings and recommendations presented in each article can form the basis for the policies necessary for more effective management and governance of various development interventions and initiatives.



EVELIE P. SERRANO, PhD
Editor-in-Chief, JPAD Volume 5

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Competition Issues in the Chicken Meat, Chicken Egg, and Pork Markets of the Philippines

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CHARIS MAE T. NERIC^{1,3}, and JANINE P. CURIBOT^{1,4}

ABSTRACT. This study probed the supply chains of the Philippine markets for chicken meat, chicken egg, and pork; and identified several competition issues that present or may potentially lead to violations of the Philippine Competition Act (PCA). In the chicken meat supply chain, vertical integration in the production segment through contract growing was found to likely lead to an oligopolistic market and possible abuse of dominant position, one of the prohibited acts under PCA. There were reports that such abuse may already be in play in its transportation and consolidation segments. The practice in livestock auction markets to simply formalize pre-arranged trading agreements instead of being sites for competitive bidding was another identified violation. Common to all three supply chains was the limited access to credit that greatly restricts the market participation of small players. Small scale participants were being edged out of the market due to the competitive edge of capital-rich players. While having high capitalization is not illegal, limited market participation due to financing constraints may later lead to a highly concentrated market, which may pave the way for abuse of dominant position. To conform with the PCA, it is recommended that backyard farming be encouraged and promoted to increase market participation of backyard farmers, the private sector and the government pursue a credit guarantee system that will benefit small scale producers, locally registered meat establishments be upgraded to National Meat Inspection Service-accredited facilities, the dimension of smuggling be incorporated as a competition issue, and the practice of livestock auction markets of pre-negotiated bidding be overhauled.

Keywords: *anti-competitive agreement, dominant position, fair competition, supply chain*

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INTRODUCTION

The Philippine livestock and poultry markets are the major sources of income and employment in the agriculture sector. In the past 16 years, it provided at least 25% of the country's gross value added in agriculture (Philippine Statistics Authority, 2018). Thousands of Filipinos are employed in live animal and egg production in the rural areas, while those who are employed in meat and egg retailing are in the country's highly urbanized regions. The latter are also involved in the product transport, storage, and processing between production and consumption points. While Filipino households can opt for alternative sources of protein (i.e., fish and legumes), chicken meat, chicken egg, and pork remain as their main protein sources (Philippine Statistics Authority, 2019a).

The supply chains of chicken meat, chicken egg, and pork are generally characterized by strong private sector participation with the government providing important facilitative functions. Those involved in the movement of primary and processed products from the farm to end users include: backyard and commercial farms; private live animal traders; slaughterhouses and dressing plants, which are either small-scale and government-run or highly diversified, integrated, and privately-owned; and small and large fresh meat and egg traders. Although the participation of the private sector is extensive, the government ensures the efficient flow of meat and egg products from farm to market by implementing policies and regulations (Gonzales et al., 2012). Given this background, it is therefore expected that the market of these three products is fairly competitive. Harrington (2008) noted that a competitive market or a situation of market competition is one where there are numerous producers with small market share, zero to low barriers to entry of new participants, and absence of collusive behavior among market participants. There are many benefits of a competitive market. One such benefit is that it can provide the highest quality product at least cost that can be afforded by the consuming public (Medalla, 2017).

The Philippine Competition Act (PCA) of 2015 promotes free and fair competition across all economic activities. This law, as implemented by the Philippine Competition Commission, penalizes the three prohibited acts such as anti-competitive agreements, abuse of dominant position, and anti-competitive mergers and acquisitions of any industry. This study, therefore, seeks to review the different segments of the chicken meat, chicken egg, and pork supply chains for potential competition issues that may require corrective measures to ensure that free and fair competition, as per PCA, is achieved.

Conceptual Framework

The study adopted the supply chain framework in analyzing the movement of material inputs and finished products from farm to market. There are five main functions performed by supply chain participants: input provision, production, assembly and collection, processing, and marketing (Da Silva & de Souza, 2007). The supply chain is influenced by various policies both at the local and national levels. Some of the more relevant policies affecting the supply chain of the markets for chicken meat, chicken egg, and pork are discussed below (Figure 1).

Under PCA, the three prohibited acts such as anti-competitive agreements or collusive behaviors, abuse of dominant position, and anti-competitive mergers and acquisitions can lead to inefficiencies of the whole chain to the detriment of the consuming public. For example, the collusive behavior of major players to offer high prices would imply a decrease in consumer welfare because the same consumers will likely lower their consumption of an expensive product. The abuse of dominant position of firms (i.e., high market share) like predatory pricing (i.e., selling below cost) can drive away other competitors, which would likely lead to a monopolistic or oligopolistic market. Another way of forming a monopolistic or oligopolistic market is through illegal mergers and acquisitions. These types of markets are detrimental to consumers as they most likely lead to high market prices and lower quality products.

Aside from the PCA, there are also other policies that can affect the performance of the supply chain. These policies serve to further enhance the flow of inputs and products along the supply chain. In terms of input provision, Republic Act 1556 or the "Livestock and Poultry Feeds Act" has long been implemented since 1956. However, the House Committee on Food and Agriculture of the 17th Congress is currently amending this law through House Bill 3355. This bill, if enacted into law, aims to regulate and control the manufacture, importation, exportation, labeling, advertising, distribution, and sale of animal feeds (Press and Public Affairs Bureau, 2017). Specifically, this bill emphasizes stricter regulation, establishment of laboratories, deputation of personnel, and provision of capability training programs. This house bill also ensures the creation of a revolving fund that will be allocated for the benefit of the animal feed industry (Nicavera, 2017).

The critical issue in producing live chicken for meat and egg, and live swine for meat is the location of farm operation. The relevant policy here is Resolution No. R-674, series of 2000 or the "Implementing Rules and Regulations to Govern the Processing of Applications for

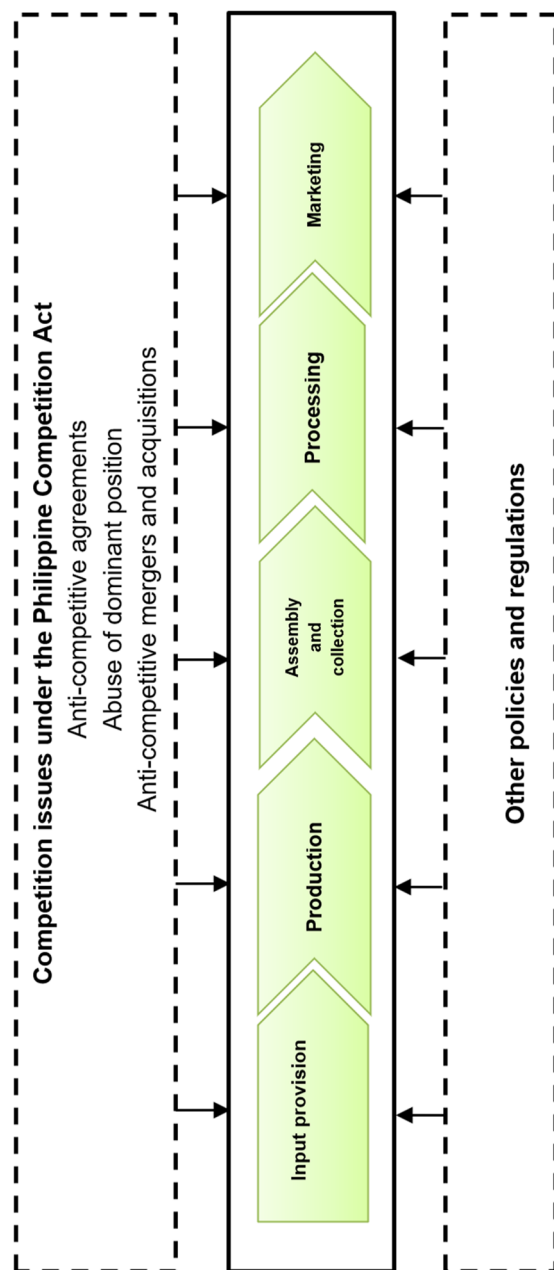


Figure 1. Conceptual framework of the competition issues study

Locational Clearance of Poultry and Piggery” of the Housing and Land Use Regulatory Board. This policy has provisions on the issuance of locational clearance of farms. Such clearance defines the rules on the expansion of small, medium, and large-scale poultry or piggery. It also sets the standards and requirements of the location, zoning, layout as well as facility and utility requirements of the piggery and poultry farm (Housing and Land Use Regulatory Board, 2000).

Specific to table eggs, there is the Philippine National Standard for Table Eggs, which was implemented in order to ensure the quality of table eggs being produced. The national standard covers minimum requirements for table eggs, classification and grading, packing, marking or labeling, and hygiene (Bureau of Agriculture and Fisheries Standards, 2005). The Philippine government provides support services to chicken and swine farmers in terms of research and development initiatives. These services come in the form of government agency partnerships that provide technologies aimed at improving farm productivity and efficiency. Two of the leading government institutions with such functions are the Philippine Council for Agriculture, Aquatic and Natural Resources Research and Development of the Department of Science and Technology, and the Bureau of Animal Industry of the Department of Agriculture.

In live animal assembly and trading, traders have to go through animal quarantine and checkpoints in their respective municipal or provincial area of operation (Department of Agriculture, 2006). The main purpose of this policy is to ensure that traders are able to secure the proper documentation (e.g., issuance of veterinary health certificate, shipping permit, certificate of vaccination, and compliance with animal welfare laws and regulations) when transporting live chicken and swine from farm to slaughterhouses (Department of Agriculture, 2006). This ensures the proper monitoring and prevention of diseases, and the maintenance of safety and quality of live animals.

For meat processing, the Republic Act 9296 or the “Meat Inspection Code of the Philippines” ensures the protection of human and animal health against direct and indirect hazards. The National Meat Inspection Service (NMIS) is the lead agency mandated to formulate policies and regulations for meat inspection and meat hygiene (National Meat Inspection Service, 2013).

In terms of trade policy, the government plays key roles in implementing the quantitative restriction for imported chicken meat (minimum access volume of 23,000 metric tons per year) and imported

pork (minimum access volume of 54,000 metric tons per year) coming from the US. The Philippines imposes a tariff rate on US imported chicken meat and pork, ranging from 30% to 40% relative to the minimum access volume.

METHODOLOGY

Data Collection and Analysis

A supply chain case study was conducted for each of the three commodities in major production and consumption areas of the Philippines. Study areas were chosen using the following criteria to ensure that focus was on more developed markets: (a) incidence of high volume of production; (b) incidence of high volume of consumption; (c) presence of varying types of institutional markets (e.g., supermarkets, hotels, restaurants, and processors); and (d) availability of support services (e.g., research agencies, slaughterhouses, trading posts, and auction markets) within each province. Each commodity's supply chain was traced from the major sources of farm inputs to their primary producers, and finally to the final market destination of the finished products.

Primary data were collected through key informant interviews (KIIs) and focus group discussions with industry representatives and major supply chain players in the provinces of Pampanga, Bulacan, and Tarlac for chicken meat and chicken egg; and Iloilo and Cebu for pork. Tarlac was also visited to conduct key informant interviews with yellow corn producers. The key informant interviews and focus groups were conducted from late October 2017 to February 2018. Pampanga, Bulacan, and Tarlac were chosen as the study areas for the chicken meat and chicken egg supply chains, while Iloilo and Cebu for pork supply chains.

The rationale for choosing these provinces as study areas were as follows: 1) Pampanga is a major producer of live chicken and egg, which is absorbed by Bulacan as the main market for dressed chicken and chicken eggs (Philippine Statistics Authority, 2019b); whereas Tarlac was also included to conduct key informant interviews with producers of yellow corn, a major cost item in feed formulation; 2) Iloilo and Cebu were the study areas for pork as the former is a top live swine producer, while the latter is a significant market for pork (Philippine Statistics Authority, 2019b).

The specific interview activities by province, by product, and by type of respondents are shown in Table 1. The respondents involved more than 30 key informants and participants of the focus group discussions. The initial interview activity for each product started with consultations with the relevant provincial veterinary office. For chicken meat and egg, the Provincial Veterinary Office of Pampanga was consulted regarding the overall status and major players of these two industries. The Veterinary Office of Pampanga also provided the list of respondents needed for the interview of supply chain participants. The same survey strategy was employed in the case of the supply chain of pork in Iloilo. The Provincial Veterinary Office of Iloilo was initially consulted on the overall status of the pork industry in the province and provided the list of participants of the pork supply chain.

The key informant interviews and focus group discussions were conducted using a series of guide questions relevant to the structure of each industry and the identification of potential competition issues. These series of questions include: company profile and brief history; chicken meat, chicken egg, and pork production; inputs used; past engagement in contract growing schemes; involvement in product processing, rated capacity, accreditation, and estimated capital requirement; product forms marketed, pricing and possibility of product differentiation; market outlets; list of competitors; expenses in sales promotions, advertising, and research and development; investment requirements in terms of land, warehouse, cold storage, machinery, and vehicles; availment of government and private sector services and programs; problems encountered; and upgrading strategies.

All interviews and discussions were audio recorded with the permission of the respondents. The audio recordings were later transcribed and analyzed. The output of these audio recordings is a set of qualitative data, which were later analyzed using a coding system. Several segments of the data were grouped into three broad categories or themes. Because this study was anchored on the PCA, preexisting or a priori codes were used. These codes were: 1) anti-competitive agreements or collusive behaviors; 2) abuse of dominant position; and 3) anti-competitive mergers and acquisitions.

Creswell (2013), however, cautioned the use of preexisting codes. He encouraged the use of additional codes whenever emerging issues arise from the analysis. The three themes that correspond to the three provisions of the PCA were identified and included as narrative discussions across the three markets of chicken meat, chicken egg, and pork. The analysis was presented in a series of consultations with a

Table 1. Data collection schedule, 2017-2018

DATE	PROVINCE	ACTIVITIES
Oct. 27, 2017	Pampanga	FGD with staff members and head of the Provincial Veterinary Office of Pampanga KII with commercial chicken meat producer, chicken meat integrator, chicken meat contract grower, commercial chicken egg producer, and chicken egg consolidator/ <i>viajero</i>
Nov. 9, 2017	Pampanga	KII with commercial chicken meat producer and chicken meat retailers
Nov. 10, 2017	Pampanga	KII with backyard chicken meat producer and chicken meat dealer
Nov. 22, 2017	Pampanga	KII with cooperative officers, feed millers, and chicken egg wholesaler-retailers
Nov. 23, 2017	Pampanga	KII with the staff of the Triple A NMIS accredited chicken dressing plant
Jan. 10, 2018	Iloilo	FGD with staff members and head of the Provincial Veterinary Office of Iloilo KII with locally registered meat establishment
Jan. 11, 2018	Iloilo	KII with yellow corn producers and yellow corn trader
Jan. 12, 2018	Iloilo	KII with the livestock auction market supervisor, feed millers, and pork wholesaler-retailers
Jan. 13, 2018	Cebu	KII with pork wholesaler-retailers, pork wholesaler, and pork wholesaler-retailers
Jan. 14, 2018	Cebu	KII with locally registered meat establishment
Jan. 15, 2018	Cebu	KII with the staff Triple A NMIS accredited slaughterhouse
June 7, 2018	Quezon	KII with chicken meat contract grower of San Miguel Foods, Inc.
June 20, 2018	Batangas	KII with chicken meat contract grower of Bounty Agro Ventures, Inc.
	Quezon	KII with chicken egg contract grower of San Miguel Foods, Inc.

Note:

KII - Key informant interview

FGD - Focus group discussion

NMIS - National Meat Inspection Service

representative of the Philippine Competition Commission. This exercise resulted in some issues being retained and other issues being dropped. The decision to either retain or drop competition issues was guided by the provisions of the PCA. Thus, the study provided for an initial screening or probing for possible violations of the PCA. The preliminary list of competition issues was then tested for validity through another set of consultations with various stakeholders including government institutions and industry representatives. After the consultations with various stakeholders, the list of potential competition issues was finalized to reflect the comments and suggestions of stakeholders knowledgeable of the industry.

RESULTS AND DISCUSSION

For each of the three supply chain case studies conducted, the findings are presented in two parts starting with a description of the supply chain then followed by a discussion of potential competition issues. Whenever possible, competition issues were identified as narrated firsthand by the chain participants interviewed.

Chicken Meat

Supply Chain. The five main participants in the Pampanga chicken meat supply chain are the input suppliers, live chicken producers, assemblers/collectors, processors/dressing plants, and wholesalers/retailers (Figure 2).

Input suppliers include integrators, feed millers, and hatcheries. They provide live chicken producers with input requirements such as feeds, day-old chicks, medicines, vaccines, and other veterinary supplies. The major input suppliers in Pampanga include San Miguel Foods, Inc.; Bounty Fresh Foods, Inc.; Charoen Pokphand Foods Phil. Corp.; Vitarich Corporation; and Robina Farms. Based on the study of Gonzales et al. (2012), these key players of the chicken meat industry usually integrate various activities of the supply chain. They perform various functions of importation of breeding animals, manufacturing of feeds, and production and marketing of live chickens.

Feed is an important input in live chicken production, comprising 70% - 80% of the total production cost. It is composed mainly of yellow corn and other raw materials such as soya, wheat, fishmeal, pollard, copra, and molasses. Feed millers procure yellow corn from domestic producers or from yellow corn importers. Isabela, Tarlac, Pampanga,

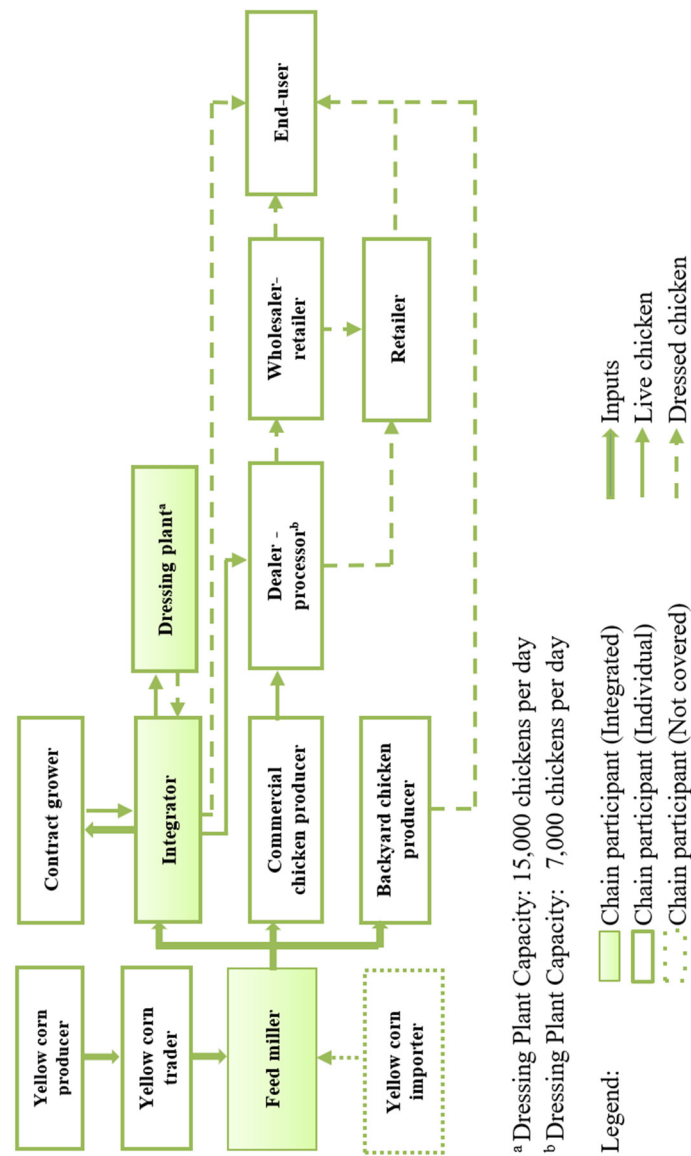


Figure 2. Supply chain of chicken meat in Pampanga

and Pangasinan supply the majority of the yellow corn requirements of feed millers in Pampanga. Yellow corn producers sell their produce to yellow corn traders, who dry the yellow corn and sell to feed millers for processing.

According to Corpuz (2018), the feed mill industry in the Philippines can be categorized into three: 1) businesses that exclusively engage in feed processing (commercial producers); 2) businesses that combine feed manufacturing with livestock production (integrated commercial feed producers); and 3) businesses that produce feeds for consumption of their own farms (on-farm feed millers). The feed milling industry in the 1980s was led by on-farm feed mixers but eventually expanded and dominated by large commercial producers.

There are three types of live chicken producers in the area: contract growers, commercial producers, and backyard raisers. Integrators engage in contract growing operations with chicken producers. Aside from taking on the processing of live chicken into dressed chicken meat, integrators provide contract growers with farm inputs including feeds, day-old chicks, veterinary supplies, technical assistance, and a ready market for produce. As their counterpart, contract growers provide the needed labor, land, and facilities for chicken production. According to Digal (2010), contractual arrangements along the different segments of the chicken meat supply chain is one of the common strategies employed by the four large local producers in the Philippines. In response to growing demand, producers employ these contractual arrangements to streamline their business operation.

In contrast, commercial and backyard producers finance their own inputs and sell their produce to dealers and end-users. Commercial and backyard chicken producers differ in terms of scale of operation, in which producers are identified as being engaged at a commercial scale if they have at least 1,000 heads of chicken.

There are two types of housing used in live chicken production: conventional housing and tunnel-ventilated building. Tunnel-ventilated buildings are more efficient because they can be used up to six or seven production cycles per year. In contrast, conventional housings can only be used for four or five production cycles per year. Production in a conventional chicken housing takes up to 30-35 days per production cycle; in a tunnel-ventilated building, each production cycle only takes 28-33 days.

While tunnel-ventilated buildings are more efficient, they come at a high cost. The investment cost for a 40x400 feet tunnel-ventilated building, which can house 45,000 heads of chicken, is about PhP 14-18 million (USD 277,778-357,143). Along with this, generator sets, which cost about PhP 500,000 (USD 9,921) each, are also a non-negotiable investment as electricity is very important in producing chickens in this type of building. Levy (2017) compared the performance of chicken meat production under a climate-controlled system (i.e., a modern type of tunnel-ventilated technology) and a conventional housing in three municipalities of Nueva Ecija. It was concluded that farms under a climate-controlled system outperformed farms using the conventional technology in terms of feed conversion ratio and farm productivity. Compared with conventional housing, the climate-controlled system was found to have provided healthier growing conditions.

At the end of each production cycle, live chickens are picked-up from the farms and delivered to dressing plants for processing mainly by integrators and dealer-processors. All the produce of contract growers is collected by integrators who transport these to their own accredited dressing plants, while dealer-processors buy live chickens from commercial producers and other integrators.

The Pampanga Public Market in Angeles City is the largest consolidating area of live chicken in Pampanga. In this market, live chicken dressing is done by dealer-processors who then distribute the dressed chicken to wholesaler-retailers and retailers in Pampanga. The public market has two operational small dressing plants, each of which produces 2,500 dressed chickens per day. This figure is small compared to large private commercial plants that produce 10,000-50,000 dressed chickens per day.

Dressed chicken is marketed by integrators, wholesaler-retailers, and retailers. Integrators supply dressed chicken to supermarkets, wet markets, and food chains. Some also have retail outlets that cater to consumers. Wholesaler-retailers procure dressed chicken from dealer-processors and sell at wholesale quantities to other retailers and at retail quantities to end-users.

Chicken meat end-users include consumers, wet markets, supermarkets, food chains, and meat processors. They buy dressed chicken from integrators, wholesaler-retailers, retailers, and, rarely, from backyard producers.

Competition Issues. Four competition issues were identified in the chicken meat supply chain: 1) the lowered pricing of the feed milling segment, which may force out smaller mills; 2) the increasing vertical integration and decreasing participation of backyard farmers in Pampanga's chicken meat market, which may lead to market oligopoly; 3) the high capital requirement to participate in the market, which is exacerbated by allegations of price fixing; and 4) limited access to credit, which is hindering continued market participation and expansion.

The offering of lower prices by larger feed mills was mentioned by the feed millers during the interviews. Weaker-positioned feed mills find it hard to compete with the lower prices and are likely to be forced out of the industry. A significant barrier to them to freely exit the industry, however, is the high sunk costs. Sunk costs are costs incurred by firms that can no longer be recovered. Examples of sunk costs are investment in machines and equipment, research and development spending, and advertising expenses.

For instance, a miller reported sunk costs of PhP 25 million (USD 496,032), while a mixer reported sunk costs of PhP 30 million (USD 595,238). This issue is made worse by the fact that milling machines and equipment are highly specialized. Thus, making it difficult for feed millers to engage in alternative business operations in an attempt to widen their market. Given that the decision to specialize in these machines and equipment is a private business decision, feed mills can pursue strategies that can lower their cost of production in order to compete with larger feed mills. For example, feed mills can try to seek cheaper sources of yellow corn raw material. Streamlining of milling activities can also be pursued in order to lower labor costs.

Another competition issue identified was the apparent move of Pampanga's chicken meat market towards vertical integration, which may potentially lead to market oligopoly. Vertical integration occurs when a firm performs more than one activity in the sequence of the supply chain process. Market oligopoly, on the other hand, refers to the significant market share of a few firms in a particular industry. While there is still a significant number of independent commercial raisers, the growing risks posed by disease incidence and typhoon occurrence may prompt them to eventually enter into contract growing schemes with integrators. Contract growing schemes have the advantage of distributing risk between the contract growers and integrators. Industry players with a large market share also have the capability to introduce market innovations and produce higher quality products that can eventually benefit the consuming public.

However, the expanding market share of integrators in Pampanga, as well as other major chicken producers within the country, may lead to an oligopolistic market where there are only a few sellers with large market shares. According to the PCA, such a dominant position may later lead to abuse of dominant position or anti-competitive practices. These practices include predatory pricing or selling below cost to drive out competitors, imposing of barriers to entry or high investment cost requirement to participate in the relevant market, and bundling of goods and services that requires the acceptance of other unrelated items before proceeding with the actual transaction.

In fact in 2014, the Philippine market for chicken meat was already oligopolistic. The top two companies, San Miguel Foods, Inc. and Bounty Fresh Group of Companies, controlled more than 50% of the national chicken meat market (Table 2). A market share of more than 50% implies an oligopolistic market (Ukav, 2017). There is nothing illegal about having a dominant position in the market. However, it is a cause of concern for the Philippine Competition Commission since having a large market share may later lead to abuse of dominant position.

Table 2. Concentration ratio of the major chicken meat producers in the Philippines, 2014

COMPANY	MARKET SHARE (%)
San Miguel Foods, Inc.	40.62
Bounty Fresh Group of Companies	12.05
Swift Foods, Inc.	0.06
Foster Foods, Inc.	0.06
Concentration Ratio (CR4)	52.79

Source: Securities and Exchange Commission, 2018

The trend towards vertical integration in the chicken meat market most probably led to the limited participation of backyard farmers in Pampanga. The study encountered some difficulties in locating representative backyard chicken meat producers in the province. This is understandable considering the current structure of farm producers in Pampanga are predominantly commercialized or has market tie-up between contract growers and integrators. The dwindling number of backyard chicken producers in Pampanga may be a result of limited opportunities for financing and expansion. Among the three types of producers in Pampanga, backyard farmers were the most disadvantaged. They only earn about Php 0.15 profit for every peso (USD 0.003 for every USD 1) invested in chicken meat production. The relatively high return

on investment of contract growers (20%) and commercial producers (17%) disincentivizes them to continue operation.

To compete with contract growers and commercial raisers, backyard farmers can enter into collective action schemes such as forming a cooperative or engaging in block farming. This strategy allows small scale farmers to share resources and risks, thereby lowering the cost of production in order to compete with commercial and contract growers. There is a rationale for small players to be involved in collective action schemes. For instance, the study of Jimenez et al. (2018) highlighted the positive benefits of cooperative membership in improving household welfare of calamansi (*Citrofortunella macrocarpa*) farmers in the Philippines. Sumalde and Quilloy (2015) also reported about the advantage of cooperative membership in empowering small swine and cacao farmers through increased participation in the agricultural value chain and enhanced market access. Farmer-members of a cooperative were also able to attain vertical integration, economies of scale in production, and value addition for their products.

The high capital requirement to participate in Pampanga's chicken meat market is also identified as a competition issue. A key informant in the Pampanga Public Market shared how difficult it was for him to enter the chicken meat market 10 years ago. For example, a daily operation would require Php 1-6 million (USD 19,841-31,476) to dress and market 2,500-4,000 heads of live chicken. Aside from high startup cost, strong ties and networks are needed in order to start and sustain normal business operations. Since there are only about nine trucker-dealers in the market, they are able to control the chicken market by imposing stringent requirements on new entrants (e.g., proof of high investment capital). While there are many small entrants trying to join the chicken market, they may be discouraged by the requirements of this "big nine". From the key informant interviews, it was found that these nine trucker-dealers often meet to discuss market operations and how much to price the product. This warrants further investigation because if confirmed, this alleged anti-competitive agreement through price fixing is a violation of the PCA.

High capital requirement, exacerbated by limited credit access, is also hindering chicken meat producers from making the needed operational improvements to expand their market, or even to stay in the industry. For instance, it has been noted that integrators have a growing preference for contract growers with tunnel-ventilated confinement facilities as this technology is more cost-efficient and profitable as compared with conventional technology. Tunnel-ventilated buildings,

however, require a huge investment. This not only limits the potential entry of interested participants in live chicken production but also hinders current producers from expanding. For instance, one of the contract growers interviewed relayed that as he was not able to convert to a tunnel-ventilated confinement building because he had no access to credit, he was forced to shift from chicken meat to chicken layer production, a move that gave him considerably lower returns.

The need to foster greater competition in Pampanga is clear. There are currently four large dressing plants in Pampanga, two of which are accredited by NMIS. This pales in comparison to the 16 large dressing plants in Bulacan, most of which are accredited by NMIS. While there are several small dressing plants in Pampanga's public markets, the large capital requirement serves as a barrier to entry even at this level of small-scale operation. In order to foster vibrant competition in the primary processing segment of chicken meat, there needs to be greater participation from other potential competitors.

Chicken Egg

Supply Chain. The four main participants in the supply chain of chicken egg in Pampanga were input suppliers, chicken egg producers, consolidators, and wholesalers/retailers (Figure 3).

The input supply segment of the Pampanga's chicken meat and chicken egg markets were essentially the same except for the greater role played by cooperatives in the latter part of production. Input suppliers in Pampanga included private businesses and some locally-based cooperatives. These cooperatives produce their own feeds and grow day-old chicks, which they sell to their members at discounted prices.

Expenses on feeds constitute the major costs involved in chicken egg production. Yellow corn is also the main component of the feeds for layer chickens. Feed millers in Pampanga source yellow corn from domestic producers in nearby provinces and yellow corn importers. Feeds produced for chicken eggs include booster, starter, grower, pre-layer, and layer feeds.

Chicken egg producers in Pampanga are all engaged at a commercial scale with at least 1,000 heads of layer chicken. They provide their own inputs and have no market tie-up with integrators. Many commercial producers in Pampanga are members of a cooperative. Commercial producers procure inputs, especially feeds, from the

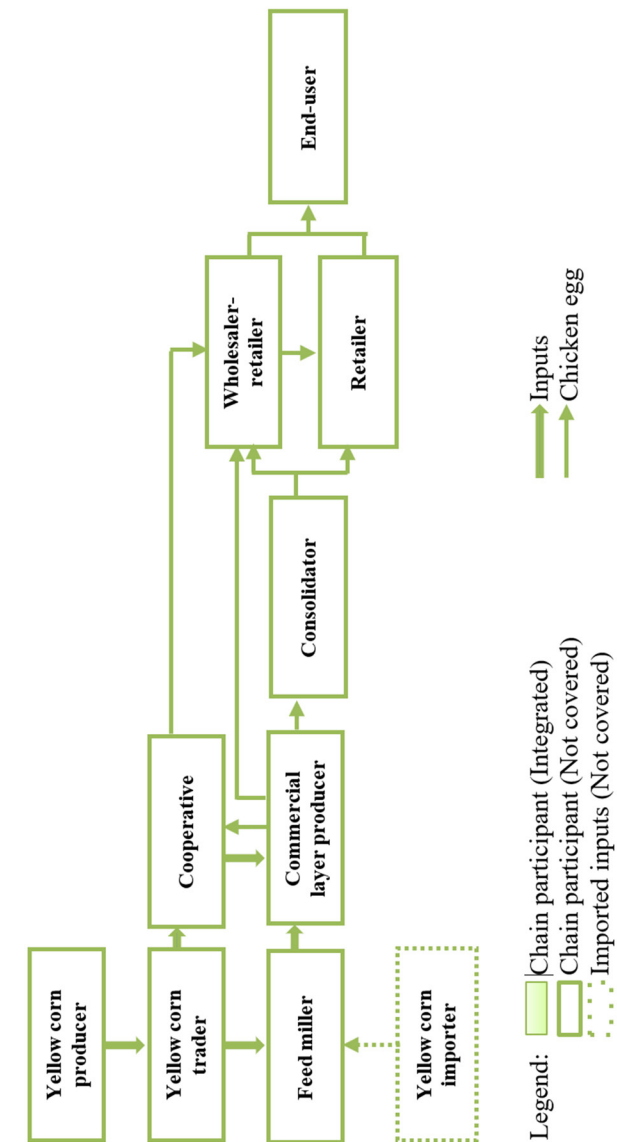


Figure 3. Supply chain of chicken egg in Pampanga

cooperative they belong to and sell part of their produce back to the cooperative. Other market outlets tapped by producers are the consolidators and wholesaler-retailers. The study of Gonzales et al. (2012) provided three classifications of chicken egg producers on a national level. Small-scale producers maintain less than 10,000 chicken layers and buy commercial feeds. Layer houses are made from either wood or bamboo. Medium-scale producers are those with 10,000-80,000 chicken layers. They can either buy commercial feeds or make their own feeds. Layer houses can be made of wood, bamboo, or steel depending on the scale of operation. Finally, large-scale producers maintain more than 80,000 chicken layers and have their own feed mills. The layer houses for large-scale operation are tunnel-ventilated.

Consolidators pick up the chicken eggs directly from farms and perform the postharvest activities of cleaning, sorting, grading, weighing, packaging, and marketing. Chicken eggs are sorted according to size, i.e., jumbo, extra-large, large, medium, small, extra small, peewee, no weight, and no value. Chicken eggs are sold on a per tray or per case basis. One tray contains 30 eggs, while one case is composed of 12 trays. On the average, consolidators buy 700 cases of chicken eggs per week. They distribute the chicken eggs to different markets located in other parts of Luzon, the largest island in the Philippines. The study of Lat and Delos Reyes (2017) in San Jose, Batangas found that manual sorting and grading of chicken eggs are practiced by small to medium-scale farmers and traders, while only a few large-scale chain participants used mechanized facilities. The study also reported that all chain participants did not adhere to the requirements set forth by the Philippine National Standard for Table Eggs.

The cooperatives also serve as consolidators in the marketing of chicken eggs. As earlier mentioned, members sell a portion of their produce to cooperatives and receive payment based on agreed terms. Minalin Poultry and Livestock Cooperative and Mupra Multipurpose Cooperative are among those involved in chicken egg production and distribution in Pampanga.

Wholesaler-retailers and retailers market the chicken eggs to end-users. Chicken eggs are either picked up by the wholesaler-retailers from commercial producers or are delivered by the producers to consolidators. Wholesaler-retailers supply chicken eggs to some retailers within their area. End-users of chicken eggs include consumers, wet markets, and supermarkets.

Competition Issues. Similar to chicken meat production, an important competition issue in chicken egg production is limited credit access to facilitate market participation and expansion through the adoption of more cost-efficient technology. Key informants shared that commercial banks prefer to grant loans to tunnel-ventilated operations over conventional housing. Tunnel-ventilated buildings have a higher value, which means that banks can secure a higher amount as collateral in case of default payment. Egg farmers that use tunnel ventilation technology, therefore, have a higher capability to secure loans and finance farm operations.

According to the Pampanga chicken growers interviewed, the investment cost is PhP 2.5 million (USD 49,603) per building for conventional housing and PhP 14 million (USD 277,778) per building for tunnel-ventilated operation. Obviously, the huge capital requirement hinders small players from participating as a substantial amount of loans will require higher counterpart collateral from borrowers.

Shifting to a tunnel-ventilated operation requires significant capitalization. Aside from its significantly higher initial investment cost, operational costs will also be doubled, especially in terms of electricity and water use, as the technology involves providing layers with additional cooling to avoid heat stress. Tunnel ventilation technology also requires reliable generators be procured for use in case of power interruption. According to a key informant, two generators are needed in order to avoid high mortality in case of power loss. This also implies that operators should have a stable source of electricity and water, which serves as yet another constraint for those whose layer farms are located remotely.

The need for credit access may also extend to small-scale sellers at the wholesale and retail levels. This will allow them to better compete with large-scale sellers who tend to offer lower egg prices, a behavior that ultimately hurts smaller scale sellers as they lower their own prices and, therefore, incur smaller returns.

Pork

Supply Chain. There are five main participants in the Iloilo pork supply chain. These are input suppliers, swine producers, assemblers, processors, and wholesalers/retailers (Figure 4). In this supply chain, live swine are processed into fresh meat or pork.

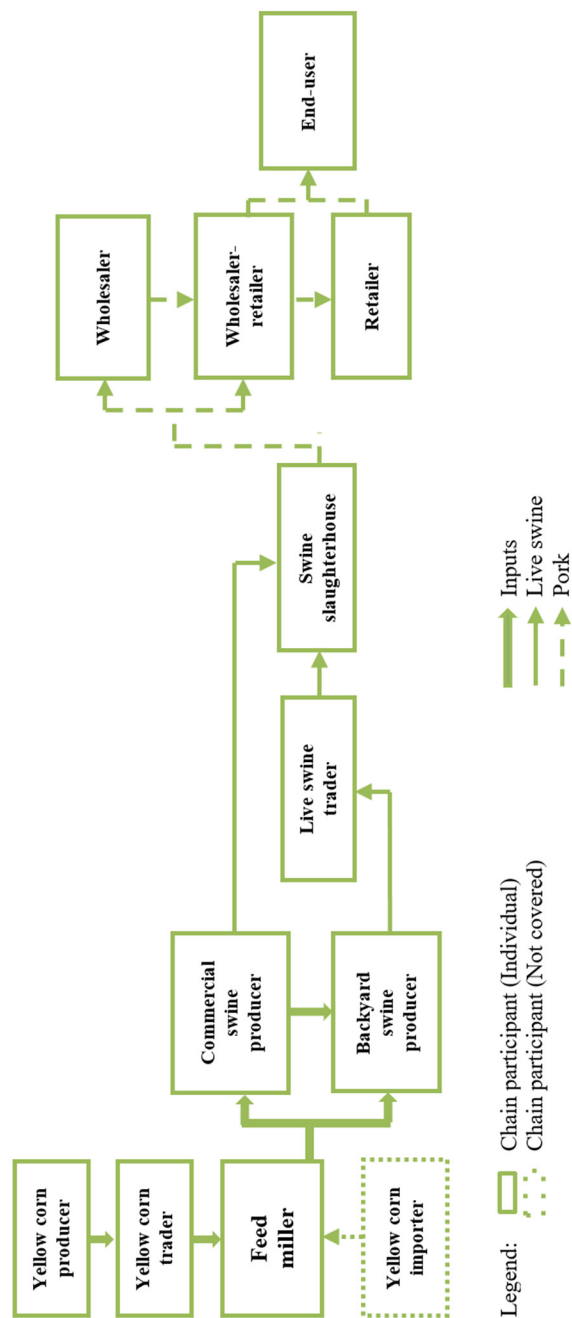


Figure 4. Supply chain of pork in Iloilo

Input suppliers provide swine producers with feeds, breeder swine, and other veterinary supplies. Commercial and backyard swine operators procure inputs from various sources. They buy feeds and other veterinary supplies from commercial input suppliers and breeder swine from commercial breeders. Feed millers are dependent on imported yellow corn due to the limited local supply, which mostly comes from the northern part of Iloilo. Hence, feed millers also procure yellow corn from Mindoro in Luzon, Samar in Visayas, and various provinces in Mindanao. Philippine Foremost Milling Corporation; Vitarich Corporation; New Panay Agri-venture Development, Inc.; and San Miguel Foods, Inc. are the large feed suppliers in Iloilo.

Based on the study of Philippine Rural Development Project (2018) of the Department of Agriculture, good quality yellow corn needed for feed milling and modern technology are readily accessible to supply chain participants. However, some inputs like feeds and veterinary products are costly since most of these are imported. Based on the study of the Bureau of Animal Industry (2003), 85% of ingredients needed for feed formulation are imported. This makes feeds needed for swine production expensive.

There are two types of swine operations in Iloilo: commercial and backyard. Commercial swine producers are those who raise at least 21 sow heads. They buy feeds from commercial feed millers and mix their own feeds. They produce and sell live swine to wholesalers, wholesaler-retailers, and backyard producers. Major markets of commercial producers are hotels and restaurants located in Iloilo City, Panay, and Cebu.

Backyard producers raise less than 21 sow heads. Majority of Iloilo swine producers are backyard producers who raise swine to augment household income. Backyard producers buy feeds from commercial feed millers and piglets from commercial breeder farms.

The study of Gonzales et al. (2012) offered four classifications of swine farms: backyard, small commercial, medium commercial, and large commercial. Backyard farms have less than 10 heads of animals and purchase commercial feeds. Small commercial farms maintain less than 100 swine and also buy commercial feeds. Medium commercial farms have 100 to 300 heads of swine and can either buy commercial feeds or manufacture their own feeds. Finally, large commercial farms operate at more than 300 swine animals, own breeding animals, implement artificial insemination, and operate their own feed mills.

According to the Philippine Rural Development Project (2018), swine production is a major source of livelihood in the CALABARZON region. Most of the swine farms in the CALABARZON region are of the commercial type. In contrast, swine farms in the MIMAROPA and Bicol region are dominated by backyard farms. Swine produced in backyard farms are priced lower than swine produced in commercial farms. Since piglets used in backyard farms have generally weak genetic make-up, ready-to-market swine will have low quality, commanding lower prices.

Swines are commonly traded in livestock auction markets in Iloilo. Buyers and sellers meet in livestock auction markets to trade live swine. Traders procure swine from producers and sell it to wholesalers and wholesaler-retailers. They are responsible for transporting live swine to slaughterhouses. Other traders also buy live swine from livestock auction markets and trade it again in other livestock auction markets for higher prices. Traders buy live swine from producers in Iloilo as well as from nearby provinces of Antique and Guimaras.

To be able to trade live swine in livestock auction markets, traders pay fees such as those for registration and transport. They also secure barangay certification, proof of transfer of ownership, and transport form while trading in livestock auction markets. Most of the producers involved in livestock auction markets trading are backyard producers. Live swine are weighed in livestock auction markets and when the producers and traders are satisfied with the deal, the live swine are then sold to the traders. Major markets of traders include Iloilo City and Roxas City.

Slaughterhouses process live swine into meat carcass or pork and deliver the meat carcass to wholesalers and wholesaler-retailers. Unfortunately, Iloilo slaughterhouses are not accredited by NMIS. They are called Locally Registered Meat Establishments as they are only registered with the local government. Swine slaughtered in these meat establishments are only sold in Iloilo's wet markets. To meet the demand of institutional buyers in Iloilo such as hotels and restaurants, traders transport the swine to accredited slaughterhouses located in Cebu and Cagayan de Oro and then transport the meat back to Iloilo. The costs incurred in doing this are expectedly passed on to the end-users.

Wholesalers, wholesaler-retailers, and retailers clean, store, and sell the meat carcass, offal, and blood to end-users. The meat carcass is chopped into retail or choice cuts. Wholesalers get their supply of swine from commercial producers. They procure bulk quantities of swine, at least 15 head carcasses per day weighing 60-100 kg per head. On the

other hand, the wholesaler-retailers buy only 2-3 heads of carcass per day. Retailers are involved in the sale of smaller quantities of pork. On the average, retailers buy an average of 60 kg of meat carcass per day from wholesaler-retailers.

Competition Issues. Four main competition issues were identified in the pork supply chain: 1) the absence of a complementing policy on land use plan, which prohibits the expansion of swine production; 2) the practice of anti-competitive agreements in livestock auction markets; 3) limited access to credit, which hinders market participation and, more importantly, technology adoption deemed crucial to ensuring the production of good quality pork; and 4) reports of smuggled pork entering Iloilo.

Two out of the 10 participants of the focus group discussion mentioned the importance of enacting a local ordinance on the land use plan of Iloilo. The plan should clearly state and specify the areas as well as the boundaries for swine production. Not doing so could serve as a possible threat to the province's swine industry given that existing and future areas for production, slaughterhouse locations, or even auction market areas may be recommended for relocation or worse, displacement without proper notice. The non-implementation of this land use plan will have dire consequences to the swine industry of Iloilo.

A scenario of relocation, for example, will imply additional cost to pay for the transfer of expensive fixed assets like building, machinery, and equipment. From a business standpoint, a weak local ordinance on land use poses a certain level of risk to potential investors. According to a major player in the swine industry of Iloilo, there are many potential investors in swine production. However, the possibility of their business being displaced to accommodate complaints of housing residents is a big risk that investors are not willing to take.

A major competition issue in the Iloilo pork supply chain is the fact that auctions do not really take place in livestock auction markets. Ideally, livestock auction markets should serve as a place where buyers (traders) bid for the highest price they are willing to pay and sellers (producers) offer the lowest price they are willing to accept. Trade happens when both agree on a price. However, in the livestock auction market visited by the research team, it was noted that producers and traders already had pre-arranged agreements and the trading practiced in livestock auction markets is simply the formality of selling. As such, producers are simply price takers and no actual competitive bidding takes place. This is a potential violation of the PCA as this, in essence,

is a form of anti-competitive agreement among the sellers, buyers, and livestock auction market operators.

It is also worth noting that the grading system is not yet fully implemented in the livestock auction market that was visited. For example, the weighing scale currently used is not yet digital. While the Livestock Auction Market-in-charge reports that swine are classified based on the Philippine National Standards, buyers still practice *mata-mata* system whereby they base the classification of swine on the buyers' eyeball estimates. This further poses a problem for the producers who have incomplete or no knowledge about the market.

Another competition issue is similar to that experienced in the chicken meat and egg supply chains, that is, limited credit access to improve pork processing operations. Market access to institutional buyers is not open to locally registered meat establishments as these markets require NMIS accreditation, which is a very tedious process. For example, to gain Triple A accreditation, which provides abattoirs with international market access, significant investment in machinery and equipment is required. Aside from having state-of-the-art facilities, the NMIS also requires its accredited abattoirs to have a stable source of clean water, a wastewater treatment facility, an office, and meat delivery vehicles. The abattoir's slaughtering process should also conform to the established standards set by the Good Manufacturing Practice system, the Hazard Analysis and Critical Control Point approach, and the Animal Welfare Act (RA 8485).

Therefore, in order to obtain a meat establishment accreditation from NMIS, the applicant should accomplish all the documentary, structural, and operational requirements. Obviously, all these entails high capital investment, which is clearly a barrier to slaughterhouses with poor access to capital. Key informants from Locally Registered Meat Establishments shared that they encounter difficulty in getting NMIS accreditation because it requires high initial capital investment, which could reach up to PhP 150 million for Triple A accreditation. Even for Single A accreditation, which provides abattoirs access to markets within the city or municipality where the facility is located, accreditation can still be costly and very stringent.

According to the study's key informants, this has been the main problem of the 36 Iloilo Locally Registered Meat Establishments. In particular, the locally-registered Iloilo City Slaughterhouse has a long pending case of Single A accreditation. Among its problems that need addressing in order to comply with the NMIS requirements are the lack

of funds for repair and maintenance, the lack of skilled technicians, and poor sanitation.

While the stringent accreditation requirements of NMIS hinder market entry and participation, it also ensures the safeness and high quality of food available to the public. The NMIS is the sole controlling authority of the Meat Inspection Code of the Philippines (RA 9296) and its Implementing Rules and Regulations (IRR). These policy instruments ensure the protection of human and animal health against direct and indirect hazards. However, as noted by the key informants, there are several key concerns as regards to the implementation of RA 9296.

Firstly, as Locally Registered Meat Establishments are still allowed to slaughter as long as they can secure clearance from the local government unit, then in effect only end-users who buy meat from markets that require NMIS accreditation are protected by the law. Secondly, compared to traders who patronize NMIS-accredited abattoirs, traders who patronize Locally Registered Meat Establishment that offer cheaper slaughter fees can, in turn, offer cheaper pork. This might be beneficial to pork consumers in the short term as the participation of many players in pork processing can result in lower slaughtering fees, which can lead to lower pork prices. However, as pointed out, meat quality may be sacrificed as Locally Registered Meat Establishments are not properly regulated.

The public markets in Iloilo and Cebu are poorly sanitized, not properly ventilated, and require more regular cleaning. While the market administrators are very keen to have the public markets rehabilitated, it will still take some time because of the local government's inadequate access to credit. Hence, public market wholesaler-retailers and retailers are at a disadvantage since buyers would often opt to purchase pork from meat shops and supermarkets that offer good quality and uncontaminated pork products. Wet market retailers, on the other hand, sometimes end up lowering their prices so that they may immediately sell their products. Such small-scale retailers lack the necessary equipment for long-term storage, which means that they not only incur smaller returns, they also end up selling poor quality pork products.

The competitiveness of locally-produced pork, according to Iloilo key informants, is also threatened by reports of smuggled pork coming from nearby ASEAN countries as well as cases of misdeclaration of imports (e.g., pork was declared as offal to take advantage of lower taxes, insurance, and freight costs). These illegally imported pork products threaten the competitiveness of locally-produced pork as well

as endanger consumers as their quality cannot be ensured given that official channels have been sidestepped. In fact, the study of Gordoncillo et al. (2013) showed evidence that, on a national level, pork is among the many commodities being smuggled into the country. Additionally, variations in retail prices of chicken meat, chicken egg, and pork were found to be associated with the occurrence of technical smuggling (Neric et al., 2019). Although smuggling has dampened the local prices of pork, the safety of smuggled products for human consumption cannot be guaranteed.

Further, the supply of pork in Iloilo is low relative to demand. One trader reported that he had to go to Mindoro in order to look for swine and bring these to Iloilo for slaughter. For some of the traders, they have to scout for swine from nearby provinces in order to slaughter and sell these as pork in Iloilo public markets. A low supply of swine at the farm level may translate to high pork prices paid by consumers. Additionally, this low supply of swine at the farm level is primarily due to relatively low farmgate prices in Iloilo. In fact, according to the key informants, Iloilo farmers are generally discouraged to raise swine. The main reason is that the swine farmgate price in Iloilo is PhP 5-10 lower than the farmgate price in Negros and in Mindanao. This creates a disincentive for farmers to engage in swine production. Moreover, low prices coupled with inadequate local government planning and regulation (i.e., unclear land use plan for swine production) could discourage the participation of new market players.

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

The supply chains of chicken meat, chicken egg, and pork in selected markets presented some form of uniqueness and commonality. All depend on the availability of feeds in farm production and, in the case of the chicken meat and pork supply chains, on the quality of processing facilities. Each market, of course, exhibited a unique characteristic. For instance, the chicken meat supply chain showed complex producer-buyer marketing arrangements; cooperatives were found to have a huge role in the chicken egg supply chain; and livestock auction markets figure prominently in the trading of live swine in the pork supply chain.

Several competition issues that present or may lead to potential PCA violations were noted in each supply chain. In the chicken meat supply

chain in Pampanga, while the increasing trend of vertical integration in the form of complex marketing arrangements between producers and integrators serve to lower production risks, it may also lead to market oligopoly and this may later lead to the abuse of dominant position. Such abuse may already be in play in the trading and consolidation segment of the supply chain where there are reports of price fixing among the nine major truck-dealers in the province who are said to impose high capital requirements for market participation.

Limited access to credit to facilitate market participation and expansion through the adoption of improved technology is the main issue in the chicken egg supply chain. This same issue also figures prominently in the other two supply chains studied. In the chicken meat and chicken egg supply chains, improved access to credit is seen to likely facilitate tunnel ventilation technology adoption. This technology can increase production cost efficiency, but its high initial and operational cost requirement is prohibitive for small-scale operators, thereby, limiting their market participation and expansion.

In the pork supply chain, improved access to credit may assist Locally Registered Meat Establishments to acquire the needed technology necessary to obtain NMIS accreditation. This is becoming increasingly urgent as the competitive edge of NMIS-accredited abattoirs against Locally Registered Meat Establishments is slowly eroding given that the latter can offer lower slaughtering fees due to cheaper and more relaxed registration requirements. This has, therefore, led to lower meat quality as Locally Registered Meat Establishments have lower standards and are not properly monitored. This situation is aggravated by reports of pork smuggling into the province, which not only erodes the competitive edge of locally-produced pork but also endangers consumers as their quality cannot be ensured given that official channels have been bypassed.

Lastly, the study noted the practice of the livestock auction markets in Iloilo. It was found that instead of serving as sites for competitive bidding, the livestock auction markets became sites to formalize pre-negotiated trading agreements, which is a violation of the anti-competitive agreement provision of the PCA.

This study has several limitations. Among them is the generalizability of its findings. This, however, is a limitation which is inherent to all case studies.

Recommendations

Several corrective measures can be explored to address the above-mentioned competition issues. These are presented as recommendations in this section.

1. Vertical integration, market oligopoly, and backyard producers – Like any agricultural enterprise, chicken meat production faces a high degree of risk and uncertainty. One of the major strategies adopted by producers is to enter into contract growing arrangements, thereby leading to vertical integration of activities, which may later result in an oligopolistic market. The trend toward contract growing has been increasing and will continue in the long run considering the advantages of the arrangement such as risk sharing and market access.

However, the trend toward contract growing had an adverse effect on backyard producers. In Pampanga, the number of backyard producers significantly decreased. Hence, the researchers were only able to find backyard-produced chicken in remote rural communities. While the practice of backyard farms may yield efficiency in production, it may be inefficient in the marketing side. Hence, measures are necessary to support and promote backyard chicken meat production not only for marketing efficiency but also to spread the sharing of economic benefits. One way to promote backyard farming is through the formation of collective action schemes such as a cooperative or block farming. This strategy permits the pooling of resources and enables better bargaining power when applying for agricultural loans.

2. Financial assistance, technology, and credit guarantee system – Most key informants shared that banks prefer loan applications from entrepreneurs intending to establish a specific production technology. For instance, in egg production, banks prefer to provide financial assistance to producers who propose to put up a facility using tunnel ventilation as opposed to conventional housing. The argument is that banks would more likely lend to a borrower with a tunnel-ventilated system because of its higher collateral value. A conventional housing for layers is about PhP 2.5 million (USD 49,603), whereas the tunnel-ventilated system is about PhP 14 million (USD 277,778).

A guarantee system should be put in place that can help small scale producers have access to capital in formal lending institutions. The private sector can forge a partnership with the government in the form of joint funding. The fund can be used to provide third party credit absorption to small scale producers in case of default payments. Understandably, the use of this fund should be paid in the form of a user fee.

3. Low slaughter fees, meat quality, and upgrading of facilities – Most swine producers preferred to have their stock slaughtered in Locally Registered Meat Establishments than in NMIS-accredited primary processing facilities due to the lower cost of slaughtering. However, quality becomes an issue as, based on interviews, there had been instances where meat processed from Locally Registered Meat Establishments were found to be unsafe for human consumption. Therefore, it is recommended that the facilities and standards of the Locally Registered Meat Establishments must be upgraded to ensure product quality. A way to do this is through the conversion of Locally Registered Meat Establishments to NMIS-accredited slaughterhouses.

The benefits of upgrading are higher quality of meat, greater area of operation from local to national/foreign markets, and having market access to institutional buyers like hotels and restaurants. The conversion will come at a high cost. However, the investment requirement can be easily offset by the long-term benefits mentioned above. The local government can pursue funding by partnering with international funding institutions through grants, public-private partnerships, and loans.

4. Smuggling, lower prices, and competition – The key informants reported cases of pork smuggling in Iloilo. Smuggling lowers domestic prices of goods. While these may seem beneficial to consumers, it has to be tackled as an issue of safety. Since smuggled goods do not undergo checks by regulating agencies, food quality may be compromised. From the producers' side, the effect on competition is at the small scale and backyard producers. Low prices as a result of smuggling will erode the competitive edge of small scale and backyard producers.

Therefore, the Philippine Competition Commission should argue for the merit of anti-smuggling from a competition perspective. The implication is that the Philippine Competition

Commission should look beyond the three prohibited acts of the PCA such as anti-competitive agreements, abuse of dominant position, and anti-competitive mergers and acquisitions. To date, smuggling can be considered as a regulatory issue rather than a competition issue. In order to formally consider smuggling as a competition issue, an amendment of the PCA must be pursued.

5. Auction markets, price competition, and system overhaul. Livestock auction markets are designed to benefit small scale or backyard producers through better prices from competing buyers via an auction process. However, the practice in the livestock auction markets visited in Iloilo is no longer aligned to the ideal process of the said markets. What happens in the auction market is only for formality because a seller and a buyer have already pre-negotiated the price of the animal prior to the auction, which defeats the entire purpose of the auction market. An overhaul of the system is necessary to ensure that livestock auction markets remain faithful to their functions. This recommendation requires coordination of local government units and regulating agencies like the Philippine Competition Commission.

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Overcoming Challenges in Earthquake Preparedness in Panay Island in the Philippines through Good Governance

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ABSTRACT. Disaster risk reduction is a major concern especially among developing and underdeveloped countries. This case study reviewed the governance strategies in place to manage the potential impacts of a magnitude 7.0 earthquake in Panay Island, which is home to more than 2 million inhabitants. National and local government offices engaged in disaster management provided the secondary data needed for this case study. Key informant interviews were conducted to collect salient information on governance strategies employed such as on fund sources and major players. Triangulation was employed to enhance the analysis and credibility of this research. Among the key findings is that an active fault, a trench, and a collision zone may generate another destructive earthquake in the future. However, good governance as a result of collaborations among public, private, and civil society organizations may reduce the vulnerability of communities in Panay Island to tsunami and other earthquake hazards. Public officials of underdeveloped and developing countries searching for alternative management strategies to supplement their minimal resources in managing impacts of earthquakes may be able to apply the strategies presented in this case study.

Keywords: *collaboration, earthquake generators, governance, partnership*

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INTRODUCTION

The lack of an effective early warning system for tsunami had claimed hundreds of thousands of lives in Indonesia and other developing countries in Asia (Jayarathne, 2016). These disasters emphasize the importance of strengthening disaster risk reduction and management (DRRM) capabilities of local officials of earthquake-prone communities in underdeveloped and developing countries to minimize damage from these calamities.

Earthquakes are not new to the Philippines as the country is within the Pacific Ocean's Ring of Fire. In recent years, several damaging events were recorded in Negros Oriental (2012); Bohol (2013); and Surigao del Norte (2017) (Philippine Institute of Volcanology and Seismology [PHIVOLCS], 2017a). About three decades ago, in 1990, a catastrophic earthquake hit Luzon in Northern Philippines, which resulted in thousands of deaths. This earthquake event prompted public officials both at the local and national levels to craft countermeasures.

This paper scrutinizes the governance strategies in managing the potential impacts of earthquakes in Panay Island. The 1,169,247-hectare island is home to the provinces of Aklan, Antique, Capiz, and Iloilo (Department of Environment and Natural Resources, 2018). It has a population of around 2.4 million (Philippine Statistics Authority, 2016). Iloilo City, the center of government and business in the region, is the 5th most populated highly urbanized city outside Metro Manila. In 2017, it posted a 6.1% economic growth (National Economic and Development Authority, 2017). A magnitude 7.1 earthquake struck Panay Island on 14 June 1990 (Bautista et al., 2011).

The next section walks the reader through the legal framework on DRRM in the Philippines. It also gives an overview of theoretical insights on disaster management. The conceptual framework of the paper follows, which draws upon several prescribed norms on effective disaster management. A detailed account in doing this case study is presented in the methodology section. The results and discussion section then follows, which provide detailed responses to the research questions set forth in this paper. The paper concludes with the conclusion and recommendations section. Recommendations range from organizational to policy insights.

Disaster Risk Reduction and Management in the Philippines

Managing impacts of disasters such as earthquakes is among the key priorities highlighted in major global (e.g., the UN Sustainable Development Goals) and national (e.g., Philippine's *Ambisyon Natin* 2040) policy documents. In the Philippines, the Philippine Disaster Risk Reduction and Management Act of 2010 (RA 10121) stipulates that local government units must appropriate 5% of their annual budget to disaster management. The 70 percent of the total allotment, however, could only be spent during and after the occurrence of a disaster. The Philippine government is accused of being reactive in its response to natural disasters since only a third of the resources are appropriated to countermeasures (Office of Civil Defense, 2011; World Bank, 2017). Significant major reforms were enacted in 2010. Among them is the provision that allows the use of 70 percent of DRRM funds for preparedness measures—a practice that was previously prohibited (La Viña & Tan, 2015). The remaining 30 percent is reserved for response and recovery activities. The Office of the President shall release an additional allotment in case a local government unit declares a state of calamity as stated in RA 10121. Moreover, the provisions in RA 10121 are aligned with the Hyogo Framework for Action 2005-2015. Current DRRM programs and projects nationwide are also patterned with the Sendai Framework for Disaster Risk Reduction 2015-2030.

Theoretical Insights on Managing Disasters

Bringing together non-governmental and governmental actors in addressing the increasing complexity of public services, mounting fiscal constraints, less accessible health services, and immigrant integration issues is an effective strategy in service delivery (Kang et al., 2019; Radevic & Hacek, 2019; Els & Bloemraad, 2017). The concept of an "organizational society" seeks to provide important services through multi-organizational programs that are "interconnected clusters of firms, governments, and associations which come together within the framework of these programs" (Hjern & Porter, 1981, p. 214).

Scholars propose that new and suitable concepts in managing public affairs must be observed (Hartley, 2010; Irshad, Ali, & Iqbal, 2015; Malalgoda, Amaratunga, & Haigh, 2016) such as partnerships (Carley, 2000; Lasker, Weiss, & Miller, 2001; Bäckstrand, 2006; McGuire & Silvia, 2010) and collaborations (Denhardt & Denhardt, 1999; Ullah, Newell, Ahmed, Hyder, & Islam, 2006; Murray, Haynes, & Hudson, 2010; Tang, Chen, & Shao, 2018). Risk assessment and disaster preparedness

programs in communities susceptible to earthquake hazards lessen the casualties while making people more adaptive (Chou & Wu, 2014). For these programs to be effectively carried out, collaboration with various organizations is necessary. This argument is shown best in a business where firms collaborate to share and decrease market and technological uncertainties (Caloghirou, Hondroyiannis, & Vonortas, 2003). Local governments with lesser financial resources and less private capacity are likely to establish more collaborative partnerships with other institutions (Im, Jeon, & Kim, 2017). These theories, proven effective in other areas of public affairs such as in local governance and even in running a business, will work in DRRM. It is because disaster management also involves maximizing the use of available resources to achieve the set objectives.

The overarching research question of this study is: How does Panay Island prepare for a catastrophic earthquake? The following are the specific research questions of this study: 1) What are the mapped active fault, trench, and collision zone on and adjacent to Panay Island that may generate a tsunami and other earthquake hazards?; 2) Were there damaging earthquakes with a magnitude of 7.0 and above that hit the Island from 1600 to 2018?; 3) After a magnitude 7.1 earthquake shook this area on 14 June 1990, what are the government's DRRM projects in preparation for the recurrence of another deadly earthquake?; and (4) What are the alternative management strategies that enhance local government officials' capacity to implement these initiatives?

Conceptual Framework

There are several prescribed norms for effective disaster management (e.g., Grobicki et al., 2015; Bang et al., 2019). Figure 1 highlights the components of information, education, and communication campaigns before the occurrence of a disaster (Reynolds & Seeger, 2005).

In public administration, scholars continue to search for the best ways in governing public affairs. For example, the concept of "governance" has replaced the old idea of "government," and recently "good governance" has dominated the discourse of institutions advocating for human and community developments (Nag, 2018). All this is geared towards equipping government officials to better manage public affairs.

There is evidence to show that adherence to principles of good governance results in tangible development in communities and their inhabitants (United Nations Development Programme, 1997). Figure 2 shows the eight key indicators of good governance: accountable,

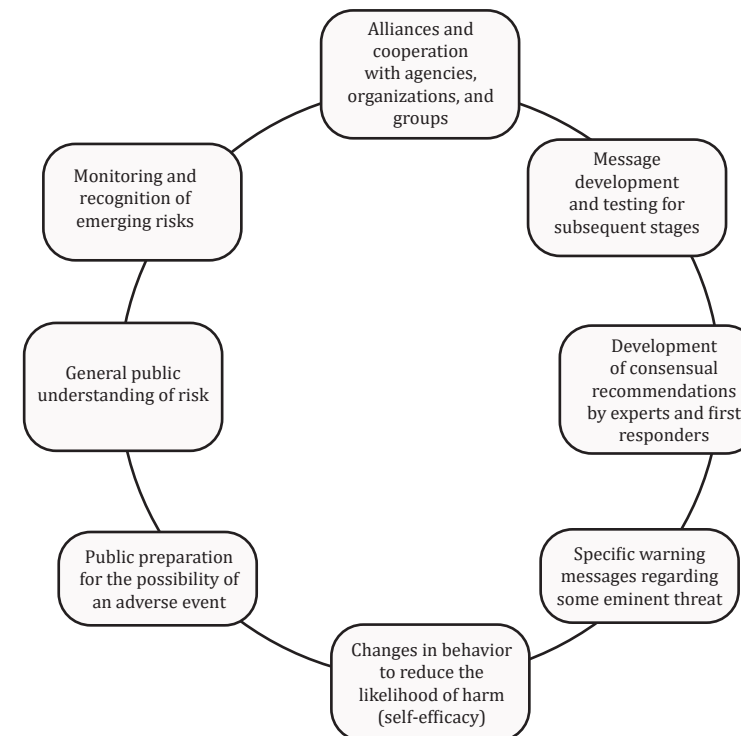


Figure 1. A pre-crisis model for information, education, and communication campaigns

transparent, responsive, equitable and inclusive, effective and efficient, follows the rule of law, participatory, and consensus-oriented. It is assumed that the mainstreaming of these parameters in disaster management among local government units is expected to result in holistic development.

METHODOLOGY

In this case study, the secondary data were sourced from national government agencies and local government units involved in carrying out earthquake preparedness projects in Panay Island. The national government agencies that provided data for this study were PHIVOLCS, Office of Civil Defense (OCD), National Disaster Risk Reduction and Management Council (NDRRMC), Philippine Statistics Authority (PSA), National Economic and Development Authority (NEDA), and Mines and

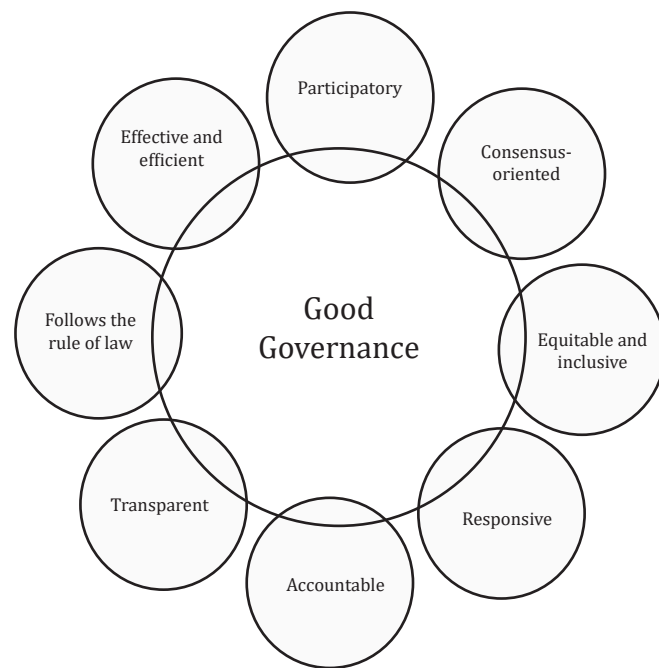


Figure 2. The eight key indicators of good governance

Geosciences Bureau (MGB). The Provincial Disaster Risk Reduction and Management Offices (PDRRMO) of Aklan, Antique, Capiz, and Iloilo also provided data on completed DRRM projects. Table 1 shows the comprehensive list of secondary data collected and their respective sources.

Interviews with DRRM project staff members in each province were conducted to know the methods involved from planning to evaluation stages. Each DRRM project was analyzed in terms of how the government reinforced its limited financial and technical resources. The stakeholders and collaborators were likewise identified. Analysis of details of these DRRM projects was conducted to specify the alternative management strategies that helped local government officials enhance their capacity to implement these initiatives. Insights from said information were also used to determine the practitioners' observance of the two frameworks highlighted in this study (*see Figures 1 and 2*). The projects implemented were arranged chronologically, that is, from 1990 to 2018. Triangulation of interview results was made to validate the integrity of the information provided by the interviewees (Denzin,

1978 as cited in Raphael et al., 2003). This enabled the researcher to scrutinize each earthquake countermeasure.

As for the technical aspects of this research particularly on the science surrounding earthquakes, references from academic journals as well as grey literature authored by seismologists, geologists, and disaster managers were consulted. These references enabled the researcher to identify the active fault, trench, and collision zone that may generate a tsunami and other earthquake hazards in Panay Island. These references also led to the review of damaging earthquakes that hit this area in the past four centuries, that is, from 1600 to 2018.

Table 1. Sources of secondary data

Sources	Secondary data
Mines and Geosciences Bureau (MGB)	- Multi-hazards mapping project in Panay Island
National Disaster Risk Reduction and Management Council (NDRRMC)	- Total number of casualties in Panay Island in the 2013 Super Typhoon Haiyan (Yolanda)
National Economic and Development Authority (NEDA)	- Economic growth and regional center of business in Panay Island
Office of Civil Defense (OCD)	- Collaborative DRRM projects with the PHIVOLCS and 4 PDRRMO in Panay Island
Philippine Institute of Volcanology and Seismology (PHIVOLCS)	- Earthquake generators in and adjacent to Panay Island - Damaging earthquakes in Panay Island since 1600 - Collaborative DRRM projects with other countries, foreign-funding institutions, other national government agencies, and local government units
Philippine Statistics Authority (PSA)	- Total population in Panay Island
Provincial Disaster Risk Reduction and Management Office (PDRRMO) in Panay Island	- Collaborative DRRM projects with the PHIVOLCS and Office of Civil Defense
United Nations Development Programme (UNDP)	- Multi-hazards mapping project

RESULTS AND DISCUSSION

Earthquake Generators on and Near Panay Island

According to PHIVOLCS (2019a), three earthquake sources threaten Panay Island with tsunami and other earthquake hazards (Figure 3). First is the West Panay Fault that transects the western part of the island from north to south. The traces were found in the municipalities of Libacao, Madalag, Ibajay, and Malinao (Aklan); Pandan and Valderrama (Antique); Jamindan and Tapaz (Capiz); and Alimodian, Igaras, Janiway, Lambunao, Leon, Miagao, San Joaquin, Tubungan, and Maasin (Iloilo). Second is the Collision Zone in Mindoro Strait, which is situated west of the Island. This earthquake generator puts at risk most of the coastal barangays in the Province of Antique to 6 – 11-meter high tsunami. The third is the Negros Trench in the Sulu Sea located south of Panay. In case it triggers a major earthquake, tsunami waves will endanger the southern and central coasts in the provinces of Antique and Iloilo 15 minutes after the mainshock. Most of the shorelines in Iloilo Province are expected to be washed away by 9 – 12-meter high tsunami waves (PHIVOLCS, 2019).

When the Central Negros Fault in the southeast generates a magnitude 7.0 earthquake, ground shaking can also be felt in Panay. Likewise, the Philippine Fault Zone Masbate segment, northeast of the Island, had been generating large earthquakes in the past, which were moderately felt in northern Panay Island.

Panay Island: Highly Prone to Tsunami and Other Earthquake Hazards

Bautista et al. (2011) reported that five major earthquakes ranging from magnitude 7.1 to 8.2 had hit this Island in the past 400 years (Table 2). The epicenters were concentrated on the western part where the active West Panay Fault was traced. Details of recorded damages to structures can be found in the archives of the Roman Catholic Church in Jaro and the National Library as well as from the narrations of local historians. The 24 January 1948 earthquake was the second largest to hit the Philippines. The newspapers Manila Bulletin and Manila Times published about this disaster in their January 1948 issues. There were 55 Catholic churches built in the 1600s, including the Miagao Church, which is a UNESCO World Heritage site, that were damaged by earthquakes.

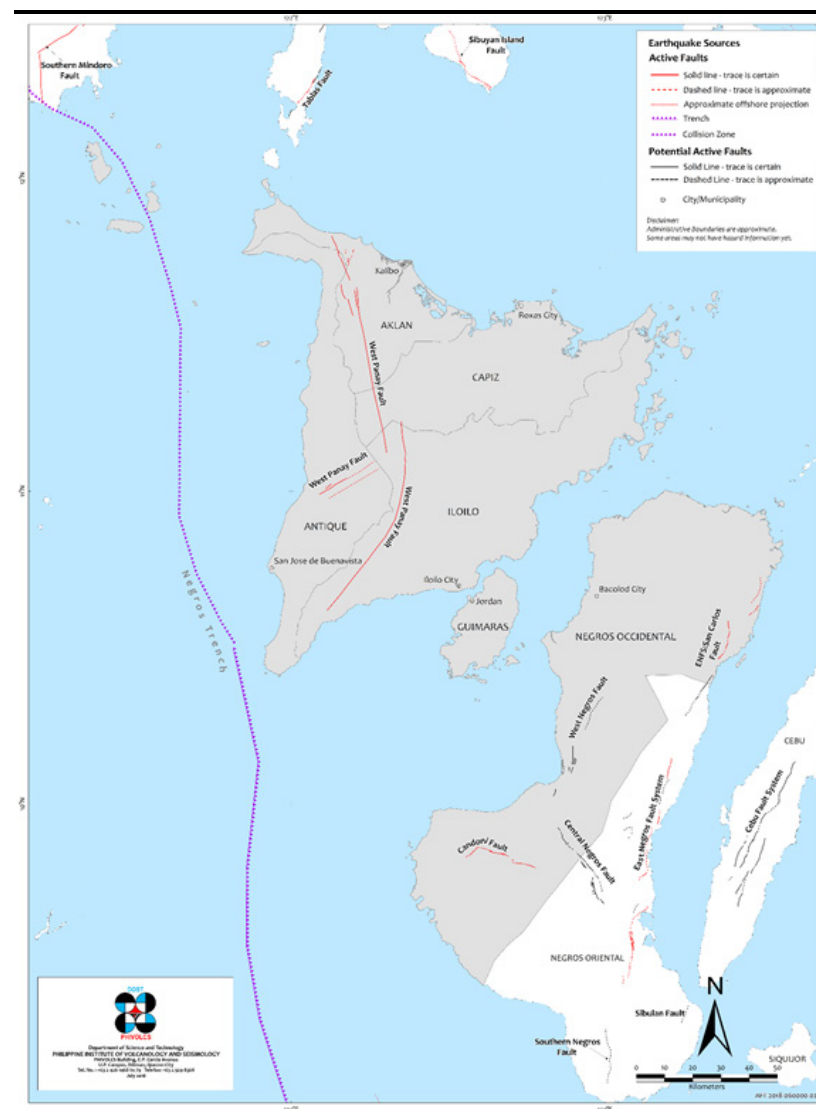


Figure 3. Earthquake generators in and adjacent to Panay Island

These data show that Panay Island has long been highly vulnerable to damaging earthquakes. The chance is high that it will be shaken again once there is a sudden displacement of rocks or rock materials beneath the surface of its earthquake generators. If the magnitude of the earthquake exceeds 6.5, tsunami and other hazards will worsen the intense ground shaking depending on the location of the epicenter. The number of casualties and extent of damage to structures and public utilities are also expected to increase.

Table 2. Damaging earthquakes that hit Panay Island, Philippines since 1600 (Bautista et al., 2011)

Date of Occurrence	Magnitude
December 1621	7.2
July 12, 1787	7.4
February 2, 1887	7.3
January 24, 1948	8.2
June 14, 1990	7.1

DRRM Projects in Panay from 1990 to 2017

There were numerous state-initiated DRRM projects implemented nearly three decades ago to protect the 2.4 million people in Panay Island from earthquake risk. These projects are discussed below. The enactment of RA 10121 in 2010 resulted in the realization of additional DRRM projects.

Global Positioning System (GPS) Project. The GPS project funded by the Philippines' Department of Science and Technology (DOST) is a continuous annual project in Panay Island (PHIVOLCS, 2017). A memorandum of agreement among collaborators allows GPS receivers to be temporarily mounted on government-owned properties for seven days to record the exact coordinates and elevation of the sites. Newly collected data are compared with previous ones to determine any changes. This project endeavors to determine the direction and velocity of the slow movement of the archipelago toward the South China Sea in response to the continuous collision of the Pacific Plate against the Philippine Sea Plate. It helps seismologists to determine the probability of an earthquake as the continuous movement of blocks, detected by GPS receivers, creates strain that consequently causes energy buildup. This stored energy is released during an earthquake. GPS data can also identify the direction of movement of an active fault, which suddenly moves during a destructive earthquake. Among its collaborators are the governments of Taiwan and France. In 2018, the government installed a continuous GPS that records data transmitted in real-time to the PHIVOLCS central office in Manila.

24/7 Earthquake Monitoring Stations. Panay is the only island in the Philippines with three staff-controlled earthquake monitoring stations (PHIVOLCS, 2019). These are situated in the provinces of Antique,

Aklan, and Capiz. These stations were modernized with support from the Japan International Cooperation Agency (JICA). Since 2001, the stations have been equipped with state-of-the-art seismographs, seismometers, accelerometers, and intensity meters. The staff members (called observers) also underwent training on seismology and on managing an earthquake monitoring station in Japan, Germany, and Taiwan.

An observer is in charge of the field office during office hours. Outside office hours, only a caretaker manages the office. The seismologist who is required to render services eight hours a day is on call and receives overtime pay. He leaves the office when he pays bills, attends meetings, participates in training programs, gives lectures, and evaluates earthquake drills. This inadequacy of personnel complement may result in ineffective earthquake monitoring.

Hazard Mapping and Assessment for Effective Community-Based Disaster Risk Management (READY) Project. This project aimed to come up with multi-hazard maps at a village-level scale. Filipino experts did the field survey and mapping activities with financial support and additional technical assistance from foreign agencies. Provinces highly prone to natural disasters were identified. Field surveys in Antique and Iloilo were conducted in 2009 before the production of expert-reviewed digital and analog maps. Upon project completion, information, education, and communication materials were distributed to local governments along with the conduct of seminar-workshops and distribution of hazard maps (Mines and Geosciences Bureau Region 6, 2009; PHIVOLCS, 2018). The hazard maps are available for download from the websites of agencies involved in the project. The project, however, fell short in completing the information, education, and communication materials for tsunami and village-level drills due to budget constraints. The OCD; Philippine Atmospheric, Geophysical, and Astronomical Services Administration (PAGASA); National Mapping and Resource Information Authority (NAMRIA); and PHIVOLCS collaborated with UNDP and Australian Agency for International Development in implementing this project.

Quick Unified Inventory of Vulnerability and Exposure for Rapid Earthquake Damage Assessment System Project. This project was conducted in Iloilo City in 2010. Surveyors from partner-agencies assessed the buildings in Jaro District and conducted a simulation of possible impact of two damaging earthquakes at magnitude 6.3 and 8.1. The outputs were estimated number of casualties and percentage of collapse among building types. Geoscience Australia published an online reference book featuring the output of this project.

Limited units of expensive Personal Digital Assistants from Australia were used during the first of the three series of building surveys. Since it would be very costly for the Philippine government to buy these portable devices costing around PhP 200,000 (approx. US\$385) each, PHIVOLCS installed to netbooks and laptops the application used in building assessment. An external web camera and a portable GPS receiver were connected to each laptop or netbook to take the photos and to get the coordinates of the surveyed buildings, respectively. This innovation, which resulted in efficient and effective governance, was presented during the 9th Pacific Conference on Earthquake Engineering in New Zealand in 2011. The Risk Analysis Project in Metro Manila was a replication of this pilot project.

This project was a collaboration between Geoscience Australia and the Philippine government. The Philippine agencies that participated in this project were PHIVOLCS, University of the Philippines Institute of Civil Engineering, the local government of Iloilo City, and the Regional Offices of OCD and DOST.

Information, Education, and Communication Activities and Earthquake Drills. The various partnerships between the national government and the local DRRM offices on disaster mitigation and adaptation were enhanced through the conduct of frequent capability-enhancement training programs; information, education, and communication activities; and earthquake drills in schools, hospitals, villages, and offices. The activities started in 2011 in compliance with RA 10121. The activities proceeded smoothly without any formal arrangements with different stakeholders. The International Organization for Migration, Adventist Development and Relief Agency, Save the Children, Hilfswerk der Evangelischen Kirchen Schweiz of Switzerland, Red Cross, and other charitable institutions sponsored a series of information, education, and communication activities on various natural disasters post-Super Typhoon Haiyan (PDRMO of Capiz, personal communication, May 10, 2017). From 2013 to 2015, PHIVOLCS (2018) reported a significant increase of facilitated lectures on earthquake preparedness nationwide. Among the key issues reported concerning earthquake drills was the non-participation of some organizations, in particular, the private offices and commercial establishments. They considered the earthquake drills to be disruptive of their operations.

Online Earthquake Intensity Meters. The Japanese Government donated 110 intensity meters through the JICA, Japan Science and Technology Agency (JST), and National Research Institute

for Earth Science and Disaster Resilience (PHIVOLCS, 2018). These intensity meters are mounted in the offices of local government units nationwide following the approval of the memorandum of agreement by the respective local legislative bodies. There are 10 intensity meters installed in Panay Island since 2010. LGUs supply both the needed power and internet connectivity while the national government maintains and upgrades the system. Some units, which the JICA donated, are solar-powered. Additional units are provided every year. In case of software malfunction, a staff member from the main office of PHIVOLCS in Manila is tasked to do remote troubleshooting. Repair is done using the "Team Viewer" application.

The output of continuous monitoring of ground movement is visible both at the installation site and at the PHIVOLCS central office in Metro Manila. Since real-time intensities of the earthquake are transmitted through the internet, instrumental intensities are included in the first earthquake bulletin issued 5-15 minutes after the event. In the past, government seismologists made telephone calls in areas, which felt the tremor before the final felt intensities could be determined.

Rapid Earthquake Damage Assessment System (REDAS) Training Programs. From 2012 to 2018, there were about 80 public officers and staff members from the national and local governments in Aklan, Antique, Capiz, and Iloilo who participated in the four series of training programs on the use of REDAS software. Developed locally in 2004, it is given for free to trained users, and has features similar to the expensive Geographic Information System software developed by multinational companies. An End-User License Agreement is issued to trainees before using the software. Its developer, Dr. Bartolome Bautista of PHIVOLCS, updates it almost every month.

REDAS can identify multi-hazards that pose danger to communities, simulate damaging earthquakes, and determine the areas that will most likely be affected by a tsunami and other hazards. The outputs proved useful in formulating and revising local governments' Comprehensive Land Use Plan. The trainers extended their services free of charge while the host local government arranged for the logistics needed for the training. Applying the concept of equity in access to training programs, the UNDP and PHIVOLCS covered the expenses of the participants coming from provinces that are highly prone to earthquake hazards. The second round of training was held in Iloilo City in October 2018 in partnership with a private maritime university and with the city government. The school offered the venue while the Iloilo City government covered the rest of the expenses.

The REDAS Team showcased lateral collaboration in government as the trainers came from the different divisions of PHIVOLCS. The functions of speakers in their offices were not neglected given that they were not permanent team members. Likewise, only one training session was conducted in a month. The multi-hazard maps that the users can access in this software were the outputs of collaboration among the MGB, PAGASA, NAMRIA, and PHIVOLCS (PHIVOLCS, 2019b).

Speakers' Bureau. The Province of Capiz formed a Speakers' Bureau in 2013. It was composed of experts from government agencies such as PHIVOLCS, PAGASA, Bureau of Fire Protection (BFP), Philippine Information Agency, Capiz State University DRRM Office, and the PDRRMO of Capiz. Organizations requesting for a lecture on DRR and earthquake and fire drills coordinated with the PDRRMO of Capiz, which was in charge of scheduling and dispatching of experts. The speakers and evaluators extended their services free of charge (PDRRMO of Capiz, personal communication, May 10, 2017). Despite not having any formal agreements among collaborating agencies, the activities proceeded smoothly. A major concern noted was the unavailability of speakers on some occasions owing to more important functions.

Tsunami Sensors/Sirens. All coastal towns in the province of Antique and the shorelines in the municipalities of Leganes down to San Joaquin in the province of Iloilo are tsunami-prone (PHIVOLCS, 2017b; PHIVOLCS, 2017c). Possible sources of life-threatening giant waves are the Mindoro Strait and the Sulu Sea where the Collision Zone and Negros Trench, respectively, are located. The local chief executives are aware of this information. Additionally, this information served as the basis for the development of various projects supported by the national government. Among these projects are the Tsunami Early Warning System, Science and Technology Research Partnership for Sustainable Development, and the Community-Based Early Warning System for Tsunami. A community-based early warning system drill for a tsunami was conducted in the village of Botbot, Pandan, in northern Antique in August 2016. The expenses were covered by the national and local government units. Consultations with village officials were conducted before finalizing the schedule of activities.

Since 2013, tsunami sensors and sirens had been installed in Iloilo and Antique to alert people of incoming giant sea waves. A memorandum of agreement between PHIVOLCS and the local governments (sometimes with the Philippine Ports Authority) was signed before the installation of instruments. The JICA, JST, AND DOST funded these projects capable of transmitting real-time data to the PHIVOLCS central office. A siren located

in a populated area is activated once sensors detect signs of triggered tsunami waves. Local governments, in partnership with the developer, the DOST, were advised by PHIVOLCS to increase the number of these sirens. Signage was also put up in tsunami-prone areas, evacuation routes, and evacuation areas. The Philippines regularly participates in the Pacific Tsunami Drill to test the capability of its responders. The national government continually expands its network of tsunami sensors. Vandalism is a key issue noted in this project despite the enactment of the Risk Reduction and Preparedness Equipment Protection Act (RA 10344), a law penalizing the unauthorized taking, stealing, keeping, or tampering of government risk reduction and preparedness equipment, accessories, and similar facilities.

Evacuation Centers. The PDRRMO of Capiz (personal communication, May 10, 2017) reported that the OCD collaborated with the Department of Public Works and Highways (DPWH) and local governments to build larger, world-class evacuation centers post-Super Typhoon Haiyan in 2013. Switzerland's Interchurch Aid HEKS also funded the construction of additional evacuation centers in areas highly vulnerable to flood and other hydrological hazards. These structures are resistant to earthquakes and typhoons. The OCD and nongovernmental organizations financed the structure while local governments donated the lot suited for evacuation purposes. In Capiz, for example, as of this writing, there are new evacuation centers in Roxas City and in the municipalities of Pontevedra, Panay, and Pilar. Super Typhoon Haiyan heavily damaged these areas in 2013.

Guides for Safe Houses. An information material titled "How safe is my house?" was published in 2014 by PHIVOLCS. It contains a self-check for earthquake safety of small buildings in the Philippines made of concrete hollow blocks. Reliable and easy-to-follow guides in constructing an earthquake-proof structure are detailed with corresponding illustrations. This communication material was distributed during lectures on earthquake hazards and preparedness. Selected architects and civil and structural engineers from local governments and other national offices were trained on how to use the guide. The trainees were required to conduct re-echo seminars upon return to their respective offices. The production of this communication material was a part of a collaborative project among the Association of Structural Engineers in the Philippines, JICA, PHIVOLCS, and JST (PHIVOLCS, 2014).

Response to Tsunami Hoax. Thousands fled their homes on 1 and 2 December 2013 following the rumored tsunami that was spread through social media and text messages in Antique, Iloilo, and Capiz.

The unrestored power supply, destroyed by Super Typhoon Haiyan, contributed to the fast spread of the rumor. While some residents did not evacuate, others, especially those who were traumatized by Super Typhoon Haiyan, left their houses (Rendon & Celino, 2013; Paz & Fuertes, 2013).

Local government officials, PHIVOLCS, OCD, and DRRM offices advised people through a roving vehicle with loudspeakers and broadcasts in radio and TV stations to disregard the rumor. This intervention was only partially effective as those that did not have a power supply moved to the nearest hills and mountains. In Capiz, DYOW Bombo Radyo, a private radio station, made an emergency broadcast at midnight to stop the rumor-caused mass evacuation. People returned home after some time. Thieves might have originally spread the rumor to loot houses left by panicking residents. The incident suggested that some locals remained unaware that a strong earthquake must precede a tsunami. Most residents, however, stayed home because of their increased knowledge that earthquakes could not be predicted. The summary of government's earthquake countermeasures in Panay Island from 1990 to 2018, which aim to mitigate the impacts of another deadly earthquake, is shown in Figure 4.

As part of disaster response, the local governments entered into memorandum of agreements with grocery stores for the immediate supply of food products during calamities payable on a credit basis. The state-owned National Food Authority supplied rice after the disaster. The heavy equipment in the engineering offices of local government units

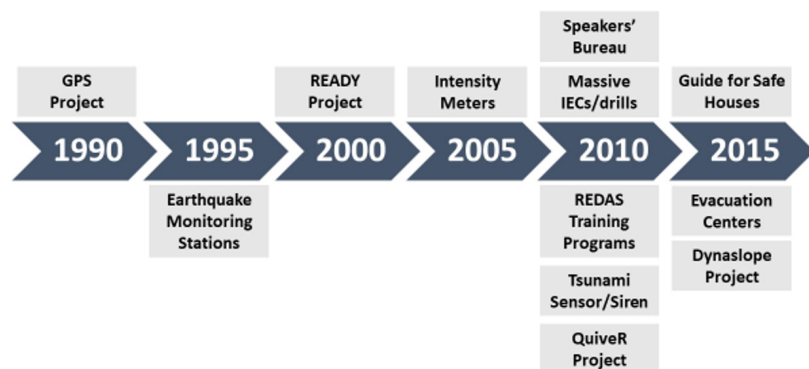


Figure 4. The government's DRRM initiatives in Panay Island from 1990 to 2018

were utilized during the response stage. The mandatory membership of local governments and some national government agencies to the Regional and National DRRM Councils entitled them to receive assistance from the Armed Forces of the Philippines. Local governments also tapped the resources of other national offices such as the BFP, DPWH, and the Philippine National Police. Responders from international nongovernmental organizations and other entities were also tapped to help the government as necessary.

The rescue personnel adapted to the new setup of being awake and well-prepared round the clock since they respond to all emergency calls. Government responders became more visible after the purchase of ambulances, hiring of additional staff members, and installation of telephone lines and battery-operated communication equipment in 2011. Moreover, all levels of educational institutions have adapted to the yearly earthquake drills.

Challenges and Opportunities in Earthquake Preparedness

The high susceptibility of local communities to catastrophic earthquakes challenges its public officials to look for novel ways that can reinforce their financial and technical resources. Most local government units, however, are not used to seeking assistance from foreign funding institutions. Among the reasons for this is the difficulty in making project proposals and that the system of planning, monitoring, and evaluating in these institutions are different from the practice in the bureaucracy.

In the case of Panay Island, the communities benefited from collaborations with other countries, foreign funding institutions, international nongovernmental organizations, and national government agencies. Since national government agencies search for earthquake-prone local government units to become project beneficiaries, the local governments in Panay Island took advantage of these opportunities. They offered to share the cost of realizing different initiatives such as providing building space or parcels of land. This resulted in carrying out a number of DRRM projects while not draining the local government coffer. This sharing of strengths resulted in stronger organizations (Figure 5).

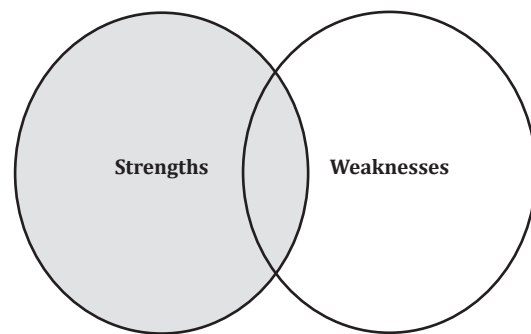


Figure 5. The strengths of an organization compensate for its weaknesses

Alternative Management Strategies to Overcome Challenges in DRRM

To augment the government's resources allotted to protect its earthquake-prone communities against natural hazards, Panay Island utilized the management strategies of partnership and collaboration. These approaches are among the eight components of the pre-crisis model for information, education, and communication (Reynolds & Seeger, 2005). Partnership denotes associations of institutions and community agencies that join forces to address common concerns and achieve communal outcomes. On the other hand, the aim of collaboration is for collaborating entities to work jointly with others by taking on specified tasks within the project and sharing responsibility for its success (Andersen, Ansari, Rasmussen, & Stock, 2010).

To facilitate pooling of resources, each collaborator needs to adapt the culture of others which might be different from theirs. Locally, PHIVOLCS showed flexibility by agreeing to the preferred schedule of the local communities in the conduct of information drives for tsunami and earthquake drills. There were times when these events were conducted on weekends or at nighttime. Sacrifice enabled the project to achieve its goals. In other parts of the country, civil defense officials collaborated with the Department of Social Welfare and Development to reward the involvement of household members in earthquake drills with simple tokens such as 2 kg of rice, canned goods, and instant noodles. This strategy has been shown to increase the level of people's participation in community activities (Kohn, 1999 as cited in Fahey et al., 2007; Gram, 2019).

In the Province of Capiz, schools, hospitals, and offices scheduled the orientation and earthquake drill according to the availability of the Speakers' Bureau. Collaborators must fulfill the roles that are expected of them. This is important as if local government units are uncooperative, national government agencies and foreign funding institutions will cease further collaboration efforts and look for other local governments which are adaptive and flexible.

The various DRRM projects also integrated the seven remaining components of Reynolds and Seeger's (2005) pre-crisis model for information, education, and communication—monitoring and recognition of emerging risks; general public understanding of risk; public preparation for the possibility of an adverse event; changes in behavior to reduce the likelihood of harm (self-efficacy); specific warning messages regarding some eminent threat; development of consensual recommendations by experts and first responders; and message development and testing for subsequent stages. These were the goals of a number of earthquake countermeasures in the island.

The ample preparations were not yet tested for a disastrous earthquake because only weak to mild shaking ranging from magnitude 3.0 to 5.0 had struck the region after its magnitude 7.1 event in 1990. While this is the case, the people and institutions that contributed to these initiatives have already been recognized both at the local and national levels. Additionally, the Panay Island reported relatively lower number of casualties (292 out of 6,300) compared with other provinces during the Super Typhoon Haiyan disaster (NDRRMC, 2015). While this is not a cause for celebration, this is an indication of an improved disaster response mechanism in place.

Good Governance: Integrated to DRRM Projects

In planning and implementing effective yet efficient earthquake preparedness projects, the eight key indicators of good governance that the UNDP (1997) had proposed were observed. The barangay officials were empowered through their engagement in scheduling the community-based tsunami information, education, and communication activities and drills; inviting institutions and evaluators agreed in including fire, casualties, and rescue scenarios prior to the conduct of an earthquake drill; and signatories in the formal agreements settled differences before the agreements were approved and notarized. These practices manifest consensus-orientation and the rule of law.

The involvement of all occupants in the building during the drill signifies inclusive governance while the exemptions for hypertensive and pregnant women and assistance provided to persons with disabilities denote equity. The presentation of comments and recommendations by evaluators to host organizations before the end of drills denotes transparency. There is rule of law since these initiatives were conducted in compliance with the provisions of RA 10121.

One of the recent concepts that Management and Public Administration scholars endorse is trusting in the efficacy of collaboration. The role of government should be transformed from one of controlling to one of agenda setting, bringing proper players to the table and facilitating, negotiating, or brokering solutions to public concerns (Denhardt & Denhardt, 1999). Disaster risk is increasingly recognized as a major development challenge (Hochrainer & Lorant, 2018). Recent calls emphasize the need to proactively engage in disaster risk reduction as well as to establish new partnerships between private and public sector entities to decrease current and future risks (Busch & Givens, 2013; Hochrainer-Stigler & Lorant, 2018). Partnership has led to a successful approach for implementing climate change adaptation (Crystal, Peterson, & Rochefort, 2013).

The various public, public-private, and civil society partnerships and collaborations in Panay Island helped augment the resources of the local governments in their disaster preparedness programs. A triple reward system takes place when all stakeholders achieve their goals while at the same time reduce the vulnerability of communities to natural disasters. It is theorized, as shown in Figure 6, that the severity of threats which tsunami and other earthquake hazards pose to underdeveloped and developing communities decreases as the number of alliances and cooperation with agencies, organizations, and groups increases.

Good governance reinforces management strategies of collaboration and partnership. It ensures mutual relationship between the project's benefactors and beneficiaries. In the case of Panay Island, collaborators were all involved in planning and carrying out earthquake countermeasures.

CONCLUSION AND RECOMMENDATIONS

Globally, it is recommended that other natural disaster-prone countries facing similar challenges adopt effective and efficient strategies in DRRM. Inadequacy in preparation should not be blamed to their

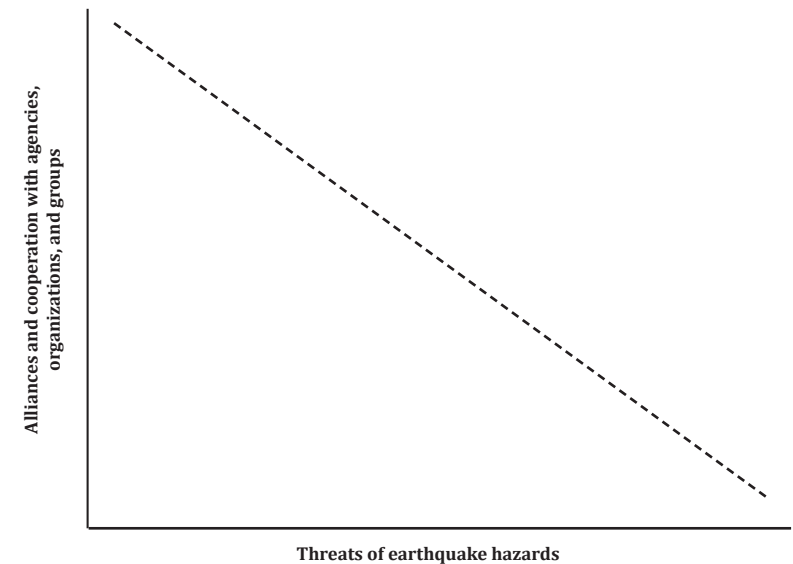


Figure 6. Effect of the level of alliances and cooperation with agencies, organizations, and groups on the threats of earthquake hazards

limited financial and technical resources. As shown in this study, the limitations of local governments can be addressed through successful collaboration and partnerships.

Locally, the conduct of quarterly or at least yearly earthquake drills in schools, offices, and hospitals should be sustained as prescribed in the Philippine Disaster Risk Reduction and Management Act of 2010 (RA 10121). Malls and grocery stores should be obliged to participate as these are the places where people usually congregate. It is better if all earthquake drills are conducted during the National Simultaneous Earthquake Drill so that responding personnel will know how to handle complex situations and mass casualties. Below are some specific recommendations drawn from the results of this study:

Organizational Recommendations

PHIVOLCS needs to hire additional resident seismologists to address issues on personnel complement in the three staff-controlled seismic stations in Panay Island. This will ensure efficiency in service delivery. It is also recommended that a merit-based promotion at least every five years must be put in place. This will motivate staff members to work harder, and, hence, contribute significantly to meeting

organizational goals. Professional growth leads to positive work attitude and zero turnover rate. Once neglected, junior and senior field observers may show persistent disobedience.

Technical Recommendations

There is a necessity to harness innovation and ensure sustainability in earthquake countermeasures. For instance, there might be some wisdom in investing on a technology to determine the preliminary epicenter and magnitude of an earthquake a minute after the event. This innovation will give people more time to evacuate before a tsunami hits their shoreline. It is also better to enhance the capability of the PHIVOLCS website so it does not slow down after a large earthquake strikes several provinces. The United States Geological Survey has this capability. Regular preventive maintenance of monitoring equipment will ensure that they are always functional. Countermeasures against vandalism are needed. A continuous expansion of the earthquake and tsunami network makes forecasting more accurate.

Practical Recommendations

While hazard mapping was conducted, it needs to be reinforced by massive community-based information, education, and communication activities. For instance, only a few villages vulnerable to tsunami had conducted tsunami drills during the implementation of the READY Project. Additionally, a documentation of DRRM procedures for each barangay is necessary so that there is continuity of observance to protocols even if there is a replacement of officials every three years. A pool of experts can do this task. An ISO 9001 certification for the document will make it acceptable nationwide.

Considering that one in every three Filipinos owns a mobile phone (Roa, 2012), government authorities can use it as a medium for disseminating information on tsunami and other earthquake hazards. The NDRRMC does this for typhoons. Likewise, the government needs to make its Project Disaster Information for Nationwide Awareness video material multilingual.

The most challenging part in applying hazard maps is their integration to zoning. Political will is required in convincing inhabitants to vacate their residential areas that are prone to tsunami. Relocation sites are needed too. The other option is to construct vertical structures in susceptible areas which will serve as evacuation areas minutes before the tsunami occurs.

Policy Recommendations

The following policy recommendations will further raise the level of preparedness in the country against destructive earthquakes. First, a law requiring all structures to be assessed by a group of independent structural engineers may help the government to identify buildings that require retrofitting. The provision of government subsidy to owners will motivate them to retrofit their structures. Second, business establishments including schools and hospitals must present proof of conducting an earthquake drill before their license to operate is renewed. Their certificate of participation in National Simultaneous Earthquake Drill needs to be validated. Third, a fund for an evacuation center per village is necessary. The facility must be located in a place safe from landslide, flood, storm surge, and tsunami. Its capacity should be based on the number of probable evacuees.

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Organizational Identification of Personnel during a Major Restructuring: The Case of the Agricultural Training Institute

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ABSTRACT. Earlier studies found that extension organizations enjoy strong organizational identification (OID) among their personnel. However, organizational change often negatively impacts on personnel OID and subsequently on organizational performance. To explore these two contrasting views in the Philippine context, this study was conducted to examine the personnel OID of the Agricultural Training Institute (ATI), the country's lead extension agency, while undergoing rationalization. A survey was conducted among staff members of ATI Central Office and Region IV-A Training Center. Responses were analyzed along OID's cognitive and affective components in different demographic and employment characteristics and comparatively in five categories of personnel. Results showed that ATI personnel had an overall moderate OID score. Highest rating was on its affective component indicating their OID was largely based on emotion. Specifically, OID scores appeared higher with males, management, administrative, central office, and affected personnel categories as opposed to those in categories they were compared with. Paradoxically, technical and non-affected personnel had low scores despite being favored by the rationalization. Analysis using correlation, t-test, chi-square, Phi, and Cramer's V did not statistically establish the relationship among age, years in government and in ATI, and OID. Findings suggest that to increase personnel OID of organizations during a major restructuring, there is a need to intensify efforts to mitigate the negative impacts of organizational change.

Keywords: *organizational identification, restructuring, national extension agency, employees*

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INTRODUCTION

The importance of extension in the development of the Philippine agriculture and fisheries sector is recognized under the National Extension Agenda and Programs 2017-2022 of the Agricultural Training Institute (ATI Policy and Planning Division, 2015, p. 1):

“Extension is one of the most crucial services in agriculture and fisheries... Extension equips farmers, fishers, and other clients with capabilities of knowledge, skills, and attitudes (KSA). It allows them to effectively use the knowledge generated by other forms of services in order to create good results.”

Extension is driven by a strong human resource – the most important organizational asset that is subject to fatigue, stress, and discouragement especially when exposed to extreme conditions. The relationship between personnel's responses to such extreme conditions have been the subject of many organizational studies. However, there is a dearth of scholarship that looks into the relationship between extension personnel and their organizations particularly during difficult periods, such as during a major restructuring.

Organizational Identification

Ashforth and Mael (1989, p. 34) defines organizational identification (OID) as the “perception of oneness with or belongingness to a group, involving direct or vicarious experience of its successes and failures.” Such perception of oneness includes the degree to which individuals define themselves as organization members and the extent to which they have internalized the organization's mission and values (Mael & Ashforth, 1992).

Organizational identification traces its origins from the Social Identity Theory (SIT) and Self-Categorization Theory (SCT), which hold the fundamental concept of social identity defined as the individuals' knowledge that he [or she] belongs to certain groups together with some emotional and value significance to him [or her] of the group membership. Social identity is different from personal identity, which relates to an individual's distinctive personality traits and characteristics, such as physical appearance. The SIT and SCT suppose that when people distinguish themselves with others as belonging to a social group, members of that group will yearn for constructive self-esteem that is based on a higher-order classification (Tajfel & Turner, 1986; Turner & Reynolds, 2012).

Organizational identification is a concept that has become an important domain of inquiry in recent decades to understand organizations and their interactions with the environment (Hirsch & De Soucey, 2006). OID research examines the causal relations among employees identifying themselves with the organization they are employed (Riketta & van Dick, 2005). OID research helps managers understand the reasons surrounding loyalty of their employees to the organization. It also provides inputs to effectively manage the human resource of the organization. Scholars recognize that OID is key to understanding organizational issues, such as strategic change (Ravasi & Phillips, 2011), decision making (Riantoputra, 2010), and internal conflicts (Humphreys & Brown, 2002).

Previous studies had linked OID to positive outcomes for both the individuals and organizations (Stoner & Gallagher, 2011; Cohen, 1993; Tett & Meyer, 1993). High OID increases loyalty, decreases turnover-intentions, prevents isolation, leads to greater work satisfaction, increases performance, and enables employees to make consistent decisions with organizational goals (Blader et al., 2017; Edwards & Peccei, 2010; van Knippenberg & Sleebos, 2006). When staff members identify themselves with their organization, they experience a sense of self-worth as members of their organization (Simon, 1976; Tompkins & Cheney, 1985). Overall, employees who strongly identify with their home organization tend to be more supportive of the organizational mission. Hence, OID is a construct that is central in understanding organizational behavior, including the tendencies of employees in carrying out their mission and fulfilling their organizational goals (He & Brown, 2013, p. 3).

According to Ashforth and Mael (1989), OID has two components, namely: cognitive and affective. While these two components can be highly related, they are distinct constructs of organizational identification. Cognitive OID refers to one's self-definition in terms of his or her organizational membership. It comprises more of the salience of OID based on the conceptualizations of the two under SIT and SCT. Affective OID, on the other hand, is more closely linked with the emotional aspect of the relationship between individuals and the organization. It stresses the more personal, sentimental side of the identification process, and is thereby more related to the feelings a person has by being a member of the organization. Smidts et al. (2001) noted that when a person feels valued by the organization and is proud, the affective component of OID will increase. Thus, the affective component is more closely linked with the extent the person values his or her membership with the organization and the organization's degree of attractiveness to the person (Ellemers et al., 1999; van Dick & Wagner, 2002).

Change and Organizational Identification

While there are valid reasons for change, especially when referring to organizational growth, some authors contend that organizational change often negatively influences personnel OID. For example, Morgan et al. (2004) note that as organizations decentralize, employees would be coerced to develop identifications with local offices and groups that eventually ward off more centralized functions. Change can also cause tension among employees. This happens when they feel the mission they uphold is being replaced by new principles and beliefs. Sometimes employees cling to the old identities when faced with ideological changes as they cannot cope with the reality and their view on matters and of themselves is falling behind (Albert et al., 2000; Gioia et al., 2000; Bullis & Bach, 1989).

Past research has shown that continuous change always causes anxiety. Personnel tend to suffer from stress, indifference, and/or resistance in response to change. Anxiety can even cause personnel “disidentifying” themselves, i.e., denying membership with their organizations (Torppa & Smith, 2009; DiSanza & Bullis, 1999). Poor identification results in lower loyalty and commitment, and at times, personnel may even begin to work against the organization (Tompkins & Cheney, 1985).

Extension and Organizational Identification

Extension organizations are examples of learning organizations that embrace continuous change. Yet, their personnel are not exempted from suffering change fatigue and being skeptical about the results of organizational change efforts (MacIntosh et al., 2007; Schawrz & Shulman, 2007).

Past research has shown that extension organizations enjoy strong employee identification (Morgan et al., 2004; Scott, 1997; Scott et al., 1998). While there are extension organizations that are centralized, in most cases they are complex, geographically diffused, and include multiple targets with which employees may identify (Scott, 1997). When personnel’s multiple identifications are mutually supporting, these tend to have greater positive outcomes for them and their organization. On the other hand, when such multiple identifications are at odds, personnel tend to experience role strain and conflict of loyalties, resulting in reductions of organizational productivity, absenteeism, employee turnover, and even sabotage (Meyer et al., 2002; Riketta, 2002; van Dick et al., 2004).

While there have been OID studies conducted in different contexts, types of work and work environments worldwide, OID studies are not very common in the Philippines. In the United States, it was found that extension personnel generally have strong OID even during challenging periods of change, such as during organizational restructuring (Torppa & Smith, 2009; Morgan et al., 2004; Scott, 1997; Scott et al., 1998). This is interesting since other studies have shown that organizational changes generally threaten personnel on possible loss of jobs, deterioration of working conditions, lowering of salaries and wages, and limiting upward career mobility, which all point to having lower OID (Kalleberg, 2003; Hirsch & De Soucey, 2006; Bowman & Callan, 2015.)

Inspired by the cited phenomenon in the United States, this study was conducted among personnel of ATI, the national extension agency in the Philippines, when it was undergoing a ten-year rationalization from 2004 to 2015. As a background, extension in the Philippines, in the past three decades, has faced serious challenges due to structural reforms, such as the devolution and the rationalization of the bureaucracy as a result of national fiscal crisis (Senate Economic Planning Office, 2005). At first there were merging of agencies that took place when the Bureau of Agricultural Extension, the Philippine Training Center for Rural Development, and the Philippine Agricultural Training Council formed the ATI in 1987. The municipal, city, and provincial agriculture offices as extension units separated from the national government following the passing of the Local Government Code in 1991. This move left ATI with 42 training centers nationwide in 1995 (ATI Policy and Planning Division, 2013).

The rationalization of ATI was also characterized by the merging of training centers to 16 as well as downsizing of its personnel based on the new functions and structure both at its Central Office and training centers. Even before the approval of its Rationalization Plan in 2013, ATI started to gradually merge its training centers in 2007 through a memorandum order issued by its director. The downsizing aimed to reduce personnel from 800 to 500. The ATI management put some measures in place to mitigate the negative impacts of the rationalization. Among these measures was an information and awareness drive to help its personnel appreciate the advantages of rationalization, know their options, and cope if they were affected. Said measures also helped ensure organizational preparedness of ATI and to define potential causes for alarm that had to be attended to (ATI Policy and Planning Division, 2015).

This study sought to examine ATI personnel's OID during the time when it was undergoing staff rationalization, a major form of organizational restructuring. Specifically, it aimed to: 1) describe the demographic and employment characteristics of ATI personnel under study; 2) determine the OID scores of ATI personnel and their relationship with selected variables, such as age, years in public service, years in ATI, and knowledge about the rationalization; 3) analyze the OID scores of groups of ATI personnel along five different categories, namely: sex, position, nature of work, place of assignment, and status during the rationalization; 4) analyze the personnel's satisfaction level about their present designation and their knowledge about the rationalization; 5) determine the association of personnel status during rationalization with their different satisfaction levels of their current designation; and 6) analyze the factor(s) that has/have significant relationship with personnel OID.

METHODOLOGY

Background and the Survey Questionnaire

This study was conducted during the peak of the rationalization process of ATI from 2011 to 2013 in two of its operating units, namely: Central Office in Quezon City and Regional Training Center IV-A located inside the University of the Philippines Los Baños in Laguna. There were 68 randomly selected permanent employees who served as the respondents in this study.

The study employed a survey with a set of questionnaires composed of 1) demographic information about the respondents; 2) effects of rationalization; 3) personnel's knowledge and perceptions about the rationalization plan; and 4) measures of OID. The first three were deliberately developed to understand the OID levels of ATI personnel. The effects of the rationalization were assessed in qualitative terms. For example, the respondents' satisfaction level about their designation under the rationalized setup was measured using a 4-point Likert scale: "very much satisfied," "satisfied," "neither satisfied nor dissatisfied," and "very much dissatisfied." The respondent's knowledge about the rationalization process was assessed using a 10-item true or false questionnaire. The results were interpreted using the following score ranges: 1-4 (*less informed*), 5-7 (*moderately informed*), and 8-10 (*highly informed*).

The fourth set of questionnaire adopted Cheney's (1983) 25-item OID questionnaire which was measured using a 5-point Likert scale: 5 (*strongly agree*), 4 (*agree*), 3 (*neither agree nor disagree*), 2 (*disagree*), and 1 (*strongly disagree*). A high score reflects a positive response, which means a personnel, for whatever reason, still wants to be identified with the organization and is proud of it despite the threat of being rationalized. The mean scores were interpreted as high (3.67-5.00), moderate (2.34-3.66), and low (1.0-2.33).

Data Collection and Analysis

The data gathering followed a triangulation process where the results of the survey corroborated the interviews with key informants and review of pertinent documents. Survey responses were coded, consolidated, and processed using IBM SPSS Statistics for Windows, Version 16. Both descriptive and inferential statistics were employed in analyzing the results of the survey. Inferential statistics employed were Pearson Product Moment correlation, t-test, Chi square, Phi and Cramer's V, and regression analysis.

Key Variables

Independent variables in this study include the demographic and employment characteristics of the respondents as well as their knowledge of the staff rationalization. These independent variables were evaluated comparatively along five dimensions or categories of personnel: sex (male and female); position (management versus rank and file); nature of work (technical versus administrative); work location (Central Office versus Training Center); and status of personnel's position during the rationalization, whether they were affected or not, including the satisfaction level of their designation in the rationalization.

Management under position category refers to ATI personnel occupying division chief positions/designations and above in the Central Office. The counterpart of which in the Training Center is the Center Director post. *Rank and file* are personnel in the same units occupying positions lower than the management. *Technical* under nature of work category refers to technical positions/designations while *Administrative* refers to administrative positions or positions that support technical operations.

On place of employment, *Central Office* refers to the ATI Central Office while *ATI Region IV-A* refers to the Training Center in the region. *Affected* refers to ATI personnel whose current Civil Service Commission-

appointed positions were found redundant relative to the new list of approved personnel. *Not affected* refers to those personnel whose positions remained in the new structure and, therefore, could continue working in ATI.

The OID of personnel during the period of rationalization constitutes the dependent variable, which was determined using Cheney's (1983) 25-item OID Questionnaire (Appendix 1). The conceptual framework (Figure 1) maps out the presumed relationship of the independent variables and the dependent variable.

Hypotheses

This study tested the following null hypotheses:

1. Age, length of service, and knowledge about the rationalization are not related to OID.
2. There is no relationship between OID levels of the following groups of ATI personnel: sex, position, nature of work, place of assignment, and status under rationalization.
3. The status of personnel during the rationalization is independent from their satisfaction level in their designation.

RESULTS AND DISCUSSION

Demographic and Employment Characteristics of ATI Personnel

Age range of the respondents was 29-64 years with a mean of 50 years old. Years of service in government ranged from 6 to 43, with a mean of 25 years. Correspondingly, in ATI, average length of stay was from 5 to 24, with a mean of 20 years. Majority of the personnel were females, in the rank and file positions, assigned in administrative works mostly at the Central Office, and were affected during the rationalization. Table 1 provides details on the respondents' profiles.

OID Scores of ATI Personnel and their Relationship with Selected Variables

Overall, the mean OID score of ATI personnel is 3.54. This moderate score indicates that ATI personnel relatively agree with little reservation to identifying themselves with ATI. Strongest of the OID was seen on its affective component (3.66), which suggests that overall

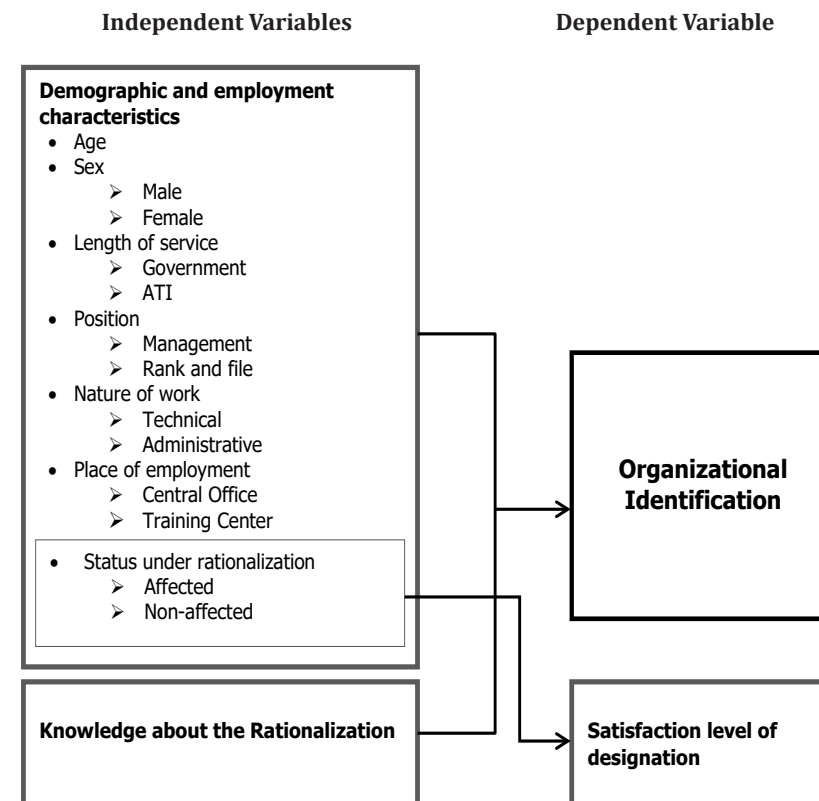


Figure 1. Conceptual framework of the study

identification was largely based on emotion. Notable from the highest scores under affective OID is the indication that personnel's attachment to the organization was not merely because of pride that they belong to ATI but because of their desire to help achieve organizational goals. This is unique because it demonstrates being pro-active on the part of the personnel, which is favorable for ATI.

Using Pearson Product Moment correlation, correlation analysis was done among selected independent variables to determine their relationship with OID. The correlation analysis followed the rule under the 95% confidence level of p value < significance level, $\alpha=0.05$, and criteria for strength of relationship: .01 to .09 (trivial), .10 to .29 (weak), .30 to .49 (moderate), .50 to .69 (substantial), .70 to .89 (strong), and .90 to .99 (very strong/near perfect). Results of computations are summarized in Table 2 and interpreted as follows:

Table 1. Demographic and employment characteristics of respondents

PARAMETER	TOTAL (n=68)	
	Frequency	Percentage
Age		
29-40	10	15
41-50	20	29
51-60	34	50
61-65	4	6
Range = 29-64 Mean = 50		
Years in Government		
6-15	14	21
16-25	18	26
26-35	30	44
36-45	6	9
Range = 6-43 Mean = 25		
Years in ATI		
5-10	10	15
11-15	8	12
16-20	4	6
21-24	46	68
Range = 5-24 Mean = 20		
Sex		
Male	26	38
Female	42	62
Position		
Management	6	9
Rank and file	62	91
Nature of Work		
Technical	22	32
Administrative	46	68
Place of Assignment		
Central Office	59	87
ATI Region IV-A	9	13
Status during Rationalization*		
Affected	39	57
Not affected	27	40

* Two of the respondents did not respond to this part of the questionnaire

Table 2. Correlations of OID with selected variables

	Pearson Correlation	Sig. (2-tailed)	N
Overall OID	1		68
Age	.115	.351	68
Years in government	.084	.495	68
Years in ATI	-.058	.636	68
Knowledge on rationalization	-.408**	.001	67

**Correlation is significant at the 0.01 level (2-tailed)

Age and OID: $r = .115$ shows weak correlation between age and OID. There is also no significant relationship between the two variables since $p (.35) > \alpha = 0.05$. This means that the null hypothesis cannot be rejected and the result is only true to the sample and cannot be generalized.

Years in Government Service and OID: $r = .084$ is trivial and the relationship is insignificant at $p (.495) > \alpha = 0.05$. The null hypothesis cannot be rejected and the relationship cannot be generalized with the population.

Years in ATI and OID: $r = .058$ means the relationship between the two variables is trivial. The null hypothesis cannot be rejected since $p (.64) > \alpha = 0.05$. The relationship is only true to the sample.

Knowledge about the Rationalization and OID: $r = -.408$ means the relationship between the two variables is moderate. This indicates that as ATI personnel know more about the rationalization process, their OID tends to decrease. The level of significance is very high at $p = .001$, which means that it can be generalized to the population where the sample was drawn. The alternative hypothesis is accepted.

Comparative Analysis of the OID Scores of ATI Personnel in Five Different Categories

Relative to sex of the participants, results show that males tended to have higher OID than females. There was no study found linking sex with OID. There is, however, a body of scholarship that tackles the effect of self-esteem on OID (Smidts et al., 2001; Tyler & Blader, 2003; Fuller et al., 2006). In this body of scholarship, men were found to pay more attention to their self-esteem than women (Gkorezis et al., 2012; Gerber, 2009; Putrevu, 2001). In relation to the current study, it can be said that

males had higher self-esteem than females during the rationalization. A word of caution, however, is in order as the study did not investigate the matter relating to self-esteem.

A comparison of OID levels of personnel from other categories reveals two distinctive outcomes in the computation. The first outcome is that the management and Central Office personnel have higher OID scores than the rank and file and Training Center personnel (Table 3). This is expected since they were the initiators of change. It is presumed that such initiative was for the best interest of the organization and that they, as initiators of change, would benefit from the rationalization. Drzensky and van Dick (2013) note that personnel tend to have stronger OID when they see the benefit of change on themselves. Additionally, this result confirms other researches saying that personnel who are ready for change have positive OID (Michel et al., 2010; Madsen et al., 2005).

The second outcome relates with the OID scores of affected and administrative personnel which was found to be higher than the non-affected and technical personnel. Non-affected personnel are presumed to enjoy security of tenure; thus, they do not have to be distressed by

the negative impact of the rationalization. Likewise, technical personnel are those positioned in technical units whose functions are crucial in the delivery of major services of ATI. Hence, they need not worry about any forthcoming organizational change. These findings are counter to the findings of Ullrich et al. (2005) and van Knippenberg et al. (2002) highlighting the negative impact of uncertainty and job insecurity on OID. While this result is surprising, it can also be said that the measures in place by ATI to mitigate the impact of the rationalization appeared to have worked effectively, especially to personnel who are negatively affected.

Overall, the respondents' average score, although moderate, can be construed as relatively strong given the organizational restructuring as a backdrop. This finding confirms the result of earlier studies that extension personnel generally enjoy strong OID even in the period of relative instability (Torppa & Smith, 2009; Morgan et al., 2004; Scott, 1997; Scott et al., 1998).

To further assess the statistical significance of the findings above, t-test or a test of independence of groups under five dichotomous variables was employed following the rule under the 95% confidence level of p value < significance level, $\alpha=0.05$.

Sex. Result shows that males had higher OID mean score than females at a difference of 0.16. The t value at 66 degrees of freedom (df) is 1.36. This observed difference, however, is not significant since $p(0.178) > \alpha=0.05$. This means that H_0 cannot be rejected and the result cannot be generalized.

Position. A mean difference in OID score of 0.19 makes management personnel perceive better of themselves with ATI than the rank and file. The t (66) df = 0.93 and $p = 0.354$ indicate that this result is not significant and is not true with the population. This means that H_0 cannot be rejected.

Nature of Work. The t value of -.75 and p of 0.457 mean that there is no significant difference between technical and administrative staff. The administrative personnel, however, had higher OID. This means that H_0 can be accepted.

Place of Assignment. Central Office personnel dominate those of the Training Center at a mean difference in OID score of 0.15. The t (66 df) = 1.01 and $p = 0.318$ indicate non-significance of the result at $\alpha=0.05$ and this is only true to the sample. The H_0 stands.

Table 3. OID scores under different categories

PERSONNEL CATEGORY DIMENSION	OID SCORES	ADJECTIVAL RATING
Sex		
Male	3.64	Moderate
Female	3.48	Moderate
Position		
Management	3.72	High
Rank and file	3.52	Moderate
Nature of Work		
Technical	3.47	Moderate
Administrative	3.57	Moderate
Place of Assignment		
Central Office	3.57	Moderate
Region IV-A	3.39	Moderate
Status during Rationalization		
Affected	3.58	Moderate
Not affected	3.49	Moderate
Overall	3.54*	Moderate

Status under Rationalization. Result seems surprising when personnel affected by the rationalization had a higher OID score by 0.09 as compared with non-affected personnel whose tenure is believed to be more stable. This difference, however, cannot be generalized with the t value of 0.75 and $p=0.459$. This means that H_0 cannot be rejected.

Analysis of Personnel's Knowledge on the Rationalization and Satisfaction about their Present Designation

Knowledge of the ATI Rationalization Plan. From the 10-item questions to test the knowledge of personnel about the ATI Rationalization Plan, results show that 27% were less informed, 45% moderately informed, and 28% highly informed (Table 4). Overall, the mean score indicates that ATI personnel in general were moderately informed about the Rationalization Plan. This finding can be reflective of the overall personnel's moderate OID score. Following Smidts et al. (2001) and Bartels et al. (2006) who linked OID with good communication in an organization, the result implies that a moderate effort was made to communicate the rationalization process. This suggests that to increase ATI personnel's OID, the ATI management should increase its awareness and information drive on rationalization. Bartels et al. (2006), however, cautioned that employees with high OID tend to demand for more information about change which often leads to dissatisfaction and, consequently, the decrease in their OID.

Satisfaction Level of Current Designation. Result shows that 66% of the respondents were generally satisfied of their current designation (Table 5). While 9% were very much satisfied and 11% were unsure of whether they were satisfied or not, 14% indicated

Table 5. Satisfaction level of ATI personnel on their designated positions

DESCRIPTIVE RATING	NUMBER OF RATEE	PERCENTAGE
Very much satisfied	6	9
Satisfied	43	66
Neither satisfied nor dissatisfied	7	11
Dissatisfied	9	14
Total	65	100

that they were dissatisfied. Several studies have shown that a sense of job continuity increases OID while the opposite bears negatively on it (Ullrich et al., 2005; van Dick et al., 2006; van Knippenberg et al., 2002). In light of these previous studies, it can be said that while a significant number of personnel were satisfied of their current designation, i.e., showing continuity and acceptability of the job placement during the rationalization, there were also a few who were dissatisfied because of the fear of possible displacement.

Association of Personnel Status During Rationalization with Satisfaction Level of their Current Designation

Using chi-square and Phi and Cramer's V, the independent relationship between affected and non-affected personnel and satisfaction level was examined. Of the 38 personnel affected by the rationalization and 27 not affected, 43 of them rated that they were satisfied, 6 very much satisfied, 9 dissatisfied, and 7 unsure of their level of dissatisfaction. Computations revealed the following results: chi-square (4.126 and $p=0.248$) and Phi and Cramer's V (0.252 and $p=0.248$). These results do not statistically establish association between the two variables at $\alpha=0.05$, suggesting that both can stand independently. Again, H_0 cannot be rejected.

Analysis of Variable that has Significant Relationship with OID

From among the variables examined, only knowledge about the rationalization has significant relationship with OID. The data was fitted to a simple linear regression model: $y=4.06-.09X$. This means that when X, knowledge = 0, the value of y, OID is 4.06. The coefficient $-.09$ for X suggests that for every additional knowledge about the rationalization,

Table 4. Degree of personnel's knowledge about the ATI Rationalization Plan

SCORE RANGE	DESCRIPTIVE RATING	NO. OF RATEE	PERCENTAGE
1-4	Less informed	18	27
5-7	Moderately informed	30	45
8-10	Highly informed	19	28
	Total	67	100
	Mean Score: 6		
	Descriptive rating: Moderately informed		

here expressed in the respondent's score in the 'knowledge' section of the test, there is a reduction in OID of 0.09. This implies that the more the personnel know about the rationalization, the more that they tend to have lower OID. This may underscore the fact that the rationalization poses a threat to ATI staff members. The R square of 0.167 indicates that 16.7% in the variability of Y, OID is explained by the variability of X, knowledge about the rationalization. The rest can be explained by other factors. This finding is similar with the findings of Bartels et al. (2006) who cautioned that OID of highly identified personnel tends to decrease as a result of dissatisfaction about what they know concerning the change in the organization.

CONCLUSION AND IMPLICATIONS

This study explored the OID of personnel of ATI, the national extension agency in the Philippines, during its rationalization. Findings showed that their OID level is relatively moderate with highest rating on its affective component. This indicates that the respondents' OID was largely based on emotion. Specifically, males, management, administrative, central office, and affected personnel had higher OID scores. Among the major findings of this study is that technical and non-affected personnel had lower OID scores as compared with those holding administrative posts and affected personnel. This is the case despite the technical and non-affected personnel being more favored by the rationalization. Analysis of personnel satisfaction revealed that majority of ATI personnel were satisfied about their designations. However, their knowledge about the rationalization tends to lower their OID level.

A more in-depth analysis using correlation, t-test, chi-square, and Phi and Cramer's V did not statistically establish the relationship of variables, such as age, years in government and in the organization with OID except for knowledge about the rationalization process. Likewise, the null hypotheses regarding the differences of OID levels of categories of personnel compared in this study in terms of sex, position, nature of work, place of assignment, and status under rationalization could not be rejected.

There are two major implications that can be drawn from these findings. The first relates to the relevance of these findings to extension organizations. The results confirm that putting in place mechanisms to mitigate the negative impacts of the ongoing rationalization on personnel can have some positive effects. This study can inform the decisions of extension organizations on how to handle similar situations in the

future. On the other hand, the moderate overall OID score requires some level of attention. The findings showed that increased knowledge on the rationalization results in lowered OID score. Hence, it would be good to look into what level of information would suffice such that it does not result in the personnel having lower OID.

The second implication relates to the relevance of the findings with the larger OID scholarship. The current study's findings reinforce the claim of earlier organizational studies that extension organizations have strong employee OID (Morgan et al., 2004; Scott, 1997; Scott et al., 1998). Additionally, the decrease in the personnel's OID as a result of their increased knowledge on rationalization is similar with the results of past studies on organizational change (Albert et al., 2000; Gioia et al., 2000).

RECOMMENDATIONS

During organizational restructuring, it is recommended that the management should intensify its efforts to mitigate the negative impacts of change. One practical way is to explore areas relative to creating an environment that enhances personnel OID. For instance, although knowledge about the rationalization bears negatively on OID in this study, maintaining strong lines of communication is a universally accepted intervention known to minimize reductions in OID (Bartels et al., 2006; van Dick et al., 2006). The management can also put in place mechanisms for the hearing of grievances of displaced personnel. Another intervention is to invest in capacity building activities that would enhance their capacities so that they would qualify for the positions in the rationalized setup and be the priority for promotion or realignment of positions.

As the findings of this study did not statistically establish the relationship of important variables with OID, it would do well to conduct a similar OID study among extension organizations in different contexts. This research direction would lead to identifying factors or patterns of behavior on what increases and/or decreases OID on personnel. In turn, this information will be helpful in coming up with organizational interventions that may increase personnel OID. In the Philippines, it is recommended to replicate the same study to all ATI training centers and in a different setup, preferably during a period of relative stability. This research direction will strengthen or debunk earlier claims about OID in an extension organization. The same can be done with other extension providers in the country.

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APPENDICES

Appendix 1. Survey Questionnaire

1. I would probably continue working for ATI even if I didn't need the money.
2. In general, the people employed by ATI are working toward the same goals.
3. ATI's image in the community represents me as well.
4. I often describe myself to others by saying, "I work for ATI" or "I am from ATI."
5. I try to make on-the-job decisions by considering the consequences of my actions for ATI.
6. We at ATI are different from others in our field.
7. I am glad I chose to work for ATI rather than another Agency.
8. I talk about ATI to my friends as a great Agency to work for.
9. In general, I view ATI's problems as my own.

10. I have a lot in common with others employed by ATI.
11. I find it difficult to agree with ATI' policies on important matters relating to me.
12. I find it easy to identify with ATI.
13. My association with ATI is only a small part of who I am.
14. I find that my values and the values of ATI are very similar.
15. I am very proud to be an employee of ATI.
16. I am willing to put in a great deal of effort beyond that normally expected in order to help ATI to be successful.
17. I become irritated when I hear others outside ATI criticize the Institute.
18. I have warm feelings toward ATI as a place to work.
19. I would be quite willing to spend the rest of my career with ATI.
20. I feel that ATI care about me.
21. The record of ATI is an example of what dedicated people can achieve.
22. I like to tell others about projects that ATI is working on.
23. I feel very little loyalty to ATI.
24. I would describe ATI as a large "family" in which most members feel a sense of belonging.
25. I really care about the fate of ATI.

Gendered Relations and Time-use: Perspectives from Selected Households of Philippines' *Pantawid Pamilyang Pilipino* Program in Calauan and San Pablo City, Laguna

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ABSTRACT. On meeting education and health targets, conditional cash transfer programs are consistent with their intended development impacts. However, gendered outcomes remain to be in the periphery of the discourse. This paper aims to analyze the gender relations within cash transfer program households, focusing on the *Pantawid Pamilyang Pilipino* Program (4Ps). Through a time-use analysis approach and using qualitative information from in-depth household interviews and observations, the study examines how women grantees use their time and how this reflects gendered elements on intra-household relations. Results reveal that a) meeting program co-responsibilities have an impact on their household tasks, especially in supporting children's education and b) despite the transfers, gender and power dynamics within the household remain the same. This research contributes to the ongoing policy discourses on cash transfers and women's participation.

Keywords: *Conditional cash transfers, gender, gender relations, household bargaining, women*

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INTRODUCTION

Cash transfers are social protection strategies, which aim to reduce poverty and meet social protection needs. They can either be unconditional, i.e., where grants are given with no strings attached; or with co-responsibilities, i.e., where recipients are obliged to perform some tasks such as ensuring school attendance of their schoolchildren, pre-natal and health checkups, and capacity building. Some conditional cash transfers have conditions linked to work and savings (Araujo & Schady, 2006; Manley et al., 2012). In the growing literature evaluating conditional cash transfers, the focus is on improving household welfare and income. The studies usually document positive outcomes on education and nutrition (Fernald et al., 2008).

In the literature, there is a dearth of studies that tackle the effects of conditional cash transfers beyond classical economic theories. Evidence shows strong influence of cash transfers on raising living standards and human capital (Arnold et al., 2011). This paper seeks to explore the impacts of conditional cash transfers on gender equality and empowerment. Kabeer (1999) argued that with the improvement of the well-being, it is likely that other members of the household sacrifice their time, such as the case for women doing care work. Hence, conditional cash transfer programs may have attained its promised outcomes at the expense of the mothers' interest.

This paper contributes to bridging the discussion between cash transfers and gendered outcomes through the lenses of household gender relations and time-use. It argues that development programs such as cash transfers involving women have at least had modest effects on their time, especially on tasks that concern children's welfare. The gender assignment of the transfers is based on strong evidence saying that targeting women as grantees improves their children's well-being through increased consumption decisions related to welfare (Yoong et al., 2012). Despite this argument, resource transfers to households should recognize the unequal welfare effects to individual household members.

The empirical work on time poverty shows that any income transfer scheme should go beyond increasing real income and focus on 'household formation and work behavior' (Vickery, 1977). Normative views of cash transfers see well-being as an outcome of the household's efforts. This paper takes a different view by arguing that inclusion to programs such as the *Pantawid Pamilyang Pilipino* Program (4Ps) can

impact on the dimensions of time and division of labor, especially among women. This paper explores this argument using the lens of power. That is, whether the benefits of targeting women as grantees reverse current gender dynamics within the household.

This paper analyzes the effects of cash transfer program participation through a gendered lens on women's time-use and household labor allocation. It further assesses the time-use of women beneficiaries and the program effects on household gender relations. It is argued that the receipt of cash grants through women is unable to change prevailing gendered power dynamics, which remains in favor of the male household members.

The paper is divided into six parts. The succeeding section theorizes on the relationship between gender relations and time-use. It is followed by a brief discussion on the theoretical framework and the empirical context of the research. Presentation of the data gathering methodology follows, which focuses mainly on the qualitative approach to understand time-use and gender relations. The analysis of the results is presented, focusing on the themes from the field findings. The paper concludes with some policy recommendations.

Gender Relations and Time-use

Understanding the relationship of gender using the concepts of relations and time-use starts with the recognition that gender affects people's social lives, particularly how women and men relate to each other. Many of the workings of the society are initially based on the categorical essentialism of masculinity and femininity that fundamentally determine what men and women are (Yzerbyt et al., 1997). Essentialists assume that these are fixed and immutable (Gelman, 2005). Whether these are based on biological differences or cultural aspects, the relationship of gender and power is based on a social structural approach: that structural variables play an important role in shaping gender relations (Rudman & Glick, 2012). These gender stereotypes and sex differences generate specific demands on how individuals exhibit traits and behaviors. As women's roles have been closely linked to domestic and care work, it is of no surprise that they are also targeted on policies relating to welfare and family.

As division of labor becomes more segregated by gender, which favors men to occupy the spaces related to the provision of financial resources to their families, women are pushed back to the traditional

roles within the households (Wehr et al., 2014). In gender literature, this phenomenon is referred to as “feminization of poverty.” That is, women’s disempowerment stems from existing gender divisions and subordination, and the prevailing norms and culture contribute to the lack of agency and resources of women, thus, disempowering them (Pearce, 1978).

The need for the shift in power dynamics in the gendered perspective emanates from the unequal possession of economic and power resources, which dictates household decision making. To this end, women appear to be disadvantaged. Development interventions have responded to this need; thus, programs such as microfinance, livelihood promotion, and in recent years, cash transfers assign responsibilities to women thereby increasing their role in decision making. Over the years, there has been growing evidence of improvement in women’s decision making, which may be positively related to their share of household income (Bernasek & Bajtelsmit, 2002).

Women participation, however, in development programs are not without a cost. These programs assume that women have more time at their disposal, resulting in interventions that increase women’s time on paid and unpaid work (Walker, 2013). It becomes paradoxical when participation places more burden on women, and much more if the gendered assumptions on women’s roles inside the household are left unchallenged. For instance, some studies on women’s access to credit have shown that men still appropriate loans, but women are responsible for the repayment (Goetz & Gupta, 1996). In some cases, women are worse off because of domestic violence (Rahman, 1999).

Time-use and the income generated by women both explain these scenarios relating to the work borne by women. Evidence shows that women take up most of the housework. This observation is true even among developed economies (Ilahi & Bank, 2000; Sayer, 2005). On the other hand, the relationship between income and housework was first established in Becker’s (1962) work on division of labor, where those with higher income focus on market work while those with lower income devote more time on domestic tasks.

However, while bargaining power within the household is based on income and assets (Agarwal, 1997; Quisumbing, 2003), gender identity likewise plays an important role. A recent study on the Filipino context by Bayudan-Dacuycuy and Dacuycuy (2017) mentions that while wages have effects on the wives’ time, these remain to be mediated on

both spouses’ attitudes on gender roles. These attitudes include the traditional prescriptions of “doing gender,” which affirm that men are breadwinners while females are the homemakers.

In the Philippine context, both gender and generational differences have an impact on decision making. Dynamics of children and parents in Filipino households are better understood in terms of reciprocity. That is, children help their parents because their parents took care of them when they were young (Willis, 1982). Several factors are attributed to gender inequality within the household. Among these is women’s altruism as part of ideals of married life, the perception that the nature of domestic work done by women are less demanding and onerous compared with market work where men and boys take the lead, and that childcare is viewed as “sacrifice for leisure” rather than a substitute for market work (Folbre, 1984).

Pantawid Pamilyang Pilipino Program (4Ps): The Philippines’ Cash Transfer Program

The 4Ps is a conditional cash transfer program of the Philippine government to break intergenerational poverty by providing education to children and health services for their mothers. The recipients are targeted through an objective poverty assessment. Eligible households either have one pregnant woman or a child aged 0-14. Part of the co-responsibility of the household is the willingness to meet the conditions of the program. A household with three schoolchildren, from elementary to high school, may receive a maximum of PhP 2,000 (USD 38) per month (Orbeta, 2014).

Currently, the program covers 80 provinces in the Philippines, with 4.8 million registered households (Department of Social Welfare and Development [DSWD], 2018b). The implementation of the cash transfer program is led by DSWD. The ministry also partners with the Department of Education and the Department of Health to ensure compliance with the conditions related to school attendance and health, respectively. The Landbank of the Philippines, a government bank, disburses the grants to the beneficiaries using cash cards (Fernandez & Olfindo, 2011).

The program responds to the Sustainable Development Goals on ensuring quality education, promoting decent economic growth, and reducing inequalities. Gendered discussions on 4Ps are focused on “women’s representation in various sectors and all levels”; thus, they recognize the program’s potential to empower women (Permanent

Mission of the Republic of the Philippines to the United Nations, 2019). Furthermore, the cash transfer program has instituted a gender mainstreaming approach to ensure that systems, mechanisms, policies, and programs are gender-sensitive (Mendoza, 2019) from the national down to the community level.

DSWD's gender focus in 4Ps is anchored on existing laws in the Philippines, such as the Anti-Violence against Women and the Magna Carta for Women. Thus, the gender sensitivity workshops that were conducted under this program discussed women's rights, various forms of abuses which women and children are likely to experience, and awareness on dealing with these scenarios at the household level (PILIPINA, Inc., 2015). However, DSWD also faces capacity gaps in terms of their intended goals on gender mainstreaming, citing infrequent training, and limited in-house experts on gender-related topics (DSWD staff, personal communication, September 12, 2019).

The assignment of cash transfers is based on how the program is designed. In 4Ps' operations manual, recipients must preferably be the mother responsible for childcare and sending children to school (DSWD, 2012). A father may serve as a recipient only if the mother is absent. Endeavors to involve male spouses through family development sessions by teaching home management and shared responsibilities yielded anecdotal impacts. This research also discusses the possible impacts on women's assignment as grant recipients on behalf of their families.

Theoretical Framework

The framework adopted to examine the effect of transfers to time and task allocation is based on the Exchange-bargaining Theory. Theories on exchanges and relations based on economic and sociological models suggest that women can have bargaining power over time depending on the resources they bring into the household (Bittman et al., 2003). The household is an important setting to investigate whether these power inequalities are changed or perpetuated. It is noted that power exists in a situation of cooperation and conflict within the household.

In addition to examining the structure of how income affects household bargaining and relations, this paper also incorporates gender in the analysis. To analyze this, the author adopts Kabeer's (1994) work on power and agency, which examines how power is exercised between household members. Kabeer (1994) refers to three forms of power: the "power to" or the ability to make and act on their own life choices;

"power over" or the ability to override the agency of others and to have an influence on things which can be decided or not; and the "power within" or the ability to determine whose interests will prevail.

The paper also incorporates the concept of agency, i.e., whether the transfer of resources enables women to exercise choice in existing relations. Women can have two kinds of agencies: effective agency, which is the ability to make decisions within prescribed roles, or meeting gender interests such as domestic work, childcare health and provision of food; and transformative agency, which is the ability to make decisions that shift prescribed and normative roles in recognition of the fact that women should also have a fallback position, control over resources, and mobility (Molyneux, 1985; Moser, 1989).

METHODOLOGY

Research Location and Research Participants' Information

This study was conducted among the selected beneficiaries in two locations in Laguna, Philippines, namely: in the Municipality of Calauan (rural) and the City of San Pablo (urban). *Pantawid Pamilya* started in the Province of Laguna in 2012, and these two locations comprise almost 40% of the beneficiaries in the province (DSWD, 2018a).

Calauan has 17 *barangay* or villages while San Pablo City has 80. Nine villages (3 from Calauan, 6 from San Pablo City) were recommended for this study by the DSWD Provincial Link for Laguna. These villages were selected purposively based on the available monthly family development session schedules during fieldwork. It was necessary to conduct household observations to understand the time-use of women related to the program. Of the 9 villages, 2 (one for each location) were selected for the time-use study. The selection of the village was based on the timing of the fieldwork on administering the survey. There were 55 beneficiaries in the two villages, at 95% confidence level; 48 beneficiaries were recruited to participate. However, accounting for attrition, only 40 beneficiaries completed the time-use survey.

The time-use survey, however, only revealed the aggregate hours women spent on paid work, domestic task, and leisure activities. To further understand the program effects, in-depth household interviews and observations were conducted involving eight households with different economic characteristics. These characteristics were

as follows: households with both spouses working, a household with a male breadwinner, a household with a female breadwinner, and a female-headed household. Two visits were made among participating households. One visit was during a typical weekday and another during the day when they were attending program activities, particularly the family development sessions. Male spouses in 5 out of 8 households were able to participate in the interviews.

Time-use Survey

Time-use surveys are survey instruments used to understand the activities, length of time, and the contextual dimensions of activities relevant to the research's analytical objectives (Department of Economic and Social Affairs, 2005). Time diaries can be recorded in various ways: they can adopt an open-interval method that records the actual start and end times of various activities; or use the fixed-interval method, which specifies the certain hours where the recording was done. The survey adopted the fixed-interval diary and assumed that the day started at 04:00 and ended at 22:00. This information was based on the pre-testing of time-use surveys, and initial focus group discussions conducted to understand how women utilize their time within the household.

Since the research aimed to understand the gendered division of labor within the household, the analysis and time-use survey focused on the hours where paid and unpaid work were undertaken. The classification of paid and unpaid work was based on the International Classification of Activities for Time Use (ICATUS) and the work of Sayer (2005). In Sayer (2005), it is mentioned that a) paid work is employment or employment-related activities (or forms of support to paid work), plus corresponding travel time; b) unpaid work refers to housework, childcare, and shopping, plus travel time; and c) for unpaid work-related to cash transfers, meeting program requirements such as meetings, volunteer work, and visiting health clinics were included (Parker & Skoufias, 2000; Maluccio & Flores, 2004; Attanasio & Mesnard, 2006). Time spent on accessing funds was included as unpaid work but analyzed in the narratives as part of the work women undertake to fulfill program responsibilities. Self-care time includes eating, grooming, sleeping, and leisure time on socializing, mass media, religious, and other community activities.

Research Design and Limitations

The research adopts a qualitative case study research design. Through an explanatory case approach, which seeks to explain "how"/"why" a phenomenon occurs (Yin, 2014), this research investigates the relationship between conditional cash transfer participation and gendered outcomes. This approach requires the use of different data gathering strategies. The time-use survey complements the qualitative approaches that were used in this study. Owing to the nature of the research design, the results of this study cannot be generalized to all beneficiaries of the cash transfer program.

The number of participants to the time-use survey and the rather few male spouses available for interview posed a limitation to the research's aim to gather more empirical data. As a novel and alternative way to gauge the impact of women's participation, future researchers may expand the use of time-use surveys to investigate women's work as a lens that provides an opportunity to advance future studies.

RESULTS AND DISCUSSION

Normatively, one of the aspects which time-use surveys attempt to measure is the valuation of non-market activities to reflect gendered dimensions. The purpose of the time-use survey for this study is to examine whether home management is shared by spouses who participate in 4Ps. Table 1 shows the distribution of hours spent on various activities among surveyed households. The total number of hours may not be 24 as the survey focused on the researcher-specified hours within the day. Also, some respondents identified two domestic tasks done at the same time (e.g., cooking while cleaning the house).

Cash transfer programs, such as 4Ps, attempt to reverse this scenario by educating beneficiary families of the value of shared responsibility. This aspect is informed and disseminated through the family development sessions. Recently, impact on household relations was assessed through the beneficiaries' feedback on the knowledge gained regarding gender roles within the household, or through the improvement of marital relationships (Engracia, 2015; Sanchez et al., 2018). However, this current research, investigated through the lens of time-use, has found that most domestic tasks are still carried out by women. It runs consistent with the prevailing scenarios in the gendered

Table 1. Mean daily hours spent by beneficiaries on various activities, by gender and by area of research

ACTIVITIES	URBAN BENEFICIARIES		RURAL BENEFICIARIES	
	Women	Men	Women	Men
Paid work	4.275	7.781	2.700	8.469
Kitchen work	3.175	0.010	3.025	0.030
Cleaning/Care for house or property	1.575	1.000	1.525	1.167
Care for family members	3.825	0.600	4.400	0.500
Shopping or buying	0.037	Not determined	0.325	Not determined
Leisure time	2.089	Not determined	2.004	Not determined

division of labor. Hence, it calls for a more apparent gendered aim for development programs to examine to what extent shared responsibility needs to be observed at the household level.

Another related aspect of women participation in the cash transfer program is that despite the receipt of the grant and their husbands' income, most of them still engage in income-generating activities. This situation creates a scenario of 'double day' for women. Among the reasons women continue to engage in work is the inadequacy of the transfer to cover household expenses.

One of the study's limitations was establishing the baseline in terms of paid work before membership into the cash transfer program. However, the research participants did not report a reduction in time devoted to paid work during the interviews. In the Philippines' conditional cash transfer program, the impact on the adult labor force remains unexplored. From this research, it was found that the beneficiaries continued with their usual income generating activities. This is contrary to the notion that the transfers promote laziness among recipients propagated by the critics of the program.

Effects of Program Co-responsibilities on Women's Time-use

The main program activities that women-interviewees identified were attending family development sessions, complying with regular health checks, visiting banks to access cash grants, and participating in barangay or community-led activities. These are more than the required activities that they are expected to take part: school attendance, health checkups for pregnant women, and vaccinations of children below five years old, and attend the family development sessions (DSWD, 2019).

Women usually exchange their time devoted to paid work to accommodate program-related tasks based on the comparison of women's time-use in between two household visits. Program activities usually take 2-3 hours. Afternoons are also supposed to be their free time from household chores (before their children arrive from school or their spouses from work). They also use the same time to do income-generating activities.

More than half of the women interviewed owned and managed their small home-based enterprises while others were engaged in paid work outside of their household. These home-based women run, usually on their own, a small store known as *sari-sari* (variety) store or small-scale retailing shops. They usually close their shops when they need to participate in program-related activities.

Most of the respondents in the survey attended family development sessions in the afternoon. Figures 1 and 2 show the difference between regular days (i.e., days when they have no program obligations) and non-normal days (i.e., when they attend program commitments). Although non-normal days do not occur often, such activities create compromises within the household.

Despite forgone income being insignificant since most of the activities were only carried out at most twice or thrice a month, women highlighted that the program is more biased to their time as compared with other household members. As a matter of policy, other members of the household could only attend on the beneficiaries' (mothers usually) behalf twice. Although male household members can also be program grantees, most male spouses are assumed to be focusing on their paid work.

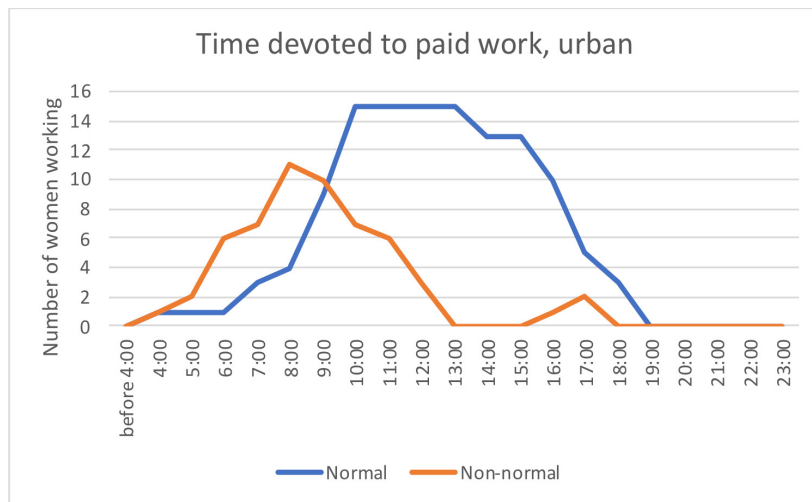


Figure 1. Comparison of time devoted to paid work of urban women beneficiaries

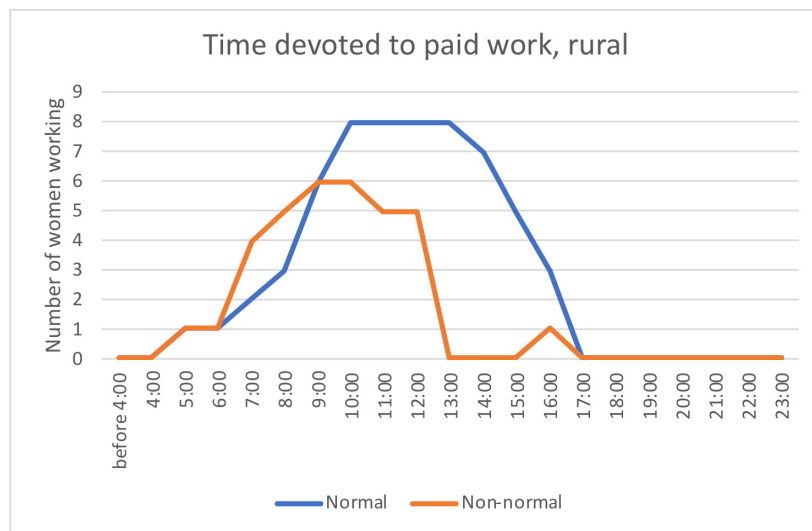


Figure 2. Comparison of time devoted to paid work of rural women beneficiaries

Despite the pressure to always be present in meetings, it is also interesting to note how women perceive the time spent on these activities. In their perspective, this time was considered as 'leisure time' while away from the house:

"For us, rest (or leisure) means we are able to go out of the house, being able to bond with other women... Those times when we forget our tasks and problems... So even if we are attending 4Ps meetings, what is important is that we are able to go out." (Respondent interview, Barangay Dayap, Calauan, January 2019)

The program's impact on women's time was frequently cited in the discussion of domestic tasks during the interviews. Although most women delegate household chores to other family members, usually to their daughters, during their absence due to program co-responsibilities, the co-responsibilities themselves have shaped the magnitude of the domestic tasks they undertake daily. For instance, the most commonly mentioned motivation to join the program was to ensure that their children are able to go to school, i.e., more than the receipt of cash grants. Women-interviewees reported having increased their tasks related to the needs of their schoolchildren. They said that schoolchildren have more demands for care work than their other siblings who are not studying.

Despite the gendered nature of household labor, work-related to education, for example, is not labeled as a feminine task. Women themselves still do school-related tasks within the households. In addition, they felt that they are the only ones responsible for their children's education. For example, mothers spend more time helping their children do their school tasks than their fathers.

Aside from school-related tasks, women also devoted more time attending to children's nutrition and health, as the school checks on the children's food intake. The findings also suggest investing more time in these activities, which contributed to enhancing the welfare of the children.

Analysis of Household Gender Relations

Themes on gender relations emerged during the conduct of observations and in-depth interviews among selected beneficiary households. The observations conducted include relations with their spouses and children. The distribution of themes and categories are shown in Table 2.

Table 2. Thematic analysis of narratives on household gender relations

THEMES	SUBTHEMES	SUPPORTING NARRATIVES
Gendered Power Dynamics	Power-dependency	Men as breadwinners; women's economic dependence reflected on the duty to provide care
		Cash grants are not attributable to decision-making
	Exchange-bargaining	Men and women having equal paid work; supporting women in domestic tasks, vice versa
		Income considered as shared earnings
Women's Bargaining Motives	Gender display	High association of domestic tasks as feminine tasks
		Gender roles emphasized over resource contribution
	Altruism	Women's renewed aspirations for children
		Bargaining for children's welfare
	Self-interests	Care reciprocity between children and parents
		Gendered expectations on children

Source: Authors' analysis and as cited from Agarwal (1997) and Bittman et al. (1994)

Gendered Power Dynamics within the Household

Interview findings under this theme show how power influences gender relations within the household. Ideally, cash transfer programs assume that transferring resources to women means that increased investments to well-being will occur and aim to improve their position within the household. Three subthemes were noted under this theme.

Power Dependence. Most of the beneficiary households still consider the male spouses as the primary breadwinner because of the level of income that they bring into the household. Some beneficiaries mentioned that the transfer they receive are pooled with

the breadwinner's income, thereby diminishing the possible influence of women on decisions concerning how to spend the cash grant. For women who have their own paid work, they perceive their income as a supplement to their husbands' earning and usually do not use it as a way to command a specific household position.

The existing relations of households falling into the theme of power dependence remains binary. Most women willingly 'exempt' their husbands on performing household work. From the household observations, male spouses rarely do tasks that support schoolchildren, even if the tasks are neither feminine nor masculine (e.g., helping on school projects, accompanying children to school).

Elenaⁱ says that she deserves rest for the things she is doing for the family, especially when she had to stay at home more because of the children. When asked if her husband does some domestic work, she said he usually helps with cleaning the dishes in the evening or helps put the children to sleep while she is still wrapping up some domestic tasks. But she said this is done out of his own initiative, and she rarely imposes on him. Even if the program teaches that men should also perform household work, for Elena, it cannot be forced. (Respondent interview, Barangay Masiit, Calauan, January 2019)

Gendered divisions remain high within the household, especially among families where women do not engage in paid work. Women's positions continue to remain unchallenged when men continue to occupy the space of generating income despite the program's aim to educate households on shared responsibility.

Exchange-bargaining. A different situation was observed among households where both spouses were income earners. When the contribution of both spouses is perceived as equal, household spouses experience an equal share of domestic work; however, less can be attributed to the program itself, since this norm has been in place even before their membership to the cash transfer program.

Interviews reveal that male spouses are also supportive of the program's membership under this type of household relation. The equal sharing of burden has further reinforced their joint role to ensure their children's welfare, which means that fulfilling program conditions must not be perceived as women's sole responsibility.

Gender Display. If development program involving women believe that empowerment is achieved through resource control, gender display explains why certain household patriarchal norms remain unchallenged despite women's increased contribution to income. This scenario is not uncommon even to households with women being the income earner. Brines (1993) proposed the concept of "gender display," i.e., even in cases when men tend to earn less, men are able to maintain their traditional gender roles of being in control.

When asked if her husband helps in doing some household tasks, Laniⁱ said that his attitude changed when he was out of job. When he was working as a market porter, he used to help, even after work, in cleaning in the evening. When he had back injury and was advised to stay home, she said his attitude changed. Lani thought it was out of his frustration of being physically unable to work. When the household qualified for the cash transfer, she thought it would give him a more positive outlook. (Respondent interview, Barangay Dolores, San Pablo City, December 2018)

Women's Bargaining Motives

Women's Altruism. The altruistic attitude of women was mentioned as among the reasons they take a lower bargaining power in the household (Bardasi & Wodon, 2010; Radel et al., 2017). Usually, their altruism is most evident through the burden of care for their children. Their participation in the cash transfer program further shaped their aspirations for their children.

Most women-interviewees said that they initiated to participate in the cash transfer program, because they wanted their children to have a better future by ensuring that they stay in school. Some participants who were not supported by their male spouses on their decision to participate owned up the cost of their decision. An example of which is giving up some of their time to send their children to school. Women's persistence to ensure that their children stay in school reflects their altruism and commitment to the program.

The women think that sending children to school will increase their bargaining power with their male spouses. However, for some households, it was hardly the case:

Madelⁱ mentioned that she negotiated with her in-laws because her husband told her to be solely responsible for her participation in the conditional cash transfer program. She said that her husband acts like he has nothing to do with tasks related to the program. When one of their children asked for money for a school project, her husband told their child that she should get that from their mother who is enrolled in 4Ps. (Respondent interview, Barangay San Nicolas, San Pablo City, December 2018)

Women's Self-interests. Despite the power inequalities between men and women spouses, women-interviewees seemed to have exhibited self-interests with their children. Despite their altruism, women also tell their children to help with household tasks. While this may be seen as a way to prepare their children to be independent, this may also lead to care reciprocity among their children, especially their daughters:

Rosaⁱ admits that her eldest daughter is of great help to her in doing domestic chores, especially when she attends to program commitments. She feels confident that even though she's away, everything will be in order at home. While this is the case, Rosa wants her daughter to go back to school. The issue, however, is that her daughter leans more towards finding a job. Her daughter is worried that Rosa might not be able to manage on her own if she goes back to school. (Respondent interview, Barangay San Nicolas, San Pablo City, January 2019)

Relying on daughters for household unpaid work reflects gendered notions that domestic tasks remain in the domain of women or girls, even among children. Although some parents who also say that their sons also help in doing domestic work, mothers would automatically assign these tasks to their daughters (or other female household members), and sons are entitled to their own leisure time.

Analyses on the Three Forms of Power

Households remain to be an institutional area of power relations. Cash transfers are no different from other women-led programs which aim to reverse these asymmetries between gender, by giving more roles

and responsibilities to women. To discuss the interview findings, we turn to the conceptual framework of the typologies of power relations within the household.

Analyzing the narratives, the women's participation in the conditional cash transfer program impacts gendered power relations in three ways. First, the women's ability to decide or the "power to" is evidenced by maintaining or increasing their agency to decide for their children's well-being. It is the direct impact of the program's focus on education and health. However, when focusing on the women's ability to influence decisions ("power over") and their power to determine and carry out their interests ("power within"), the cash transfer as a social protection strategy does not seem to have achieved significant strides.

"Power To": Increasing Women's Agency for Children's Well-being. Women can make their own decisions regarding their participation in the program. These are mostly driven by their intention to improve their children's well-being, mainly through education. The respondents' narratives show that they somehow successfully comply with the program conditions and spend more activities related to their children's welfare, and have time for themselves as they bond with other women. Although they are met with the difficult task of bargaining with their husbands, relatives, and even children, the results show that women exercised their agencies through their participation in the cash transfer program.

"Power Over": Existing Divisions in Decision Making. The aspect of individual decision making is only reflective of the areas in which decisions are made but does not show the broader structure as to how each party influences each other. Kabeer (1994) mentions that the power of decision making should also lie on the ability to confine things as what can be decided or not. Women narratives have shown that the patriarchal structure still prevails in some households, and the men's domain remains where women have no influence. Although women can bargain for their time, men remain distant to the gender expectations of the program and the household in general. Some women are faced with hard bargains between their husbands, especially when it comes to stepping in for domestic work to fulfill their program commitments. Rather than seeing a scenario of cooperation, women choose not to mind their husbands' activities, especially their leisure time, so that they can negotiate a fair agreement to their requests.

"Power Within": Long Way Towards Transformation. Women narratives captured in this study show that much of the traditional societal structures remain in place. While the transfer provides relief to the household, as long as it does not shift power dynamics within it, women will continue to play subordinate roles. However, institutions outside the household also reinforce such a scenario. For example, the market and the state continue to consider care work as a feminine task. Thus, efforts towards women empowerment cannot be effectively translated within the household and vice-versa.

CONCLUSION AND RECOMMENDATIONS

This research was able to gain insights on the hours spent on paid, unpaid, and leisure activities among the beneficiaries. It also sheds light on how the cash transfer program influenced bargains and coalitions within the household. This research has also shown the extent in which women can bargain in the household due to their program participation.

The cash transfer program has increased women's agency related to their children's welfare. However, this agency represents a short-term impact and does not indicate a shift of power and position in the household. Social norms and traditional gender structures within the household translates the program into a feminized burden, rather than an empowering tool for women.

The study also shed light on how to understand time-use qualitatively. The numbers may show that women have more work hours than most household members. However, the numbers do not reflect the true value of their time and their aspirations. In the same way, co-responsibilities within the cash transfer program may enable households to choose better for their children's welfare. However, they may also further compromise women's position in the household. It is expected that more interrogation and discussion is warranted on how they can use this time to their advantage and for their households' welfare.

The research's recommendations point to how social protection policies, such as cash transfer programs, may become gender transformative. Current evidence shows that 4Ps responds to the practical needs of women and children. However, it falls short on being transformative in terms of women's position within their family and community. The research calls for a renewed view on the gendered

aspects of development, i.e., that they are more than just passive recipients; rather, they are active actors that help carry out development goals.

Furthermore, it has to be acknowledged that while interventions such as income transfer do affect normative aspects of consumption and household choices, they also have unintended consequences on gender. The study results show that inequalities persist despite increased roles and responsibilities for women-beneficiaries, thus, requiring policy design to be proactive in responding to these realities.

Conditional cash transfer's "maternalist" approach undermines the roles of men in taking an active role in human capital formation. Tasks related to education and health should not be necessarily gendered. Hence, the program is in the right position to send this message to participating households. Although interventions through the family development session have encouraged equal responsibilities in performing household tasks, it should as well be reflected within the co-responsibilities of the program.

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ADDITIONAL AUTHOR NOTE

The study was reviewed by the Department of Social Welfare and Development of the Government of the Philippines. The ethical approval was given through its Policy Research and Planning Division in July 2018. Informed consent was obtained from all individual participants included in the study. The author declared that she has no conflict of interest.

ENDNOTE

¹The respondents' name were replaced to respect their privacy.

Knowledge and Practices on Family Development of 4Ps Beneficiaries in Camarines Sur, Philippines

STANLEY O. DY¹

ABSTRACT. The study assessed the knowledge and practices on family development among the 4Ps beneficiaries in Camarines Sur. Research methods employed were survey, KIIs, and review of secondary data. The data gathered from the 169 randomly selected respondents were analyzed through descriptive statistics, particularly frequency, percentage, and mean. Most topics discussed during family development sessions relate to disaster risk reduction and management, according to 27% of the respondents. Other topics were on fire, gardening, barangay improvement, community, and nutrition. Almost all respondents indicated that the family development sessions (e.g., proper parenting) are effective, relevant, interesting, and are easy to apply. They added that they teach their children the lessons that they learned from the sessions, and they also expressed willingness to encourage other beneficiaries to do the same. There was high satisfaction level from the respondents; thus, increase in knowledge resulted in positive changes in practices. In terms of proper hygiene among their children, it is important to note that only 46% of the respondents reported that they no longer experience having illnesses. Most respondents indicated that they give high importance to their health and safety. Findings of this research could be useful in planning family development campaigns for behavior change. Future studies may assess other sectors relevant to the agenda using various research designs and measuring other variables of changes in behavior. The 4Ps program should be evaluated to better cater to the needs of its beneficiaries, and its provisions must align with policies relating to parenting, education, and capacity development.

Keywords: *Knowledge, practices, family development*

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INTRODUCTION

Poverty remains a major concern for the majority of the world's peoples and nations (Shah, 2011). Roser (2016) notes that population growth is among the main drivers of poverty. Over time, the observed gap between the rich and the poor has widened significantly.

The poorest sector of the Philippine population has dismal access to health, education, and other services. They often face issues relating to hunger, malnutrition, and diseases. They also compose the marginalized sector of the society, having little representation in public and political debates, making it harder for them to escape the vicious cycle of poverty (Shah, 2011).

According to the Philippine Statistics Authority (PSA), 26.3% of the population in the Philippines experience poverty (PSA, 2015). In 2012, 10% of the population was in extreme poverty. Three years later, this figure decreased to 9.2%. During the first semester of 2015, a family of five would need at least PhP6,365 (US\$ 167) monthly to meet the basic food needs of all household members. To meet the non-food needs, a family would need PhP9,140 monthly (US\$ 183) (PSA, 2016). Poverty alleviation is a main focus of many local and international agencies (UNESCO, 2016).

In developing countries, governments make use of the conditional cash transfer scheme to alleviate poverty (ADB, 2013). Most programs grant poor families the opportunity to receive financial support, which could be used by their children for health and education. To address the poverty issues in the Philippines, in 2003, E.O. No. 221 *Redirecting the Functions and Operations of the Department of Social Welfare and Development (DSWD)* mandated the DSWD to provide assistance to concerned offices to effectively carry out activities that could alleviate poverty. The DSWD then came up with the *Pantawid Pamilyang Pilipino* Program, otherwise known as 4Ps. It is a human development program of the Philippine government that uses the conditional cash transfer scheme for poor families. It is a scheme whereby beneficiaries receive cash grants based on their compliance to their shared responsibilities on health and education. The program has dual objectives as the flagship poverty alleviation program by the Aquino administration. It is also pursuant to the country's commitment to meet one of the Millennium Development Goals (MDG)—to eradicate extreme poverty and hunger (Orbeta & Paqueo, 2016).

Compared to previous development programs, the 4Ps is more than just a welfare program, as it also seeks to address structural inequalities that exist in the Philippine society. The 4Ps develops the capacity of poor families; thus, it aims to break the intergenerational cycle of poverty. Parents benefiting from the program are required to undergo training on responsible parenthood, and ensure that their children undergo health check-ups and attend their classes in school (Defensor, 2010).

The 4Ps is regarded as a form of community development. The Philippine government regards 4Ps as a human development measure that benefits the poorest of the poor. As a community development initiative, 4Ps has dual objectives: 1) provision of financial assistance and 2) social development to break intergenerational poverty cycle. For example, children who are 0-5 years old must undergo regular check-ups. Pregnant women are given the opportunity to avail themselves of pre-natal care while schoolchildren aged 6-14 are given the chance to undergo deworming (Presidential Communications Operations Office, n.d.).

Specifically, 4Ps health component comprises target outcomes such as increase in the number of pregnant women getting ante-natal and post-natal care; having childbirth attended by a skilled health professional; increase in the number of children 0-5 years that avail themselves of preventive health services and immunization; decrease in stunting among children 0-5 years, and decrease from baseline level in the growth rate of the population (DSWD, 2009). The 4Ps covers 79 provinces, 143 cities, and 1,484 municipalities (GovPh, 2016). In 2015, the program covered more than 4,400,000 Filipino households.

One of the main goals of the program is "to raise the average consumption rate in food expenditure of poor households" (Pantawid Pamilya Operations Manual, 2012, p. 7 as cited in Tutor, 2014); and earlier reports indicated that the program sought to increase the share of food in household expenditures by 4% and expenditure on nutrient-dense food items by 2% (DSWD, 2009 as cited in Tutor, 2014).

A study in 2014 notes that the program had no significant effect on the households' per capita total expenditures (Tutor, 2014). Only expenses on carbohydrates and clothing increased significantly in terms of the monthly per capita expenditure. On the other hand, shares on education and clothing recorded a positive impact among the sample households. In terms of consumption, the program's impact is more

evident among the poorest households in the 5th class municipalities. In the Philippines, a 5th class municipality is considered to be very poor.

A study evaluating the 4Ps in Iloilo found that there was a significant improvement observed in terms of preventive healthcare among pregnant women and younger children (Frufonga, 2016). For example, the number of malnourished children decreased. Additionally, the number of enrolment of children in public schools increased while the number of school dropouts and incidents of child labor in the area significantly decreased. Results also showed that expenses relating to food, education, hospitalization (medicine), and savings were prioritized by the households. Finally, it is important to note that the results showed almost 100% attendance of the households to the Family Development Sessions under this program.

In Camarines Sur, the first 4Ps cash grant was established amounting to PhP1,400 to PhP7,000 per month covering the months of November to December 2009 and January to March 2010 (DSWD, 2012). In 2015, the number of target household beneficiaries was 117,730. Given the large amount of budget being spent on the 4Ps program, this study sought to gather data, which could serve as the basis for improving its implementation. While not discounting the favorable reports about the program, it is imperative that the program must be continually evaluated to acquire sufficient evidence and basis for its improvement. With the emergence of policies that directly affect the social and economic activities of the poor, it is important to look into the impacts of these policies on the program. Policies such as the Republic Act 10963 or the TRAIN Tax Law, Republic Act 10931 or the Free College Law, and the K12 Program, among other relevant policies, may be considered in the program review and change process as they directly affect the education and households' consumption.

In terms of health, nutrition, and proper parenting mechanisms of the 4Ps through its Family Development Sessions, provisions of the Republic Act 10354 on Responsible Parenthood and Reproductive Health are sound bases for evaluation to design better 4Ps program catering to the social welfare of the poor. This study focused on the perception of the beneficiaries on the family development component of the 4Ps program. An evaluation of the family development component of the program has led to recommendations on policy directions, which may impact on its service delivery to improve the quality of life of the 4Ps beneficiaries. Since 4Ps started in Camarines Sur in 2009, the study provides valuable analyses in terms of the impact of 4Ps on the health of beneficiaries coming from an agriculture-based economy within 3rd-5th class municipalities.

This study looked into the changes in the socioeconomic characteristics of the respondents as a result of their participation in the program. It is crucial that monitoring and evaluation activities are being conducted to assess the program's impact and make adjustments or replanning in areas found to have gaps (Llanto, 2008). These activities could also be beneficial in developing new policies and guidelines that would benefit the beneficiaries while at the same time enable them to graduate from the program.

METHODOLOGY

The study was conducted in selected areas in Camarines Sur. The study sites chosen were hard-to-reach areas, which included an upland barangay in Libmanan (Pag-Oring Nuevo); an island barangay in Siruma (Matandang), and a barangay along the coastline in Cabusao (Castillo). The selected sites are the farthest upland, island, and coastal barangay in Camarines Sur. Descriptive research was used in this undertaking. Data gathering method included survey and review of documents.

The 4Ps beneficiaries in the research sites served as the respondents of the study. The program beneficiaries were randomly selected for unbiased representation of data and for generalizability. From the sample population from each selected barangay, the sample size was computed using the Slovin's formula as $n = N / (1 + ne^2)$, at 10% margin of error. The total number of respondents was 570; of which 440 respondents came from the coastal barangay 130 came from the upland barangay, and 27 came from the island barangay. Random sampling was employed through the fishbowl technique in selecting the respondents from the three barangays. However, total enumeration was applied in the island barangay due to the limited number of 4Ps beneficiaries ($n=27$).

Secondary data were obtained from the DSWD, Rural Health Units, and the Municipal Planning and Development Office of the three municipalities. Interviews concerning the family development component of the program were done among 169 4Ps beneficiaries using the locality's documents as basis. Pre-testing of the interview schedule was conducted in barangays Concepcion and Peñafrancia in Libmanan among 20 4Ps beneficiaries with similar setting with that of the study sites for validity and reliability purposes. Key informant interview (KII) was conducted among local officials and key personnel of the DSWD and Rural Health Center in Camarines Sur.

The data collected were encoded and processed using the Statistical Packages for Social Sciences (SPSS) software version 24. Descriptive statistics such as frequencies, percentages, and means were used in analyzing and presenting the data.

RESULTS AND DISCUSSION

Knowledge on Family Development

Family development sessions (FDS) are conducted once a month where couple beneficiaries of 4Ps are highly encouraged to attend and participate in discussing topics on family planning, responsible parenthood, and gender sensitivity. Among the purposes of the training is to achieve gender equality and women empowerment through enhancing the capacities of the males by attending FDS (DSWD, 2018).

In terms of information provision necessary to family development, majority (70%) of the respondents said that they were given enough information on the topic. The highest percentage of those who strongly agreed came from the coastal barangay (80%), followed by island respondents (63%), and those from the upland (61%) (Table 1).

Topics such as responsible parenting during the family development sessions were found to be interesting (70% strongly agreed; 27% agree) (Table 2). This denotes that the concerned key health personnel identified the important topics needed by the respondents; hence, the topics proved interesting among respondents as they learned new knowledge and its applications.

Table 1. Knowledge of the 4Ps beneficiaries on family development

RESPONSE	COASTAL (Castillo)		ISLAND (Matandang Siruma)		UPLAND (Pag-Oring Nuevo)		TOTAL	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Strongly agree	65	80	17	63	37	61	119	70
Agree	16	20	6	22	24	39	46	27
Undecided	0	0	1	4	0	0	1	1
Disagree	0	0	0	0	0	0	0	0
Strongly disagree	0	0	3	11	0	0	3	2
Total	81	100	27	100	61	100	169	100

Table 2. Respondents' perception on the relevance of the topics of FDS among beneficiaries

RESPONSE	COASTAL (Castillo)		ISLAND (Matandang Siruma)		UPLAND (Pag-Oring Nuevo)		TOTAL	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Strongly agree	65	80	15	56	38	62	118	70
Agree	16	20	7	26	23	38	46	27
Undecided	0	0	0	0	0	0	0	0
Disagree	0	0	5	18	0	0	5	3
Strongly disagree	0	0	0	0	0	0	0	0
Total	81	100	27	100	61	100	169	100

Responsible parenting, as defined in the *Directional Plan of Commission on Population*, is "the will and ability of parents to respond to the needs and aspirations of the family and children. It is a shared responsibility of the husband and the wife to determine and achieve the desired number, spacing, and timing of their children according to their own family life aspirations, considering psychological preparedness, health status, socio-cultural, and economic concerns" (Department of Health, n.d., p. 2).

High satisfaction level from the respondents may be attributed to the relevance of the topics to their needs. This could be the case given that among the topics discussed was disaster risk reduction and management, which is relevant to the respondents as they live in areas exposed to disaster risks and hazards. Topics on parenting, family planning, house management, and proper hygiene also proved relevant as they affect the quality of life of the respondents.

The findings above align with the results of the study conducted by the College of Human Ecology, University of the Philippines Los Baños in 2018. The study titled *Assessment of Family Development Sessions of the Pantawid Pamilyang Pilipino Program: Effects of Family Development Sessions on Family Life* found that family development modules greatly influence the family life of most of the beneficiaries (i.e., parenting, family planning, food preparation, house management, nutrition and health care).

In terms of information provision necessary for family development, majority (70%) of the respondents said that they were given enough information on the topic (Table 3). The highest percentage of those who strongly agreed came from the coastal barangay (80%), followed by those from the island (63%), and upland respondents (61%).

Table 3. Respondents' perception on the provision of necessary information on family development through FDS

RESPONSE	COASTAL (Castillo)		ISLAND (Matandang Siruma)		UPLAND (Pag-Oring Nuevo)		TOTAL	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Strongly agree	65	80	17	63	37	61	119	70
Agree	16	20	6	22	24	39	46	27
Undecided	0	0	1	4	0	0	1	1
Disagree	0	0	0	0	0	0	0	0
Strongly disagree	0	0	3	11	0	0	3	2
Total	81	100	27	100	61	100	169	100

These results are similar with the findings of Zarsuelo et al. (2015). They found that the main source of information of 4Ps grantees were the family development lectures conducted at health centers. However, it was found that attendance to family development sessions was not significantly associated with the knowledge on health and nutrition. Vidal et al. (2018), in their study in Nueva Ecija, found that 4Ps beneficiaries were only aware of the importance of the lessons learned during the sessions, but were not actively participating and practicing the required activities due to lack of financial resources at the LGU level. Therefore, it shows that there is a need to reinforce the awareness component with adequate resources such as Information, Education, and Communication materials, hygiene kits, and funds for monitoring and evaluation. This will help ensure that the beneficiaries are able to meet the program's objectives, which will hopefully lead to a positive change in behavior.

As families increase their knowledge and engagement with the family development sessions, they are able to empower themselves as evidenced by their ability to voice out their concerns. A study by Chin (2013) noted that a participant shared that she gained self-confidence and considered the learning from attending the family development sessions a form of formal education. It also taught her to relate with others, widen her perspectives in life, and increase her self-esteem.

The respondents (26%) note that the topics discussed during the family development sessions were related to disaster risk reduction and management (DRRM). Other topics were on fire, DRRM, gardening, barangay improvement, community, and nutrition (Table 4).

Table 4. Topics discussed during the family development sessions

TOPICS	COASTAL (Castillo)		ISLAND (Matandang Siruma)		UPLAND (Pag-Oring Nuevo)		TOTAL	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%
None	32	40	4	15	21	34	57	34
Disaster	23	28	0	0	22	36	45	26
DRRM	20	25	23	85	2	3	45	26
Fire	0	0	0	0	14	23	14	8
DRRL	5	6	0	0	0	0	5	3
Gardening	0	0	0	0	1	2	1	1
Barangay improvement	0	0	0	0	1	2	1	1
Community/ Nutrition	1	1	0	0	0	0	1	1
Total	81	100	27	100	61	100	169	100

Findings from the World Health Organization (WHO) noted that when a typhoon disrupts a non-resilient community, people tend to depend on the outside environment for help. Moreover, a well-developed health systems and a well-trained, well-equipped health workforce in communities are much better prepared for disasters (WHO, 2021).

Topics on DRRM play an important role in enhancing the capacities of the households and the community as a whole to adapt to adverse effects of climate change, especially in relation to their livelihoods. Community-related topics help equip the families with community-based knowledge and practices, which contribute to their overall capacity development. This was shown in study by Vidal et al. (2018) where it was found that majority of the 4Ps beneficiaries were aware of the effects of climate change. However, inadequate resources, technology and lack of support from the local government make it difficult to translate the knowledge and awareness to practices. Therefore, it is imperative for the local government units to provide not only information but also the necessary equipment, facilities, and training program for the implementers of the family development sessions on various relevant topics. It is important to note, however, that 34% of the respondents did not properly comprehend the topics discussed to them during the family development issues.

There was a high agreement among respondents that they had acquired family development-related knowledge through their attendance to the family development sessions (Table 5). These results imply that the content of the lectures during the sessions were informative.

Table 5. Topics discussed during the family development sessions

RESPONSE	COASTAL (Castillo)		ISLAND (Matandang Siruma)		UPLAND (Pag-Oring Nuevo)		TOTAL	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Strongly agree	57	70	7	26	14	23	78	46
Agree	23	29	15	55	47	77	85	50
Undecided	0	0	1	4	0	0	1	1
Disagree	1	1	4	15	0	0	5	3
Strongly disagree	0	0	0	0	0	0	0	0
Total	81	100	27	100	61	100	169	100

This result relates to a point made by Frivaldo (n.d.) that social assistance provided under the auspices of the 4Ps facilitates faster realization of the MDGs. The family development sessions, which feature continuous education and value formation are expected to make parents more responsible. Furthermore, the sessions play pivotal roles in ensuring that all beneficiaries would be able to improve their lives and comply with the requirements of the program. Aside from learning key topics on values formation and pressing issues in the society, the family development sessions also allow the parents to discuss their concerns on 4Ps implementation. Most (79%) respondents reported that their FDS attendance positively helped them with their family planning methods and practices. The respondents shared that they learned to manage their financial resources with their spouse.

When asked regarding their level of satisfaction regarding the family development sessions they attended, 68% of the respondents shared that they were very satisfied while 30% were satisfied (Table 6). The satisfaction levels may be attributed to the knowledge gained despite their limited educational attainment. Additionally, the sessions may have also provided them an opportunity to become better citizens as the sessions equipped them not only with important information about parenthood and responsible citizenship but also with good values.

As mentioned earlier, in the study by Pambid (2017), results showed that all the purposively sampled 60 4Ps beneficiary-respondents attended all the health-related topics in the Family Development Sessions. The respondents indicated that they always apply their learning under the topics *Garantisadong Pambata*, Prevention on Cases of Common Childhood Illnesses, *Wastong Nutrisyon*, Waste Management and Backyard Gardening. The only topic found to be least effective was the one on backyard gardening while the most effective ones were the ones on health.

Table 6. Respondents' level of satisfaction in attending family development sessions

RESPONSE	COASTAL (Castillo)		ISLAND (Matandang Siruma)		UPLAND (Pag-Oring Nuevo)		TOTAL	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Very satisfied	64	79	17	63	34	56	115	68
Satisfied	17	21	6	22	27	44	50	30
Undecided	0	0	0	0	0	0	0	0
Dissatisfied	0	0	0	0	0	0	0	0
Very dissatisfied	0	0	4	15	0	0	4	2
Total	81	100	27	100	61	100	169	100

The study of Dela Torre (2016) noted that the family development sessions provide the implementers an opportunity to conduct reactive monitoring among beneficiaries. In reactive monitoring, staff members of the local government units are the ones who act on complaints. This system was considered a good venue by the participants although they also felt some level of discomfort in filing complaints against their fellow recipients.

As of 2011, there were already 77,438 4Ps beneficiaries who have attended monthly family development sessions of the DSWD. The sessions, with 97% compliance, were positively perceived by the beneficiaries. Paque et al. (2013) noted that the parents became more responsive and focused on the development activities in their area. The sessions prove to be a vital platform to enhance the family's formation of values and facilitates collective actions beneficial to the marginalized sector of the society.

The Philippines is said to be the only country, which implements a conditional cash transfer program that includes family development sessions. These sessions are important in achieving the 4Ps' goal of improving the human capital of poor families in the Philippines (UNICEF, 2015).

Practices on Family Development Sessions

Majority of the respondents (69%) reported that they were transferring learning from family development sessions on proper hygiene, health care, sanitation, and other family development practices to their children (Table 7).

Table 7. Respondents' perception on transferring family development information to children

RESPONSE	COASTAL (Castillo)		ISLAND (Matandang Siruma)		UPLAND (Pag-Oring Nuevo)		TOTAL	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Strongly agree	62	77	16	59	38	62	116	69
Agree	0	0	0	0	0	0	0	0
Undecided	0	0	0	0	0	0	0	0
Disagree	0	0	4	15	0	0	4	2
Strongly disagree	19	23	5	18	23	38	47	28
Total	81	100	27	100	61	100	169	100

The beneficiaries learned to teach their children despite their busy schedules and the need to perform multiple tasks, such as doing household chores, taking care of the children, and earning a living. The results indicate that the intervention is relatively effective in increasing knowledge and awareness among poor households, which may result in behavior change on key family and community practices (e.g., exclusive breastfeeding, appropriate complementary feeding, and improved hygiene, etc.). This finding may help realize earlier projection that in the Philippines “a US\$ 1.00 investment in an early childhood nutrition programme would yield at least a 43% return in higher income and better educational outcomes among the beneficiaries of the programme” (WHO, n.d.).

Only a few (28%) declared that they were unable to convey the needed information to their children. This result implies that there is a need to continue the program until a significant percentage of behavior change is achieved.

Moreover, the same results were drawn from study by Pambid (2017) where most beneficiaries applied their learning from the topics *Garantisadong Pambata*, Prevention of Childhood Illness, *Wastong Nutrisyon*, Waste Management, and Backyard Gardening on their households. They also indicated that *Garantisadong Pambata* topic on proper hygiene practices for children and all health-related practices and activities of FDS were effective except for Backyard Gardening which was considered as least effective. Respondents further recommended that Backyard Gardening must be imposed properly with regular monitoring of homes and families.

Positive behavior change passed on to the members of the family will only be achieved with the support and participation of every member. It is only achievable if the continuity of the program along with inclusivity mechanisms is ensured throughout the process. There might also be a chance that involvement of the whole community would be possible.

CONCLUSION AND RECOMMENDATIONS

The study interviewed 169 4Ps beneficiaries in relatively hard-to-reach areas in Libmanan, Siruma, and Cabusao, Camarines Sur. Key informant interviews (KII) were conducted among local officials and key staff members of the DSWD and Rural Health Center in Camarines Sur.

In terms of the perceived effectiveness of the health component of 4Ps on the access to knowledge, practices, and program participation, results showed that there is a very high attendance to the family development sessions organized by the DSWD. These sessions contributed to increased awareness, knowledge, and practice towards holistic well-being of families. The compulsory attendance to family development sessions opened the minds of most mothers to important issues in their immediate communities. The sessions were lauded by the respondents due to the richness of the information conveyed. Results saying that 69% of the respondents strongly agreed that they were practicing family planning as learned from the FDS complemented with high attendance rates are an indication that the topics discussed invited interest among the beneficiaries. Additionally, it is good to note that the respondents conveyed and applied the information they learned from the family development sessions to their children despite their busy schedules.

Upon assessing the differences in the perceived community development effectiveness of the health component across the hard-to-reach areas in the upland, island, and coastal barangays, result showed that the highest percentage of those who strongly agreed came from the coastal barangay (80%), followed by those from the island (63%) and the upland respondents (61%).

This study recommends policies to enhance the health component of the 4Ps program. The participation of the 4Ps beneficiaries in family development sessions should be required by the social and health workers since these sessions are highly beneficial to the beneficiaries. To

encourage participation, the DSWD and the Health Center may effectively and efficiently discuss the health topics that are directed towards the specific needs of the beneficiaries through interactive activities that will stir attention and retain interest among the beneficiaries. Diverse methods in facilitating family development sessions may help increase the engagement of the beneficiaries.

Findings of this study may inform the development of family development-related messages and campaigns, which seek to target various stakeholders and effect behavior change. In-depth qualitative data may provide a more profound basis in crafting family development messages. The 4Ps as a human development approach of the government that contributes to overall community development could still be improved. Some areas for improvement are on policies, provisions, overall implementation, and monitoring and evaluation mechanisms. Improvements in these areas would mean that the program would be in a better position to acquire lessons learned, best practices, and suitable recommendations within and among the municipalities involved.

Policies and overall provisions of the 4Ps program, specifically on the areas for capacity development of the families and the LGU through the DSWD, should be regularly reviewed and amended based on the needs of both the benefactor and beneficiary. Evaluators should consider the emergence of relevant policies affecting the 4Ps such as the TRAIN Tax Law or the Republic Act 10963, which is known to affect the purchasing power and financial capacity of the families. Moreover, implementers of the program, particularly the DSWD, must also be regularly updated of the necessary adjustments they must do in conducting the learning sessions. They should maximize the use of data and exposure to relevant and helpful public documents relating to family development, which are available in various platforms and are published by the government, non-government, and other advocacy institutions focusing on family health and nutrition.

Monitoring and evaluation play a very important role in ensuring that the 4Ps program is still adherent to its mandates, goals, and objectives while catering to the needs of its beneficiaries, aligned with the values of Filipino communities. With the Republic Act 10354 or Responsible Parenthood and Reproductive Health Act of 2012, it is imperative to evaluate the alignment of the 4Ps program with the relevant family health and nutrition policies. As for the education provision mechanisms of the 4Ps, it is essential to anchor the necessary amendments on the provision mechanisms with the K-12 program as

well as with the Republic Act 10931 or the Universal Access to Quality Tertiary Education Act. Doing so would help the government forecast the necessary education support among children of the beneficiaries. Monitoring of program implementation is essential to determine if the guide in doing the family development sessions is being properly implemented. If the models would be given to beneficiaries, this would definitely impact not only on knowledge but also on behavior, attitude, and practices. Needs assessment is also important in determining relevant topics.

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

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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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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 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).

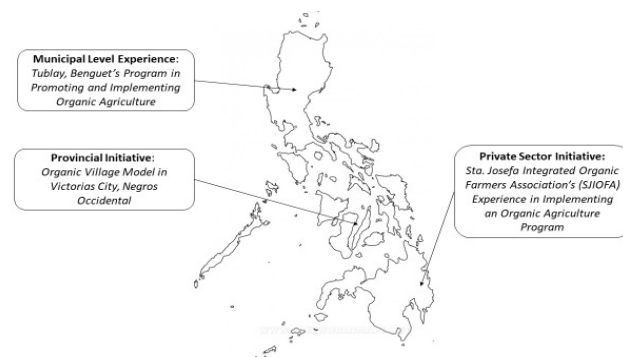
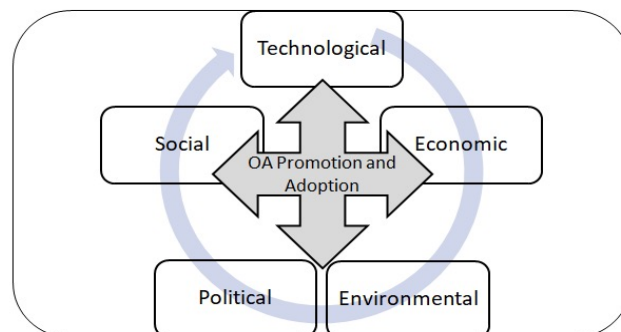
Moreover, Figure 1 shows that the following sites met all the selection criteria:

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, Capi	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**

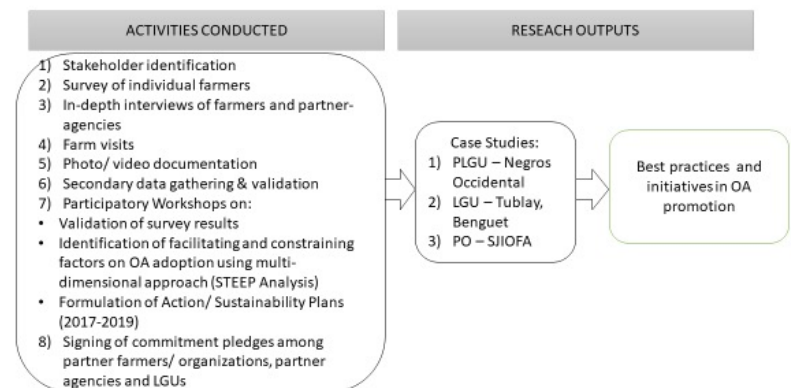
considers the various factors using the social, technical, economic, environmental, and political (STEEP) analysis. It illustrates how the STEEP factors can influence each other and affect the promotion of OA among smallholder farmers.

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.

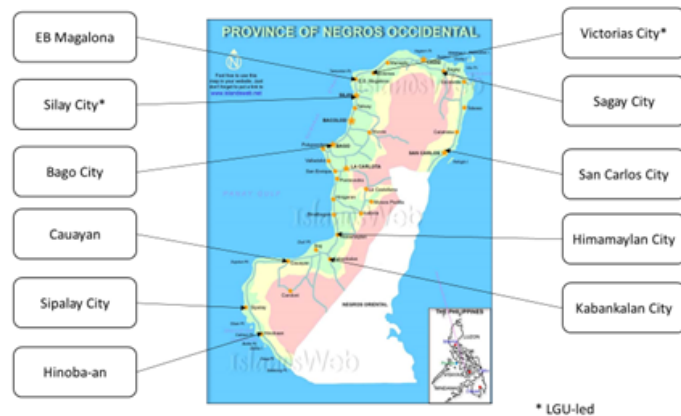


Figure 4. Organic village map (2017)

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 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 *Outstanding 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 m². 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

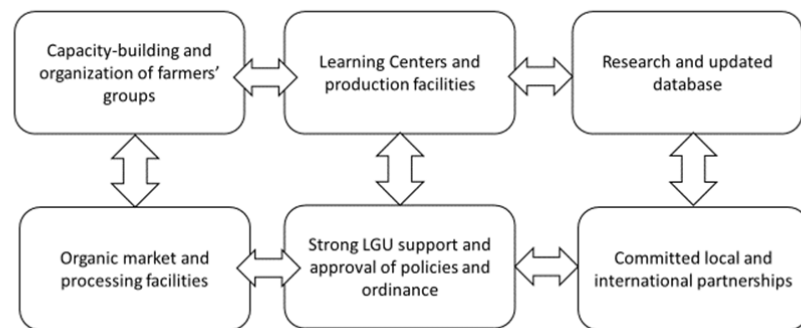


Figure 5. Best initiatives for a sustainable organic agriculture program

hope to enhance the facilitating factors and overcome the constraints 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 <i>Pasalubong</i> 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 LTOAs 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

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

*External factor influencing the OA initiative

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The **Journal of Public Affairs and Development** (JPAD) is an open-access and double-blind peer-reviewed journal that is published annually by the College of Public Affairs and Development (CPAf), University of the Philippines Los Baños (UPLB). With emphasis on transdisciplinary approach in development studies, the Journal caters to readers from a wide range of disciplines, including scientists, practitioners, administrators, policymakers, researchers, and students in social sciences and natural sciences.

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ABOUT THE COLLEGE

From its creation in 1998, the then-College of Public Affairs (CPAf) has made its mark in the field of development and governance studies. Through the years, CPAf has produced a significant number of graduates and a body of knowledge along institutional, policy and governance issues in the rural sector, in general, and in the agriculture and natural resources sectors, in particular.

Under a new name and a strong, dynamic “one-college-one-faculty” structure that helps strengthen and sustain its established innovations, the **College of Public Affairs and Development** now aims to offer more relevant academic courses and research and extension programs on development and governance studies.

CPAf is composed of an institute and two centers. These are the Institute for Governance and Rural Development (IGRD), Community Innovations Studies Center (CISC) and the Center for Strategic Planning and Policy Studies (CSPPS). IGRD offers the curricular programs of CPAf, including undergraduate courses in agrarian studies, education, and community education. The two centers, CISC and CSPPS, conduct research and extension programs.

Vision

CPAf is an academic institution with distinctive excellence in development studies and governance in support of national development goals in the agriculture and rural sectors and communities in transition.

Mission

By means of transdisciplinary approaches, CPAf shall develop human and institutional capacities in the areas of local development policy, governance, and community development consistent with our values and traditions while taking into account the demands of globalization.



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