

Food Security in Times of Covid-19 Pandemic: Experiences of Mountain Province Through the Agriculture Lens

Parline Angyap Tafaleng-Ullalim

*Criminology Department
Mountain Province State Polytechnic College
parline_ullalim@yahoo.com
ORCID ID: 0000-0002-8567-6629*

Abstract

This qualitative study examined Mountain Province's experiences, particularly its food security during the Covid-19 Pandemic, determining the challenges faced by Mountain Province farmers as perceived by Municipal Agriculturists; their interventions; and unique strategies which the various Local Government Units employed alleviating the impediments faced by these farmers. Findings revealed that the farmers of Mountain Province suffered loss of income, limited farm inputs, spoilage and oversupply of vegetables, and African Swine Flu. The Mountain Province's LGUs collaborated with other concerned agencies, responded to these concerns through the various national agricultural programs. The Mountain Province's LGUs utilized a variety of measures ensuring food supply continuity thus maintaining order. These include Sadanga's Food Security Contingency Plan, Localized KADIWA dubbed Sustainable Sagada, Paracelis' Localized SURE Loan Version, Assistance and Involvement of Women Organizations, and encouragement of youth participation. Lessons from the agricultural responses to the pandemic serve as a foundation for developing appropriate policies to promote resilience and sustainability.

Keywords: agriculture, food security, pandemic, challenges, interventions, unique strategies

INTRODUCTION

a. Background of the Study

Agriculture could be referred to as the production, processing, promotion, and distribution of agricultural products, and it plays a critical role in the entire life of a given economy (Kane, 2020). This provides more job options for the labor force, from the construction of drainage systems, farming, and other agricultural-related operations to food processing operations.

However, according to the International Labor Organization (2020), despite playing an important role in national economies, linking global agricultural production and trade structures, many agricultural workers and their families suffer from poverty and food insecurity. These sufferings resulted from the different problems encountered by the agrarian workforce, such as the high cost of inputs, lack of capital,

lack of postharvest facilities, pests, plant diseases, increasing pressures from climate change, soil erosion, biodiversity loss, and from consumers' changing tastes in food (Arida, I., 2019). In the study of Sumner (2019), he argued that because of low income, farmers remain hungry as they do not have the means to purchase or produce the food and other necessities they need.

Governments have long been involved in supporting and influencing agricultural production, mainly to support farmer livelihoods, particular to reducing agriculture workforce poverty, thus preventing the likelihood of committing crimes; and to maintain national food security (Lencucha, R., Pal, N.E., Appau, A. et al., 2020, Taeb, M, 2004). These government reasons support the argument of Papaioannou, K. (2017) that as income levels of farmers decline because of unfavorable conditions, engaging in crime becomes more opportune relative to

participating in more "peaceful" economic activities. Hence, through the different government programs, crafted policies and provision of subsidies. These subsidies are in the form of crop insurance, import barriers in the form of tariffs or regulations, direct payment to farmers, setting the minimum prices by location, and to some wealthier countries providing aid for agricultural research and development, promotion. The government delivered some agricultural and rural infrastructure to the agricultural workforce to maintain peace and food for society.

In the last quarter of 2019, the coronavirus hit the headlines as it threatened millions' long-term livelihood and well-being. The pandemic has profoundly changed daily lives worldwide (Asia report, Awad 2020). The virus's global spread was overwhelming, prompting the governments of different countries to take action of "flattening the curve" or reducing the new cases related to COVID-19 from one day to the next to halt exponential growth. Most governments around the world implemented strict social distancing. Businesses, schools, community centers, and nongovernmental organizations (NGOs) closed down. Most countries prohibited mass gatherings and imposed lockdown measures, allowing travel only for essential needs (John Hopkins University, 2020).

Although the intention was good, the combined effect of spreading the virus and these measures have resulted in an unprecedented sharp decline in economic activity, as affected sectors were essentially shut down (Guerrieri et al. 2020). Among the hardest-hit sectors was the agricultural industry. According to UNESCAP, the impact of the COVID-19 pandemic on the farming sector has brought unprecedented challenges. The pandemic threatened to not only stagnate progress towards the Sustainable Development Goals, including Goal 1 (No Poverty) and Goal 2 (Zero hunger). Still, it has the potential to reverse the gains made in recent years, thus jeopardizing the global community's shared promise to 'leave no one behind. Sustainable agricultural mechanization can play a

crucial role in supporting countries in the region to respond to the crisis (unescap.org, 2020).

With the Philippines having a limited capacity for medical services, the government has instituted protocols and lockdown measures and social and economic programs to mitigate the adverse impacts of the virus (Palo, A, Rosetes, M & Carino, D, 2020). Regardless of these implementations, the pandemic was causing severe damage to the country's food security condition as the agriculture sector in the country faced enormous challenges. Lockdowns have affected deliveries like vegetables from North Luzon to Manila and other regions. The local government units, private sector, and non-government organizations bought vegetables from some farmers for relief distribution. Others are not as lucky, and they just let their produce rot in the fields due to the absence of buyers (Dy, 2020).

Mountain Province is not spared from this contagion resulting in the Provincial Local Government Unit implementing the Inter-Agency Task Force (IATF) Resolution 13 to control and manage the spread of the virus within the province. While it is true that the implementation of Resolution 13 mitigated the spread of the Covid-19 virus within the province, subsequent effects on the production, distribution, and demand of commodities hurling a negative impact on food systems hence threatening the peace and food security of the entire Mountain Province.

This study explored the problems encountered by the farmers of Mountain Province as perceived by the Municipal Agriculturists and how the concerned offices addressed these problems. Lastly, the study also focused on the unique programs the concerned government agencies employ to mitigate the effects of COVID-19. Understanding the potential events and their consequences is essential in building resilience. Preparing to reduce death and suffering and minimizing the pandemic's impact will help decision-makers at the provincial and municipal levels mitigate the associated effects of the coronavirus on peace and food security of the Mountain Province.

There is a shortage of studies conducted on LGU initiatives to mitigate the adverse effects of the COVID-19, particularly to the agriculture sector, to maintain a peaceful community through food security. To "build back better," lessons from agricultural responses to the pandemic must be studied to craft appropriate policies to be adopted in the promotion of resilience and sustainability.

b. Conceptual Framework

This study is anchored to the concept of Food Security as the researcher finds it useful in this investigation. Food security is achieved when all individuals have constant physical, social, and economic access to enough food that is safe, nutritious, and fits their dietary needs and preferences as proposed by Ong, Reyes, and Tanchanco (2020).

Food may not be a known vector of transmission however, in the effort to contain Covid-19, it also led to stringent lockdown, border closure, and physical distance regulations in several countries. Food availability suffers. This has a cascading effect on food systems and people's food security, such as disrupted food supply chains, loss of income and livelihoods, widening inequality, disruptions to social protection programs, altered food environments, and increases the likelihood of committing crimes due to hunger (Klassen and Murphy, 2020; Clapp and Moseley, 2020; Laborde et al., 2020). This can be corroborated by Blankenberger (2016) stating that depriving someone of a basic need increases their economic, physical, mental, and emotional stress. When a large group is denied basic rights like food, clean water, and shelter, the marginal utility of following the law diminishes, while the incentives to defy the law increase.

c. The objective of the study

The study's main goal is to show how COVID-19 affects the food security of Mountain Province. Specifically, it aims to investigate:

1. the challenges encountered by farmers of Mountain Province during the Covid-19 as perceived by the Municipal Agriculturists;

2. the interventions done by concerned agencies to help the farmers of mountain province; and

3. the unique programs by the Municipal Local Government Units of Mountain Province in alleviating the situation of farmers.

METHODOLOGY

a. Research Design

This study used the qualitative design, employing the descriptive method to understand better the issues and problems encountered by farmers in Mountain Province as perceived by the Municipal Agriculturists; interventions done by concerned agencies; and the unique programs of the Municipal Local Government Units in alleviating the situations of the farmers.

b. Locale and Time of the Study

This research was conducted in Mountain Province. Mountain Province is situated in the central portion of the Cordillera Mountain ranges in Northern Luzon. It is bounded on the North by Kalinga-Apayao and Abra, on the south by Benguet, on the east by Ifugao and Isabela, and on the west by Ilocos Sur. The province's land area is about 209,733 hectares, 83 percent of which is mountainous and 17 percent nearly hilly to level. Bontoc, the provincial capital, is about 140 kilometers by road north of Baguio City and is 1,250 meters above sea level.

The local government of the ten municipalities composing Mountain Province were included as a setting of the study. These municipalities comprise Bontoc, Barlig, Bauko, Sabangan, Sagada, Sadanga, Natonin, Paracelis, Tadian, and Besao.

c. Respondents

There are twelve (12) participants of this research endeavor. The ten (10) Municipal Agriculturist of each of the municipalities in Mountain Province, the Provincial Agriculturist and one (1) employee from the Provincial Veterinary Office. These twelve (12) people were interviewed individually and then participated in a focus group discussion.

These employees from the municipal and provincial authorities were selected as participants of the study since it is thought that they can provide accurate information regarding the challenges encountered by Mountain Province farmers owing to the COVID-19 epidemic. They are also fully cooperative in the struggle against the COVID-19. Hence, they have the needed data which were analyzed in this study.

d. Instrumentation

The researcher used a semi-structured interview guide in gathering data. Such questions included the strategies concerned offices had to develop, especially during the onset of the lockdown.

After the interview with each participant, Focus Group Discussion (FGD) followed, which involved concerned government offices up to the provincial level to validate the interview results and brainstorm on the proposed policies in addressing the identified problems.

The interview results were validated from the participants triangulated with documents and the results of the FGD to ensure the consistency of the data.

e. Data Collection

After reviewing this proposal, the researcher sent request letters to the target agencies to schedule an interview. The researcher coordinated with the Mountain Province Provincial Disaster Risk Reduction and Management office for transportation and facilitation. Once request letters to conduct interviews were granted, the researchers met with the target personnel for the discussion using the prepared semi-structured interview guide questions. Protocols on IATF regarding the use of face masks and shields and observation of social distancing were adhered to in the process of eliciting data. The initial data were transcribed and validated through the conduct of a focus group discussion.

A focus group discussion among personnel from the identified agencies was done to gather the needed information further. The

participants and the researcher brainstormed on policies that may be adopted and used in future crisis cases through the focus group discussion.

f. Treatment of Data

The researcher used thematic analysis to treat the data. She first transcribed the gathered data then returned it to the participants for validation. Once data is validated, the researchers coded the responses and answers according to a specific objective and problem area.

A re-coding was conducted, determining the themes that encompass similar codes for analysis. The researcher triangulated the emerging themes from the interviews with documents and the results of the FGD. This process ensured that the analysis was in-depth and consistent.

PRESENTATION, ANALYSIS, AND INTERPRETATION OF DATA

This chapter determines the problems encountered by the farmers of Mountain Province as perceived by the Municipal Agriculturists which affected the food security of the province, the government interventions done and the unique practices the concerned government agencies employed to mitigate the effects of COVID-19. From the analysis and interpretation of data, policies are to be proposed in each area of inquiry to fasten the response, recovery and to make the government effectively thrive in the future.

The common themes emerging were noted as points for discussion in interpreting the results.

On Problems Encountered by Farmers as Perceived by the Municipal Agriculturists of Mountain Province

Presented in this section are the problems encountered by the farmers of Mountain Province as perceived by the Municipal Agriculturists during the imposition of lockdown in the entire Northern Luzon which started on March 17, 2020.

Loss of Income. The ongoing uncertainty surrounding the nature of the spread

of COVID-19 led to the implementation of strict lockdown, physical distancing policies and health protocols in several countries which unleashed cascading effects on food systems and people's food security, income and nutrition. (HLPE, 2020). Sabangan Municipal Agriculturist said, *"The first problem encountered by the farmers during the onset of this Covid-19 lockdown was the instruction of getting a health declaration before they could even go out of their barangays. It was time-consuming on the part of our farmers more so that they are supposed to be on their way in their fields in the wee hours of the morning"*. As an effect to the implementation of lockdown, people were not allowed to leave their homes unless it was necessary. However, a person must accomplish a health declaration form at the Municipal Health Office first. The Bontoc Municipal Agriculturist coincides with the statement of Sabangan Municipal Agriculturist when he said that: *"As a result, they could not plant camote, corns, and peanuts, especially that most fields are located outside their barangays."*

Several overlapping and reinforcing factors were raised, having an impact on nutrition and food security. These include disruptions to food supply chains, widening of inequality, income loss and decrease, altered food environments, social protection programmes disruptions, and increased food prices in localized contexts (Klassen and Murphy, 2020).

Due to the Covid-19 Pandemic and the implementation of lockdown, the farmers of Mountain Province experienced no market for their produce, resulting in no income. From the interview with Municipal Agriculturist of Tadian, she mentioned that *"There are plenty of issues and concerns of farmers in this municipality. First, the farmers had just harvested their crops during the onset of the lockdown therefore they cannot transport their perishable products. Since travel was restricted, the farmers were not able to market their products resulting to their huge loss of income"*. Municipal Agriculturist Besao had a similar response, *"The farmers were one of the most affected sectors during this pandemic, they cannot transport their harvest outside resulting to a heavy loss of their income"*. As posited by Arundhathi (2020), millions of farmers are affected due to lock down. Harvesting the fresh produce, transportation marketing and income are

affected. Many wholesale markets are shut down due to fear of virus.

Mowat and Rafi (2020) explained that most of people's income are spent on food. However, their purchasing power has been dramatically affected by the loss of income streams. *"In Bontoc, particularly in Lanao, the only vegetable being trade is the patchay. The Lanao farmers usually gather and sell the patchay almost every day and sell them at the public market and use the money to sustain their daily needs. But with the implementation of the lockdown, these Lanao farmers go door to door even lessening their price just so that their harvested patchay gets sold, to have money to buy their family's basic needs"*, the Municipal Agriculturist of Bontoc continued.

Spoilage and Oversupply of Vegetables. In markets where products are perishable, such as fruit and vegetables, supply chain disruptions have an even greater impact. Not being able to quickly get food from the field to consumers can result in massive levels of food loss and wastage, with many farmers poised to suffer (Bayer Global, 2021).

During the early days of lockdown imposed in the island of Luzon, the farmers of Western Mountain Province were not able to transport their produce outside their municipality causing the spoilage of these vegetables. Without adequate access to transport, farmers are at a disadvantage. They are dependent on visiting buyers and most often than not, these crops end up rotting.

The same scenario occurred in Barlig with their lemons; the supply of lemon was high but due to travel restrictions, these lemons were not able to be sold outside the municipality and so more were spoiled and wasted. As mentioned by the Municipal Agriculturist during the interview, *"In as much as the community members wanted to sell their produce to other municipalities, it was just not an option because we do not want the virus here in Barlig."*

Mono-cropping also caused the spoilage and oversupply of vegetables in Mountain Province since farmers planted similar vegetables in a single season. Almost all farmers in Besao and Sagada planted the same

crops like cabbages, bell peppers and tomatoes within the same planting season. This resulted to high supply but lesser demand. As a result, the prices of these crops dropped for as low as 5 pesos. Regardless of the price, the farmers had no choice but to sell still to feed their families.

Limited Farm Input. Low availability and high prices of inputs such as pesticides could weigh on yields and crop production in 2020 and 2021, particularly in developing countries. Closing borders or slowing down the transboundary movement of seeds could potentially hamper seed supply chains and on-time delivery of seed with negative impacts on agriculture, feed, and food production over the next season and further into the future (OECD Org, 2020).

Farm inputs such as seeds, fertilizers, crop protectants, and animal feeds were vital in producing good quality crops; however, all of these were limited during the pandemic. Pest and disease damage will seriously reduce a crop's price and its potential shelf life adding to farmers' struggles in the eastern and western parts of Mountain Province.

African Swine Flu Positive Hogs. Other than Covid-19, there is another disease which is threatening the livelihood of farmers is the African Swine Fever commonly known as ASF. According to the World Organization for Animal Health (2019), African Swine Fever is highly contagious and infection spreads rapidly through a unit, with clinical signs of fever beginning 4-5 days after infection and causing fever followed by dullness, breathing difficulty, vomiting, coughing, nasal and ocular discharge, abortion in pregnant sows, and death within seven days.

Unluckily, hogs in three municipalities of Mountain Province had been infected by ASF. These are the Municipality of Bontoc, Paracelis and Municipality of Sadanga. Since this disease has no treatment, the Local Government Unit of Bontoc and Paracelis opted to slaughter and dispose the ASF positive hogs while that of Sadanga prohibited the selling of hogs outside the municipality to contain the spread of ASF. These unfortunate events led to yet another loss on the part of farmers in these three municipalities.

On the Interventions done by concerned government agencies to help the Farmers of Mountain Province During The COVID-19 Pandemic

Discussed in this section are the themes of interventions done by the Office of the Municipal Agriculturists, Local Government Units and other concerned offices to help alleviate the situation of the Mountain Province farmers.

Food Packs. During the first month of lockdown, the immediate concern of each LGU was its populace going hungry each day and on the other hand, the immediate concern of each OMAG was the perishable goods of the farmers. In order to address both issues, the Local Government Units of Mountain Province bought the perishable goods of farmers and have it included in the food packs which they distributed among all the members of the municipality.

This was a win-win strategy because it did not only solve the issues of perishable goods of farmers, it also conformed with one guideline of the Proclamation No. 922 on Declaring a State of Public Health Emergency throughout the Philippines which is to include dark green and leafy vegetables and fruits in their food packs (Fernandez, 2020).

SURE COVID-19 Loan Program (SCLP). Despite the struggle this pandemic, life and work had to go on as before. Irrigation systems, farming tools and equipment were important to farmers hence, they requested from this office to purchase these to include fertilizers in preparation for the next cropping.

Some farmers opted to shift from crop farming to fish farming and even raising chickens for meat so they requested to be given livestock animals. Other farmers requested to be given highland vegetable seeds, hybrid seeds of rice and fertilizers to be used for the next planting season. Affected farmers from the Western part of Mountain Province requested for financial assistance as well as free farm inputs like seeds, fertilizers as well as greenhouses and mini tractors.

In the issue of decreased or loss of income of farmers due to Covid-19, the Department of Agriculture has released more

than PHP2.6 billion worth of loans under the Expanded SURE Aid and Recovery Project for micro and small enterprises and small, marginal farmers and fishers adversely affected by the quarantine measures due to the Covid-19 pandemic (Cervantes, 2020).

Eligible farmers are allowed to borrow up to 25,000 pesos with no collateral, zero interest and can be paid in the span of ten years. As per record, this program gave farmers not only a working capital for these farmers during the pandemic but gave them hope and light to have an economic opportunity amidst the global pandemic and feed their families.

Initially, five hundred slots per municipality were allotted for this program according to the Department of Agriculture however, it was lowered to 200 slots per municipality and must pass the requirements. One thousand two hundred farmers were qualified to avail the SCLP out of One thousand eight hundred applicants. The municipality of Sadanga waived the financial assistance program because there were only four farmers eligible for this program. Although they have waived their privilege to this program, the four farmers shall receive other assistance and program by the Department of Agriculture. In total, the SURE COVID Loan Program has provided financial assistance of 30,000,000.00.

Plant Plant Plant Program (PPP). To increase the productivity and have a sufficient supply of food for every household, the Department of Agriculture launched the "Ahon Lahat, Pagkain Sapat Kontra sa COVID-19" (ALPAS COVID-19) or commonly known as the Plant Plant Plant Program. As such, the program involves the promotion and strengthening of the implementation of the Urban Agriculture Program (Miral, 2020).

The Department of Agriculture provided the different seeds which was then distributed to all Municipal Agriculturist Offices which in turn be repacked by the office and be distributed to the farmers in their respective municipalities. There were those residents who wanted to avail of these seeds. All municipalities except for Bontoc, Sagada and Paracelis included their community members in the distribution of seeds. OMAG Paracelis said, *"Farmers are our focus since they*

are our clients that is why they are the primary recipients of the assistance which may be offered to farmers".

Through this program, the following are the vegetables produced in metric tons:

- 128 mt/ Ha food & feed crops
- 152 mt Leafy Vegetables
- 164 mt Fruit Vegetables, and 40mt Root crops

Aside from the seeds which came from Plant Plant Plant Program of the Department of Agriculture, the Provincial Veterinary Office asked from different non-government organizations and business owners seeds to augment seeds for those who wanted to do home gardening even if these are not farmers. This opened an opportunity for all interested community members to produce their own vegetables at home during this uncertain time.

Rolling Market. The partnership between the DA and DTI initiated the Kadiwa Diskwento Karavan which serves as a 'mini' grocery or market on wheels that sells Agri-fishery, vegetables, livestock, and other basic food essentials necessities at an affordable rate than the suggested retail prices closer to urban families affected by the enhanced community quarantine (ECQ) due to the Covid-19 pandemic (Bajarin, 2020).

OMAG Tadian implemented rolling market concept of the Kadiwa Diskwento Karavan by linking their farmers to different markets such as Bontoc, the Provincial Capitol, Provincial Veterinary Office and even private buyers. They also helped sell farmers' crops by consolidating farmers' products, taking note of the names of farmers and weight in kilo of the product the farmers handed them. The staff of OMAG Tadian would transport these products to Tadian barangays that are not vegetable producers.

Sagada has this marketing strategy called "Sustainable Sagada" which was patterned from the Kadiwa Diskwento Karavan. The Mayor of Sagada contacted a friend in Manila to help sell the products of Sagada farmers. This friend linked the farmers to different organizations and business establishments that are in need of the products coming from Sagada. It needs to be

noted that there was no gain on the part of Sagada LGU or OMAG Sagada.

Information Dissemination on Qualification of Applicants for Assistances. All aids and assistance provided by the Department of Agriculture have criteria and applicants need to qualify themselves before they could avail of these assistances. One major factor why a farmer gets disqualified is the enrolment to the Registry System for Basic Sectors in Agriculture.

RSBA is an electronic database containing basic information of farmers and fisherfolks, and members of DA-accredited farmer organizations such as multipurpose cooperatives, irrigators' associations, and people's organizations for them to access agriculture-related programs and services, including the Rice Competitiveness Enhancement Fund (Ganancial,2019).

The different Municipal Agriculturists Office educated and informed the farmers of the benefits they may avail once enrolled in the RSBC. The staff also assisted those interested farmers in their enrollment process.

Fogging of ASF positive pens. The provincial veterinary office disinfected the pens of those confirmed ASF positive hogs. While these were undertaken, the hog raisers were encouraged to bury the ASF positive hogs to mitigate the further spread of the virus.

Some hog raisers refused to comply and instead butchered and sold ASF positive hogs for consumption. To address this issue, red tagging was observed in Mountain Province allowing the selling and transport of hogs in identified ASF municipalities only.

The Sadanga Mayor on the other hand banned the selling and transport of hogs outside the municipality to prevent the spread of the ASF virus to the other towns of Mountain Province.

On the Unique Programs by the Different LGUs in Mountain Province during the COVID-19 Pandemic

Creative and unique strategies by each LGU from the different municipalities of Mountain Province were observed to ensure the continuity of food supplies and trying to mitigate the market disruption.

Sadanga's Food Sufficiency and Contingency Plan. The LGU of Sadanga through the Office of the Municipal Agriculturist prepared their food contingency plan which contained actions that needed to be done in case of worse scenario involving the food security would arise. This strategy is a good example of Proactive risk management which involves carefully analyzing a situation to determine the major risks and then taking steps to minimize potential damage.

Although, it is to be noted that the said Food Sufficiency and Contingency Plan of Sadanga is based on socio-cultural practices of the I-Sadangas. This presents the issue that replication of such plans and policies may not be even possible for communities not practicing similar socio-cultural structures to Sadanga.

Sustainable Sagada. This program was patterned from the KADIWA would show the importance of networks and linkages. This would be another perfect example of the old adage, "No man is an island". The Mayor's office linked the produce of farmers to different food outlets in Manila avoiding too much loss on the part of Sagada farmers. Linkages during these dark times is important especially in looking for target markets.

Paracelis' localized version of the SURE Loan. Because of the limited slots and the qualifications needed to be met by the applicants, there were farmers who were not given the SURE COVID Loan in Paracelis. OMAG Paracelis, in coordination with the Mayor's Office, came up with a plan patterned with the SURE COVID Loan Program of the Department of Agriculture, choosing 50 farmers from one specific barangay to avail of a loan amounting to 25,000.00 as a starting capital with zero interest rate that would be payable in six months. *When asked why, the Municipal Agriculturist answered This was the remedy we could think of to help those farmers who needed financial assistance but could not meet the criteria".* This action highlights the determination of the LGU of Paracelis in trying to help the farmers in the municipality.

Assistance to And Involvement of Women Organizations. OMAG Barlig, OMAG

Bauko, OMAG Besao and OMAG Sabangan acknowledged the importance of women organizations during the pandemic in terms of food preparation and preservation. Different women organizations were taught to do food processing. This did not only help prevent food spoilage; it also provided a living and most importantly, a sense of empowerment for the women organizations in these municipalities.

Cooking had always been connected to women's roles in the family. In some countries, it is seen as a sign of submission to their husbands. However, Annabella Skof, a Chief Technical Advisor at the ILO Regional Office for Arab States said, "Many women – in particular farmers' wives – have a very invisible role. They work on the field but they don't get paid for it, and they don't get the credit for producing or selling the produce. What we are trying to do is showcase that women can also have a very visible and important role in such a value chain". Empowerment. This is exactly what the women of Bauko who are farmers or farmer's wife are portraying when they volunteered to prepare and cook food for the frontliners especially those deployed at the border of Sinto, Bauko and Benguet.

Encouragement of Youth Involvement. Sangguniang Kabataan of Samoki, Bontoc, Mountain Province established its own Herbal Garden at Tuchey, Samoki. The Sangguniang Kabataan of Barangay Samoki asked cans of vegetable seeds from the Office of the Provincial Veterenary Office thereafter distributed these seeds to the youth of the said barangay. This was done to support the Garden Cultivation and program by planting vegetables, landscaping and supporting in the production, and repackaging of vegetables to be sold in the market and may be for home consumption. To further encourage more youth to participate in similar programs, the Office of the Provincial Veterinarian gave 26 ready-to-lay chickens to all youth participants of garden cultivation initiated by the said Sangguniang Kabataan.

East-To-West, West-To-East Agri-Scheme. The Provincial Local Government Unit's "east-to-west, west-to-east" Agri-scheme has brought about the exchange in commodities

from the vegetable producing towns in the western part of the province to the non-vegetable producing eastern municipalities. Bananas which were grown in the municipality of Paracelis were bartered with the cabbages, lettuces and carrots of Bauko and Besao.

It was also observed that culture played a big part in the sufficiency of food particularly the rice. Municipalities such as Barlig, Bontoc and Sadanga maintained their rice supply by storing their rice harvest in their homes or in the granaries.

Mayor Gabino P. Gangangan of Sadanga wrote in one of his Facebook posts *that "as tribal communities, indigenous social structure, values and practices still exists. Sadanga had always practiced storing their rice harvest in their granaries called "agamangs". He continued saying that "Should this crisis extend longer to the extent that our needy families really run out of their rice supplies, we shall mandate the kadangyans (the rich) of every barangay to open up their rice granaries in order to sustain everyone through to the next harvest season. I assure that no family shall go hungry in our municipality even during these hardtimes."*

According to the Bontoc Municipal Agriculturist, there were two reasons why the municipality have this practice; it had been practiced by the Bontoc community members store their harvested rice to be used in times of weddings or in times of death.

As for Barlig, community members store their rice harvest in preparation for calamities such as landslides caused by typhoons hence travel to nearby municipalities to procure their food is impossible.

As per observation, all Municipal Agriculturists of the ten municipalities of Mountain Province were confident in saying that for the period of the months of March, April and May when the entire Luzon was placed under lockdown, not one community member complained of having not eaten three times a day which displays the outcome of all collaborative efforts of the concerned agencies and the LGUs of Mountain Province in the effort of maintaining peace through the food security of the province.

Chapter IV

CONCLUSION AND RECOMMENDATION

Conclusion

In light of the findings of the study, the following are the conclusions:

The Covid-19 pandemic has shown the significance of food security in sustaining the peace of all societies. The new set of challenges brought about by this pandemic towards the agricultural workforce threatened the peace within Mountain Province. Every community member feared that the shortage of food could result in the commission of crimes. This study highlighted that coordination and collaboration of different agencies and good governance play crucial roles in implementing food security-related interventions, thus building a more resilient Mountain Province.

With suitable investments and policies on food systems, these may be able to provide blanket coverage of Mountain Province's food security needs, thus sustaining the peace within the province.

Recommendations

With the above stated conclusions, the following are recommended for a strengthened, problem-driven solution to the issues on food security this COVID-19:

Contingency Plan. A contingency plan is recommended to be prepared by each LGU of Mountain Province. It is needed to respond rapidly and effectively at its earliest signs to avert food crisis and reduce the intensity and duration of emergencies such as this pandemic.

Food Resiliency Toolkit. In a pandemic, many steps can promote and safeguard food security. Preparation is key for most of these responses. Thus, each municipality should develop a resiliency toolkit. To avoid a food crisis and lessen the severity and duration of events like this pandemic, timely and efficient response is required.

Prioritizing steps to foster creativity and transformation would be part of the toolkit. To

address the pandemic's socio-economic components, Mountain Province communities must evaluate how they produce, process, market, consume, and handle food. In line with this, Municipal Agriculturist Offices should conduct farm to table, barangay or community farm trainings. Inspection of local food supply should also be part of the office's tasks.

The toolkit also includes food processing and preservation training conducted by Alternative Learning System and Senior High School Teachers. They might educate farmers and women organizations on proper food preparation, cooking, and preservation methods for perishable municipal products to reduce spoilage.

Preserved food should be stored in a communal food storage facility or a food bank. The LGU may adopt the indigenous Economic Political System's collaborative management. A committee will be formed including LGU, Women, Youth, Elders, and other community members.

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