



**AgEcon** SEARCH  
RESEARCH IN AGRICULTURAL & APPLIED ECONOMICS

*The World's Largest Open Access Agricultural & Applied Economics Digital Library*

**This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.**

**Help ensure our sustainability.**

Give to AgEcon Search

AgEcon Search  
<http://ageconsearch.umn.edu>  
[aesearch@umn.edu](mailto:aesearch@umn.edu)

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*

# Experiences and Coping Strategies During COVID-19 Pandemic among Fishers and Farmers in the Island Province of Guimaras, Philippines

Gay Margaret A. Gange<sup>1</sup>, Louie Marie T. Eluriaga<sup>2</sup>, and Alice Joan G. Ferrer<sup>3</sup>

## ABSTRACT

This study describes the experiences and coping strategies related with the COVID-19 threat and the community quarantine policy by the fishers and farmers in the island province of Guimaras. Both food producers faced market-related problems such as low demand, low prices of catch and produce, and logistical problems. While the in-kind support (e.g., food provisions) received and adaptive measures (e.g., continued with fishing or adjusted harvest schedule; use of social media or delivery services in marketing) allowed them to get by during the pandemic, there is a need to develop more resilient farming and fishing households. Short-term support can be in the form of cash, production inputs, marketing, and credit. Long-term support can include diversifying livelihood providing savings and loan services, improving post-harvest handling and processing, including the marketing facilities, improving the modes of marketing, and promoting cooperatives.

**Keywords:** COVID-19, Guimaras, fishers, farmers, coping strategies

## Introduction

The novel coronavirus (COVID-19) pandemic has pushed governments all over the world to carry out measures to contain and curtail the spread of the virus. These measures involved restricting people's mobility by halting public transportation services that disrupted economic and social activities. The joint health, social, and economic effects are wide, far-reaching, and unprecedented (World Health Organization [WHO] 2021, Siddique *et al.* 2021, Nkengasong 2021).

The agricultural sector has been severely affected by the transport and border restrictions to contain the spread of the virus. Several countries faced logistical restrictions that hamper the transport of farmers' produce to the market (Asian Development Bank [ADB] 2020), increased transportation costs (ITC 2020), farmers face difficulties accessing agricultural inputs and agriculture

extension and advisory services (FAO 2020a), and disruptions of daily farm operations (Zhi-xiong 2020). In the fishery sector, the main challenges are reduction in consumer demand, market disruptions, and logistical problems (FAO 2020b, Kaewnuratchadasorn 2020). Bennett *et al.* (2020, pp. 338) described the reduction in demand and a steep decline in prices as "twin disasters" facing the small-scale fishers. In addition, the reduced demand from local restaurants and hotels and the skeleton workforce in food processing companies

## Author's Information

<sup>1</sup>Instructor, University of the Philippines Visayas (UPV)  
gagange@up.edu.ph

<sup>2</sup>Instructor, UPV  
lteluriaga@up.edu.ph

<sup>3</sup>Professor, UPV  
agferrer@upv.edu.ph



have resulted in a sharp decline in seafood prices (Ocampo 2020). The disruptions on the livelihood of both fishers and farmers adversely impact their income and consumption pattern (FAO 2020b). According to the United Nations (2020), the rural poor employed in the agri-food systems are more likely to face difficulties in accessing food and basic health services during this time of the pandemic.

In the Philippines, the community quarantine measures imposed in mid-March 2020 as a response measure to the COVID-19 pandemic halted all domestic air, land, and sea travels that lasted until around July 2020 and have been resorted to when the situation calls for it to this day. The agriculture sector was one of the sectors immediately affected because of the disruption of the supply chain (Palo *et al.* 2020). In early April 2020, the COVID-19 Inter-Agency Task Force for the Management of Emerging Infectious Diseases (IATF) resolved that farmers and fishers have roles to play in the fight against COVID-19 as food “frontliners” and their activities should remain “unhampered” to make sure domestic agricultural production and food security during the crisis (IATF Resolution No. 21, 6 April 2020). The resolution of the IATF was adopted in the country, including the province of Guimaras. Farming and fishing activities were supposed to continue despite mobility restrictions.

In the country, poverty among fishers and farmers has been higher than the national average (World Bank 2020). The COVID-19 and accompanying restriction measures pose an additional threat that may further push them into deeper poverty. Although production activities were not restricted, marketing was a problem given limited transportation resulting in income loss. The situation has highlighted their vulnerability to shocks. They have inadequate, if not lacking in, assets or savings to cushion them from unexpected or sudden income loss. Moreover, their marginalization was highlighted when targeted support for them came only several months after the start of the community quarantine in mid-March 2020. For example, not only are the fishers not included in the DSWD’s Social Amelioration Package, whose relief assistance was released starting April 2020, but also it became apparent that there is no quick-response fund that can be tapped to help them during emergency times.

Most of the studies during the pandemic have been about the impact on the macroeconomy and the different economic sectors. Although there are many publicly shared stories on the plight of fishers and farmers during the pandemic in mainstream media and online platforms, it is difficult to find a study focused on them. The mobility restrictions and the difficulty of field data collection could be reasons for the few, if not lack of, studies on the fishers and farmers during the pandemic time.

The importance of farmers and fishers as food producers, despite their situation of poverty, marginalization, and vulnerability, warrants that their experience is documented and shared so that lessons are learned and can be applied in the future. Threats and shocks like COVID-19 are expected to be regular in the future (UN 2020, Nkengasong 2021). This is the gap that the paper is addressing. In an island setting, the situation is more challenging because of limited human and natural resources (due to the size of islands) and distance to the mainland that reduces the people’s options for livelihood, market, and goods and services during the crisis. This study used a survey instrument to gather data on how the farmers and fishers experienced and coped up with the COVID-19 threat. It also evaluated how the community quarantine policy in the island province of Guimaras alleviated the impacts of the pandemic. Specifically, it described the effects on their personal lives and on their livelihood activities, their ways of coping, support received, perception of the future, and the lessons learned on how these sectors can be protected from similar threats in the future.

### Conceptual Framework

Figure 1 shows the framework for this study. The COVID-19 pandemic is seen as a shock that affects farmers and fishers in two ways: (1) as a public health threat and (2) through the imposition of the community quarantine of different classifications. The community quarantine restricts people’s mobility and transportation, which disrupts the goods market. Demand declined with many institutional buyers (e.g., restaurants, hotels, resorts, and others) closed or shortened their business operations and consumers having difficult mobility with transportation restrictions. Supply in the market also declined, with fish traders having difficulty transporting the produce to the market due to transportation restrictions. Although food passes were distributed to ensure the free flow of food across borders, there was much confusion during the first months of the community quarantine, where traders or the farmers and fishers were not allowed to cross borders. With these market disruptions, there was not much incentive to bring supply to the market, or there was a production decline or reduction in the effort to produce for the market and more for consumption. Less production means low income, which may, in turn, affect fishers and farmers’ food security in terms of access, availability, and utilization of food. With their experience, farmers and fishers adopt short-term ways to get by or cope with the situation, including changing old or adopting new production and marketing practices. An understanding of fishers and farmers’ experience and coping from the pandemic’s threat to health, livelihood, and food security can help in generating information and distilling lessons on how these sectors can be protected from similar threats in the future and in identifying long-term strategies on how their vulnerability to shocks can be reduced.

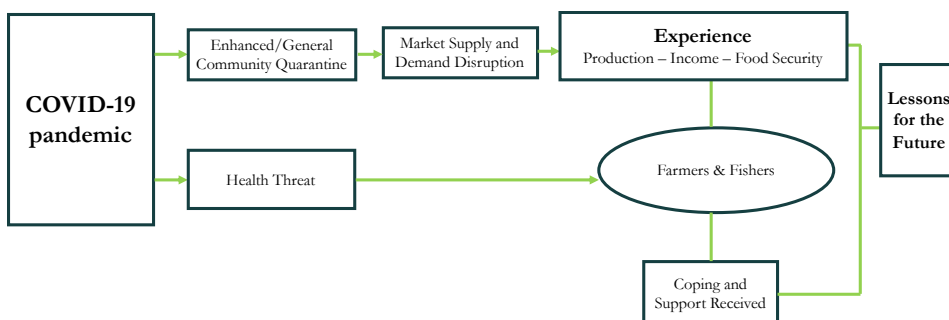
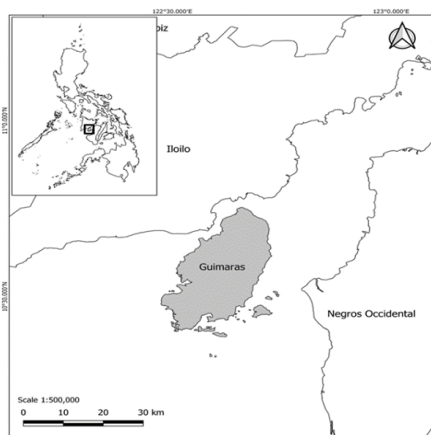


Figure 1. Conceptual framework in analyzing the experiences and coping strategies during the COVID-19 pandemic among fishers and farmers in the island province of Guimaras, Philippines, 2020

### Methodology

#### Study Area

Guimaras, an island province in the Western Visayas region, has a total land area of 604.57 km<sup>2</sup> spread across its five municipalities, namely: Jordan, Buenavista, Nueva Valencia, San Lorenzo, and Sibunag (see Figure 2). As an island province, more than half of its 98 barangays are coastal. The major economic drivers in the province are agriculture, fishery, and tourism. The coastal barangays are home to both fishery production and tourism, with palay, mango, cashew, livestock, and poultry as the common agriculture produce (Partnerships in Environmental Management for the Seas of East Asia & Provincial Government of Guimaras 2018).



**Figure 2.** Locational map of the study area

The province of Guimaras implemented the Enhanced Community Quarantine (ECQ) from 15 April to 30 April 2020 and was placed under general community quarantine (i.e., less restrictive policies on mobility than ECQ) beginning 01 May 2020. Despite the late implementation of ECQ, the province was affected when neighboring provinces of Iloilo and Negros were placed under ECQ starting 17 March 2020. The experience of Guimaras echoes what Rashid *et al.* (2020) had said about high dependence on food imports, employment from nearby cities poses a greater challenge to island economies during the health and economic crisis. For example, during normal times, Guimaras is only 15-minutes by boat from Iloilo City. Many from Guimaras cross to the city for school, work, marketing of produce, health or hospitalization, and other activities. But during the pandemic, the movement of the people and goods was limited by border restrictions and limited boat operation, and several businesses in Iloilo City closed or shortened their operation. This led to many people from Guimaras to be out of work or having difficulty securing health care services needs.

Moreover, Guimaras is the last province in the region to have recorded local transmission of the virus in late July 2020. During the last week of May, however, a returning overseas foreign worker (OFW) who is a resident of Guimaras was identified to have COVID-19. In times of health crisis, containment of infectious diseases is easier in island communities, given no land borders (Cuschieri *et al.* 2020). Although island isolation tends to slow down the influx of the virus, it cannot be guaranteed that islands are safer from infection compared to non-islands (Grydehoj *et al.* 2020).

### ***Data Collection and Analysis***

Given the restrictions on face-to-face meetings and on physical distancing, primary data were collected remotely using a questionnaire. These included an online survey form using Google form and a printed questionnaire. There was a total of 150 farmer questionnaires and 150 fisher questionnaires distributed by the researchers and individuals from barangays who volunteered to help in the distribution and collection of filled-in questionnaires. Convenience sampling was used. The survey ran from July 2020 to early August 2020. The data collection period started two weeks before the first local transmission was recorded in Guimaras on 27 July 2020. The survey was stopped when the number of COVID-19 positive cases spiked in early August 2020, and the province implemented stricter border control starting 09 August 2020. Permit to conduct the data collection was secured from the provincial government of Guimaras.

The survey participants were requested to refer to their experience from the start of ECQ in the country in mid-March 2020 to the time of the interview. It must be noted that on 03 July 2020, there was an oil spill in Iloilo Strait that affected fishing activities, specifically of

fishers in barangays in Buenavista and Jordan facing Iloilo Strait. The fishers in these affected barangays who participated in the study were asked to refer to their experience before the oil spill. Moreover, fishing activities returned two weeks thereafter. The spill was contained soonest with only approximately 9,700 liters not recovered or 4% of the spilt amount. The Bureau of Fisheries and Aquatic Resources Region VI issued an advisory on 09 July 2020 that “fish caught from open waters and fishponds are safe for human consumption.”

A total of 48 fishers and farmers participated in the online survey, and 173 filled-in hard copies of the questionnaires were returned. The study participants were from the five municipalities of the province, with the highest share from Jordan (47%) and followed by San Lorenzo (30%), Buenavista (17%), Sibunag (4%), and Nueva Valencia (2%).

The online survey form and the hard copy form had identical questions. The hard copy form was four pages of close and open-ended questions divided into three main sections, namely: 1) personal information of the participants; 2) experience and coping with COVID-19 (including sources of information, effects of COVID-19 and restriction measures on their livelihood, coping mechanisms, and assistance received) of the fishers and farmers during the E/GCQ period; and 3) fishers and farmers' perception of the future.

Descriptive statistics, including frequencies, percentages, and univariate analysis (cross-tabulations), were used to analyze the gathered data.

## Results and Discussion

### Basic Information of the Respondents

There were 79 farmers and 142 fishers who participated in the study. The farmers were, on average, 54 years old. Men farmers were slightly more than women farmers (57% vs. 42%). On average, most of the farmer-participants were growing rice (91.14%), with 29 years of farming experience.

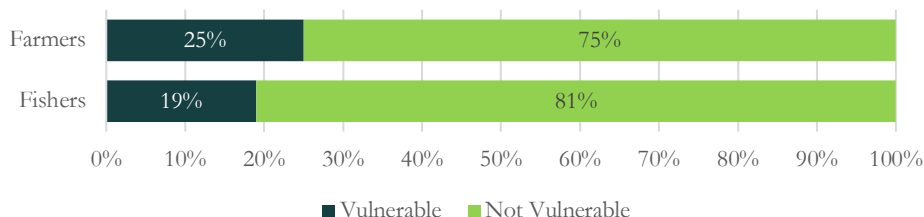
On the other hand, the fisher-participants were, on average, ten years younger than the farmers. Men dominated (71%), with the women fishers comprising 29%. They were using gillnet, hook & line, filter net, and traps to catch anchovies (*Stolephorus spp.*), red snapper (*Lutjanus campechanus*), and slipmouths (*Leiognathus fasciatus*), among other finfishes.

**Table 1. Basic characteristics of farmers and fishers, Guimaras, Philippines, 2020**

	Farmers ( <i>n</i> = 79)		Fishers ( <i>n</i> = 142)	
	No.	%	No.	%
<b>Age (mean)</b>	54		44	
<b>Years of farming/fishing (mean)</b>	29		20	
<b>Sex</b>				
Male	45	56.96	101	71.13
Female	33	41.77	40	28.17
Prefer not to say	1	1.27	1	0.7
<b>Farm Produce (multiple responses)</b>				
Rice	72	91.14		
Vegetables	39	49.37		
Poultry	34	43.04		
Livestock	31	39.24		
Fruits	28	35.44		
<b>Fishing Gears (multiple responses)</b>				
Nets (filter net, gillnet)			93	65.49
Hook and line			34	23.94
Traps, grappling devices, and others			15	10.56

### *Experience During Enhanced and General Community Quarantines*

Although geographically isolated from other provinces, farmers and fishers in the island province are not exempted from the threats of the pandemic. The farmers (81%) and fishers (75%) acknowledged that they are vulnerable to the COVID-19 virus (see Figure 3). The nature of their livelihood, which involves physical contact with other people during farm and fishing operations and in transporting and marketing their produce, makes them more exposed to the virus. The pandemic poses greater challenges to farmers and fishers in an island setting where these sectors are the major sources of income of the locals and are crucial in food security.



**Figure 3. Perception of farmers and fishers on getting infected with the COVID-19 virus in Guimaras, Philippines, 2020**

### *Problems Encountered in Farming and Fishing during E/GCQ*

Both the fishers and farmers identified several challenges they faced due to the pandemic (see Table 2). The farmers in Guimaras reported that they lacked buyers for their crops (81%). The majority also faced challenges in transporting crops to the market, access to inputs, unstable prices, lower revenue, and finding labor. The lack of buyers was a problem during the first two months of the pandemic, considering that many farmers, for example, cross to Iloilo City to market their produce. At the start of the pandemic, Iloilo City was under ECQ with strict mobility restrictions. In the second half of April, Guimaras was also placed under ECQ, and mobility restrictions continued to May. It was the mango season in Guimaras. Tons of mangoes got rotten until the Province of Guimaras helped in the online selling and transporting of mangoes to the city on a weekly basis. During normal times, the mangoes would have been sold in many parts of the country and even exported. The same is true with calamansi, whose main market (i.e., final consumers and institutional buyers such as restaurants and hotels) is outside the province.

On the other hand, the main problems of the fishers were the low price of fish (97%) and the difficulty of selling fish (94%). The latter was a result of their other recognized problem of the low demand (86%). For example, the closure of the restaurants and hotels in Iloilo City and Bacolod City meant lost regular customers for the fishers catching high-value fish species (e.g., grouper) or crustaceans (e.g., crabs, lobster). They were forced to sell their catch to nearby areas at a lower price. Fishers also faced difficulty in securing passes to fish (68%), transporting fish (71%), and selling in the market (69%). These problems conflicted with the government pronouncement contained in IATF Resolution No. 20 of “unhindered” activities of the fishers and farmers. The resolution grants travel restriction exemptions in favor of certain sectors as public health considerations, and food security may warrant. The fishers and farmers do not have their own vehicles to transport their produce even if they were given mobility passes (a written document identifying them as fishers or farmers issued by their barangay) to present at border control inspections.

**Table 2. Problems encountered by the fishers and farmers during E/GCQ, Guimaras, Philippines, 2020**

<b>Farmers (<i>n</i> = 79)*</b>	No.	%
Lack of buyers	64	81.01
Difficulty in transporting outputs	60	75.95
Difficulty in procuring inputs	59	74.68
Unstable price of outputs	58	73.42
Unstable price of inputs	54	68.35
Delays in operation due to travel restrictions	54	68.35
Reduced revenue	54	68.35
Difficulty in finding hired labor	47	59.49
Reduction in number of workers employed	31	39.42
<b>Fishers (<i>n</i> = 142)*</b>	No.	%
Low price of fish	138	97.18
Difficulty in selling fish	133	93.66
Low demand for fish	120	85.51
Securing pass to transport fish to the market	101	71.13
Securing pass to fish	96	67.61
Securing pass to sell fish in the market	98	69.01

Note: \*multiple responses

The experience of the farmers related to the supply chain disruption was similar to what the other studies have documented. These include the difficulties in transporting the produce to the market (ADB 2020) affecting product quality (Bene 2020), problems in accessing agricultural inputs and agricultural extension and advisory services (FAO 2020b), increased transportation costs (TTC 2020), and disruptions in daily farm operation (Zhi-xiong 2020). These disruptions in their livelihood made them vulnerable to income losses.

On the other hand while fishing activities in the province continued, quarantine protocols resulted in market access-related problems. The fishers faced reduced demand, price decline, difficulties in accessing the market, and logistical problems due to travel and border restrictions. These were similar effects documented among fishers elsewhere by previous studies (e.g., Bennett *et al.* 2020, FAO 2020a, Giannakis, *et al.* 2020, Kaewnuratchadasorn *et al.* 2020, Sunny *et al.* 2021, and Ferrer *et al.* 2021). Further, the closure of hotels and restaurants in Iloilo City resulted in a steep decline in the demand for high-valued fish species from Guimaras. Fishers had no choice but to sell their catch locally at a much lower price or just to consume it. Furthermore, the Power Barge (PB) 102 oil spill incident in Iloilo Strait on 03 July 2020 prevented fishing activities for almost two weeks. The oil spill was another threat to the fishers in Guimaras, although most were able to return to fishing after two weeks.

### ***Farming and Fishing Income During E/GCQ***

The farmers and the fishers were allowed to continue with their livelihood activities. However, only 68% of the fishers reported that they continued fishing. They were also asked whether their income status had become better, worse, or the same compared to their income before the pandemic. Compared to the pre-COVID-19 situation, 79% of the fishers reported that their current situation was worse (see Table 3). The challenges that they cited contributed to their lower fishing income. Those who described their situation as “better” were referring to the support they received in terms of food baskets (e.g., a sack of rice from the province and several kilos from the barangay; assorted canned goods from the province, municipality, and barangay; one-time distribution of fresh milkfish and dressed chicken from the province and municipality) from the local government. These interventions are crucial in maintaining the food security of fishing and farming households during pandemic times. Having access to food boosts farmers and fishers’ productivity, which translates to higher production, income, and food security in the community during the pandemic.



**Table 3. Distribution of the study participants in terms of their perceived income status during E/GCQ, Guimaras, Philippines, 2020**

	Farmers ( <i>n</i> = 79)		Fishers ( <i>n</i> = 142)	
	No.	%	No.	%
<b>Better</b>	1	1.00	26	18.31
<b>Same</b>	20	25.00	4	2.82
<b>Worse</b>	58	74.00	112	78.87

Similarly, 74% of the farmers also found their current income status worse than the pre-pandemic period. They attributed their losses to lower market prices, increasing production costs, and reducing production volume (see Table 4). These are the factors that are reinforcing each other.

**Table 4. Perceived reasons for income loss among farmers during E/GCQ in Guimaras, Philippines, 2020**

Reasons ( <i>n</i> = 79)*	No.	%
Lower market price	59	74.68
Increased transportation costs for both input and output	58	73.42
Reduced volume of harvest	56	70.89
Increased input price	55	69.62
Decreased product quality due to delays in operation	52	65.82

Note: \*multiple responses

The disruptions on the livelihood of both fishers and farmers have damaging effects on their income and consumption pattern (FAO 2020a). Both fishers and farmers in Guimaras reported income losses due to the quarantine protocol. As mentioned, there were still fishers and farmers who continued with their production activities, but their marketing was hampered by mobility restrictions brought about by quarantine policies. With income losses and no assets or savings, their other needs, such as food and health, were also affected. This is similar to earlier studies about fishers (Ferrer *et al.* 2021, Giannakis *et al.* 2020, Manlosa *et al.* 2020, Sunny *et al.* 2020) and farmers' experience (ADB 2020, ITC 2020) in other countries during this pandemic. According to the United Nations (2020), the rural poor employed in the agri-food systems are more likely to face difficulties in accessing food and basic health services during the pandemic. This is alarming since fishers and farmers are supposed to be essential players in the agri-food system and have an important role in ensuring food security. But the COVID-19 pandemic also left them vulnerable to food insecurity. Low income means low purchasing power and poor access to food and other essentials during the pandemic. Supply chain disruptions resulted in less available food choices and a possible shift to cheaper, easily accessible food but with lower nutritional quality. Lower nutritional quality corresponds to the utilization dimension of food security. Thus, stability of access and availability and utilization to food supply (crops and fish catch) for consumers and other actors in the food system will be disrupted (Bene 2020).

### *Effects of the Cancellation of Manggahan Festival 2020 to Farmers and Fishers*

The cancellation of major festivals in many countries deepened the impact of COVID-19 on the tourism sector, which consequently poses a “ripple effect” to related industries, including agriculture and fisheries (OECD 2020). The *Manggahan* Festival is annually celebrated by the locals with tourists from various places. During the event, an Agro-industry fair is conducted which serves as a reliable venue for the farmers and fishers to market and sell their produce. However, due to the threat brought about by the pandemic, the festival was canceled, resulting in a loss of market and buyers for their produce. Most of the farmers (52%) and 45% of the fishers reported that they were affected by the cancellation of the festival. Based on their 2019 income data, the average income loss for each farmer amounted to PHP18, 875 while it was PHP 10, 978.57 for fishers. Fishers and farmers lost their potential buyers as some locals and tourists who came and participated in the festivities also buy farmers and fishers’ produce. For example, beach resorts serve seafood sourced from local fishers, while some tourists also buy fresh catch from the fishers. Mountain and farm resorts also serve food from their agricultural produce to visitors. The cancellation of the Agro-industry fair also meant a lost opportunity to gain higher income since the event is an opportunity to be able to sell more at a higher price (thus earn more) at a shorter time. Table 5 lists the other effects of the cancellation of the festival to the farmers and fishers.

**Table 5. Effects of the cancellation of *Manggahan* Festival on fishers and farmers in Guimaras, Philippines, 2020**

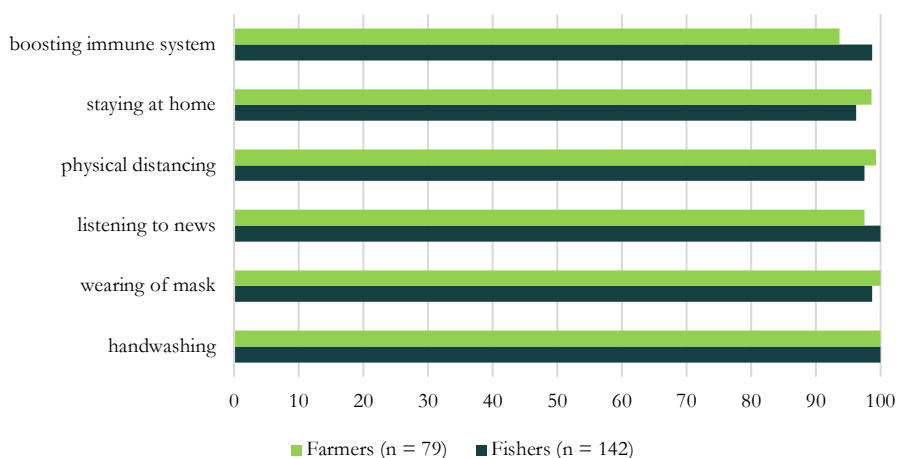
Effect*	Farmers ( <i>n</i> = 79)		Fishers ( <i>n</i> = 142)	
	No.	%	No.	%
Reduced revenue	39	49.37	45	31.69
Reduced demand for foods/products	39	49.37	63	44.37
Lost potential buyers	37	46.84	64	45.07
Lost opportunity to gain higher income	41	51.90	59	41.55
Others	28	35.44	22	15.49

Note: \*multiple responses

### *Coping Strategies and Assistance Received*

#### Precautionary Measures

In response to this health threat and in compliance with the Department of Interior and Local Government (DILG) Memorandum Circular No. 2020-071, which mandates wearing of face masks or other protective equipment in public areas, most, if not all, study participants (93% to 100%) reported that they practice the basic health protocols of hand washing, wearing of face mask, and physical distancing. They were also listening to the news and were staying at home. They were boosting their immune system by getting enough well and eating the right kind of food. These results are similar to the findings of the study conducted by the Institute of Global Health Innovation (2020), showing that Filipinos are compliant with public health advisories mandated by public authorities. Local government units (LGUs) are also authorized to charge fines or penalties to those who will violate health protocols. In Guimaras, violators of health protocols are charged PHP 500, PHP 1,000, and PHP 1,500 for the first, second, and third offenses, respectively. For the fourth offense violators will be fined PHP 5,000 or imprisonment of one (1) year or both fine and imprisonment at the discretion of the court (Sangguniang Panlalawigan Guimaras Ordinance No. 2020-04).



**Figure 4. Precautionary measures against COVID-19 of farmers and fishers in Guimaras, Philippines, 2020**

#### Sources of Information

Being updated with the latest news and information is crucial to be able to adapt to the current pandemic situation. The fishers and the farmers who participated in the survey relied on multiple sources of information on the pandemic. Most of them rely on the traditional sources of information such as the television (95% of farmers and 89% of the fishers), radio (94% of farmers and 85% of the fishers). Aside from these, their family (90% of farmers and 77% fishers), and fellow farmers/fishers (85% of farmers and 81% of fishers) are also their sources of information and news updates. The reliance on the traditional sources of information shows that internet connectivity is still slow in the province and, maybe, the age of the fishers and farmers was also a factor. Study participants are usually situated in areas with minimal to poor internet connectivity and mobile phone reception. Moreover, their fellow fishers and farmers, and family members also served as a reliable source of information on various social support available to fishers and farmers in the province.

**Table 6. Sources of information about COVID-19 among fishers and farmers in Guimaras, Philippines, 2020**

Source*	Farmers ( <i>n</i> = 79)		Fishers ( <i>n</i> =142)	
	No.	%	No.	%
Television	75	94.94	126	88.73
Radio	74	93.67	121	85.21
Fellow farmer/ fisher	67	84.81	115	80.99
Family/neighbor/friends	71	89.87	110	77.46
LGU	55	69.62	71	50.00

Note: \*multiple responses

#### Livelihood Coping Strategies and Assistance Received

In terms of their livelihood coping strategies, two-thirds of the fishers (68%) did not stop fishing since they only fish in nearby waters and operate fixed gears located within the proximity of their residence and continued to sell the catch. During the E/GCQ, sometime in April-May 2020, fishers were still able to access the Iloilo Fish Port complex until late July when the port was closed due to the surge of COVID-19 cases in the area. More than half of the farmers delayed the harvest and sale of their farm products and sold their output at a lower price (see Table 7). Moreover, the information showed that farmers had adjusted their

activities to respond to the pandemic. Farmers have made adaptive responses such as using social media to sell their products (39%) and shifting to delivery services (53%). There was also a partnership forged with the municipal (47%) and provincial (48%) governments that created a sure market for their catch and, at the same time, ensure food security. For instance, the milkfish and the pork distributed in every household were purchased by the LGUs from local milkfish and swine growers as part of COVID-19 assistance. Moreover, the cancellation of the *Manggaban* Festival led to a huge decline in the demand for mango, forcing farmers to look for other ways to market their product or have sold mangoes at a much lower price. The provincial government helped the marketing of mangoes using online platforms and smartphones and connected the farmers directly to the buyers. These initiatives successfully reduced the glut in the supply of mangoes, but the prices of mangoes were much lower than expected. These adaptive responses can be carried forward, learned from, and further enhanced to address future shocks.

**Table 7. Coping strategies of the farmers during E/GCQ in Guimaras, Philippines, 2020**

Strategy ( <i>n</i> = 79)*	No.	%
Delayed the harvest of farm products	53	67.09
Delayed the selling of farm products	52	65.82
Sold the output at a lower price	51	64.56
Shifted to delivery services	42	53.16
Coordinated with the provincial government for marketing	38	48.10
Coordinated with the municipal government for marketing	37	46.84
Use of social media to market produce	31	39.24

Note: \*multiple responses

Table 8 summarizes the assistance received during the E/GCQ by the fishers and farmers from the national, provincial, municipal government, and private sectors. Assistance received includes production inputs, marketing, cash, food, and other essentials.

**Table 8. Assistance received by the farmers and fishers during E/GCQ in Guimaras, Philippines, 2020**

Assistance*	Farmers ( <i>n</i> = 79)		Fishers ( <i>n</i> = 142)	
	No.	%	No.	%
<b>National</b>				
Production inputs	8	10.13	1	0.70
Marketing support	3	3.79	0	0
Cash	9	11.39	5	3.52
Food and other essentials	2	2.53	8	5.63
<b>Provincial</b>				
Production inputs	9	11.39	1	0.70
Marketing support	2	2.53	1	0.70
Cash	7	8.86	1	0.70
Food and other essentials	11	13.92	63	44.37
<b>Municipal</b>				
Production inputs	19	24.05	1	0.70
Marketing support	6	7.59	2	1.41
Cash	7	8.86	2	1.41
Food and other essentials	19	24.05	81	57.04
<b>Private</b>				
Production inputs	1	1.27	1	0.70
Marketing support	0	0	0	0
Cash	1	1.27	6	4.23
Food and other essentials	2	2.53	41	28.87

Note: \*multiple responses

Recognized as frontliners in food production during pandemic times, yet the fishers and farmers were not given priority in terms of support from the government, particularly the national government. Although they reported having received some form of assistance, most of these came late since the province only implemented ECQ in the middle of April 2020. For a month, they had to fend for themselves by continuing their livelihood despite the threat of being infected with COVID-19 or face difficulties in selling their crops or catch because of restrictions on transportation. Between the two groups, the farmers were better off having received production input support on top of the food packages. Most of the support received by the fishers was limited to food packages.

Most of the support they received was from the local governments in the form of food packages, which allowed them to temporarily get by with their situation. The support was not adequate in alleviating the adverse impacts of the pandemic on their livelihood. The situation has not only highlighted their vulnerability to shocks but also their marginalization. Targeted support for them came only months after the start of the community quarantine in mid-March 2020. It is to be noted that data were collected in July 2020, which was four months since the start of the pandemic and the community quarantine in mid-March. Farmers and fishers were not included in the first two batches of the Social Amelioration Program (SAP) of the government, which gave out cash and goods with a total worth of PHP 6,000 in May and July 2020. This was because they were supposed to have a separate and similar program under the Department of Agriculture. This program materialized only in the early part of 2021 when they started receiving a cash amount of about PHP 3,000 and other goods.

In-kind relief assistance is more expensive (in terms of time and administration) to distribute than cash assistance. Cash assistance provides people with purchasing power and allows them to participate in the market and stimulate production. A review of cash-based assistance by Doocy and Tappis (2017) also revealed that both cash and in-kind aids are effective ways of keeping people food secure in times of crisis. The form of assistance is another item to be carefully thought of when applied in the future.

#### *Perceived Threats and Risks in the Future*

The farmers had a multitude of concerns that can be grouped into three: related to livelihood, the spread of COVID-19 and the accompanying policy, and other threats to livelihood. In the next six months, the farmers were concerned with the increasing prices of inputs (96%), difficulty in selling their produce (95%), reduced demand (92%), and how they could recover (92%). They were concerned that the COVID-19 threat remains (94%), there will be a reimplementing of the ECQ (91%), how to operate in the new normal (92%), or return to the pre-pandemic period situation (90%). They were also concerned about other threats, including drought, flooding, and other calamities (92%).

**Table 9. Concerns of farmers about the future in Guimaras, Philippines, 2020**

Concern ( <i>n</i> = 79)*	No.	%
Increase in prices of inputs	76	96.20
Difficulty in selling produce	75	94.94
Reduced demand	73	92.41
How the livelihood will recover	73	92.41
Spread of COVID-19	74	93.67
Reimplementing of ECQ	72	91.14
How to operate under the new normal	73	92.41
How to return to the pre- ECQ operation level	71	89.87
Drought, flooding, and other calamities	73	92.41

Note: \*multiple responses

On the other hand, the fishers will continue to fish in the next six months (93%). This can be attributed to lesser restrictions on sea travels within the province as fishers were only fishing in nearby waters. However, the majority perceived that the fish catch would be less (51%), while 38% perceived that the fish catch would be just the same. Their perception of lesser or the same catch reflect those fishers (7%) who do not intend to continue fishing for the next six months.

**Table 10. Perception on fish catch for the next 6 months in Guimaras, Philippines, 2020**

<b>Perception (<i>n</i> = 142)</b>	No.	%
<b>Intent to continue fishing</b>		
Intend to continue	132	92.96
Do not intend to continue	10	7.04
<b>Perception on fish catch</b>		
More catch	16	11.27
Less catch	72	50.70
The same	54	38.03

A higher percentage of the farmers (81%) than fishers (56%) perceived that COVID-19 will continue to be a problem in the next six months (see Table 11). There were 39% of the fishers who indicated “maybe.” They perceived that COVID-19 remains a threat and will continue until herd immunity is achieved in the country. At present, the COVID-19 threat remains the same, if not worse, comparable to the time the pandemic was declared more than a year ago.

**Table 11. Perception on COVID-19 in Guimaras, Philippines, 2020**

<b>Perception</b>	<b>Farmers (<i>n</i> = 79)</b>		<b>Fishers (<i>n</i> = 142)</b>	
	No.	%	No.	%
COVID-19 will continue to be a problem	64	81.01	80	56.34
No	3	3.8	6	4.23
Maybe	12	15.19	56	39.44

Cash assistance was identified by farmers (96%) and the fishers (94%) as what they need in the next six months (see Table 12). This was followed by production inputs, regulation of price, and availability of credit or loans.

**Table 12. Assistance needed by fishers and farmers in Guimaras, Philippines, 2020**

<b>Farmers (<i>n</i> = 79)*</b>	No.	%
	Cash assistance	76
Farm inputs	75	96
Regulated price of farm inputs	73	92
Market-related assistance	71	90
Credit	56	70.89
<b>Fishers (<i>n</i> = 142)*</b>		
Cash assistance	133	93.66
Fishing gears	125	88.03
Boat	117	82.39
Engine	117	82.39
fuel	114	80.28
Low-interest loans	82	57.75

Note: \*multiple responses

## Summary and Conclusion

The role of the fishers and farmers came to the fore during the COVID-19 pandemic, and they are expected to play a significant role in pursuing a socioeconomic response framework to the COVID-19 pandemic recovery efforts. However, in an island setting like the province of Guimaras, they have an even more vital role to play as food producers and encountered more challenges. The paper describes the experiences and coping strategies of the fishers and farmers in the island province of Guimaras to the COVID-19 threat and the community quarantine policy. Farmers and fishers felt the impacts of the COVID-19 threat on themselves and their livelihood during the first four months of the pandemic covered by this study. COVID-19 and the accompanying policies posed a threat and exposed the vulnerability to shocks and marginalization of the farmers and fishers in Guimaras despite them being hailed as the food frontliners. The disruption in the economy affecting the livelihood of the farmers and fishers resulted from the restrictions to contain and curtail the spread of the virus. Farmers and fishers lost income and opportunities to earn and thus further plunging them into poverty. To cope, farmers and fishers have adjusted their activities to respond to the pandemic immediately. Most of the fishers did not stop fishing but sold their catch at lower prices, while farmers used social media platforms to sell their products and shifted to delivery services. The municipal and provincial governments also created channels to market fishers and farmers produce. Food assistance (e.g., fish and meat) for households during the E/GCQ were bought from local swine growers and fishers, while the provincial government helped mango farmers market their produce using online platforms.

Although fishers and farmers received some form of assistance such as basic food packages from the local government and other sources, these provided only temporary relief. Providing them with cash (which they have identified as their need for the future) will give them purchasing power and will allow them to contribute to economic recovery. Although there is credit assistance available for the fishers and farmers, they need cash more than credit at this time of the pandemic. Reluctance on credit can be attributed to their inadequate knowledge of accessing formal or bank financing coupled with complex loan processing and documentary requirements, lack of acceptable collateral, and repayment concerns.

## Recommendations

The study revealed that the pandemic greatly affected the lives of the farmers and fishers of the Island Province of Guimaras. Hence, the study recommends a long-term program that will allow them to adapt to the new situation, improve their socioeconomic situation, and build resilience not only to COVID-19 or similar threats but to all other stressors in their livelihood (Ferrer *et al.* 2021). The farmers and the fishers identified the support they need, including cash, production inputs, marketing, and credit. Along with responding to these stated needs is the need to introduce basic reforms. First, is to support livelihood diversification to allow opportunities to other sources of income and reduce their dependency on fishing or farming. Second, is the promotion of financial inclusion with the provision of savings and loan services in the cheapest and simplest way possible. In this manner, it can provide an avenue for them to be more financially literate and be more knowledgeable in using their money. Third, is improving the value chain through post-harvest handling and processing including the marketing facilities. Processing can add value to the product and lengthen the shelf-life of the product (Ferrer *et al.* 2021). This can prevent a glut of raw materials that can bring prices down. Fourth is improving the modes of marketing by continuing with or enhancing those that emerged during the pandemic. The LGUs became an essential partner of the fishers and farmers in selling their products as major buyers or as a bridge to the final buyers. This can be pursued in a permanent or modified arrangement to shorten the marketing chain, which is beneficial to both the food producers and the consumers. Also, online marketing and digital transaction involving agri-fishery produce was novel during the

pandemic and was successful. Thus, this scheme should be continued. Fifth, is the promotion of cooperatives among the fishers and farmers. The pandemic intensified the cooperative behavior among fishers and farmers. It was their way to go. Farmers and fishers bonded together through collective activities such as consolidating their products to one place and at the same time for selling. Lastly, supporting agri-fishery socioeconomic research can serve as a channel of information from the sector to decision and policy decision-makers.

## Acknowledgements

The authors would like to express their gratitude to all the farmers and fishers who participated in the survey, the Sangguniang Kabataan Federation of the Province of Guimaras, the Karito Volunteer group, and the individuals who helped in the data collection.

## References

- Asian Development Bank (ADB). 2020. "COVID-19 Impact on Farm Households in Punjab, Pakistan: Analysis of Data from a Cross-Sectional Survey." ADB Briefs No. 149, accessed February 20, 2021, <https://www.adb.org/sites/default/files/publication/624751/covid-19-farm-households-punjab-pakistan.pdf>.
- Béné, C. 2020. "Resilience of Local Food Systems and Links to Food Security – A Review of Some Important Concepts in the Context Of COVID-19 and Other Shocks". *Food Security* 12: 805-822, accessed April 06, 2020, <https://doi.org/10.1007/s12571-020-01076-1>.
- Bennett, N.J., E.M. Finkbeiner, N.C. Ban, D. Belhabib, S.D. Jupiter, J.N. Kittinger, S. Mangubhai, J. Scholtens, D. Gill and P. Christie. 2020. "The COVID-19 Pandemic, Small-scale Fisheries and Coastal Fishing Communities." *Coastal Management* 48(4): 336-347, accessed February 20, 2021, <https://doi.org/10.1080/08920753.2020.1766937>.
- Cuschieri S., E. Pallari, A. Hatziyianni, R. Sigurvinsdottir, I.D. Sigfusdottir and A.K. Sigurðardóttir. 2020. "Dealing with COVID-19 in Small European Island States: Cyprus, Iceland and Malta." *Early Hum Dev.* 12: 105261, accessed February 20, 2021, <https://doi.org/10.1016/j.earlhumdev.2020.105261>.
- Doocy S. and H. Tappis. 2017. "Cash-Based Approaches in Humanitarian Emergencies: a Systematic Review." *Campbell Systematic Reviews* 2017: 17, accessed March 30, 2021, <https://onlinelibrary.wiley.com/doi/pdf/10.4073/csr.2017.17>.
- Department of Interior and Local Government (DILG) 2020. Memorandum Circular 2020-071. "Mandatory Wearing of Face Masks and Other Protective Equipment in Public Areas." DILG, accessed June 19, 2021, [https://www.dilg.gov.ph/PDF\\_File/issuances/memo\\_circulars/dilg-memocircular-202049\\_cfaebca293.pdf](https://www.dilg.gov.ph/PDF_File/issuances/memo_circulars/dilg-memocircular-202049_cfaebca293.pdf).
- Devereux, S., C. Béné, and J. Hoddinott. "Conceptualizing COVID-19's Impacts on Household Food Security." 2020. *Food Security* 12: 769–772, accessed April 06, 2021, <https://doi.org/10.1007/s12571-020-01085-0>.
- Food and Agriculture Organization. 2006. "Food Security." Rome, accessed April 06, 2021, [http://www.fao.org/fileadmin/templates/faoitly/documents/pdf/pdf\\_Food\\_Security\\_Concept\\_Note.pdf](http://www.fao.org/fileadmin/templates/faoitly/documents/pdf/pdf_Food_Security_Concept_Note.pdf).
- \_\_\_\_\_. 2020a. "How is COVID-19 Affecting the Fisheries and Aquaculture Food Systems." Rome, accessed February 21, 2021, <https://doi.org/10.4060/ca8637en>.



- \_\_\_\_\_. 2020b. "Impact of COVID-19 on Agriculture, Food Systems and Rural Livelihoods in Eastern Africa: Policy and Programmatic Options." Accra, accessed February 21, 2021, <https://doi.org/10.4060/cb0552en>.
- Ferrer, A.J.G., R. Pomeroy, M.J. Akester, U. Muawanah, W. Chumchuen, W.C. Lee, P.G. Hai, and K. Viswanathan. 2021. "COVID-19 and Small-Scale Fisheries in Southeast Asia: Impacts and Responses." *Asian Fisheries Science* 34(1): 99-100, accessed 24 June 2021, <https://doi.org/10.33997/j.afs.2021.34.1.011>.
- Giannakis, E., L. Hadjioannou, C. Jimenez, M. Papageorgiou, A. Karonias and A. Petrou. 2020. "Economic Consequences of Coronavirus Disease (COVID-19) on Fisheries in the Eastern Mediterranean (Cyprus)." *Sustainability* 12(22): 9406, accessed March 8, 2021, <https://doi.org/10.3390/su12229406>.
- Grydehøj, A., I. Kelman and P. Su. 2020. "Island Geographies of Separation and Cohesion: The Coronavirus (COVID-19) Pandemic and the Geopolitics of Kalaallit Nunaat (Greenland)." *Tijdschrift Voor Economische En Sociale Geografie* 111(3): 288-301, accessed February 22, 2021, <https://doi.org/10.1111/tesg.12423>.
- IATF Resolution No. 26. 2020. "Recommendations Relative to the Management of the Coronavirus Disease 2019 (Covid-19) Situation." Department of Health, accessed March 13, 2021, <https://doh.gov.ph/sites/default/files/health-update/Revised-IATF-Resolution-No.-21.pdf>.
- Institute of Global Health Innovation. 2020. "Covid-19 Behaviours in the Philippines." Imperial College London, accessed February 19, 2021, [https://www.imperial.ac.uk/media/imperial-college/institute-of-global-health-innovation/ICL-YouGov-Covid-19-BehaviourTracker\\_Philippines\\_20201009\\_vF.pdf](https://www.imperial.ac.uk/media/imperial-college/institute-of-global-health-innovation/ICL-YouGov-Covid-19-BehaviourTracker_Philippines_20201009_vF.pdf).
- International Trade Centre (ITC). 2020. "Unsung Heroes: How Small Farmers Cope with COVID-19." Geneva." ITC, accessed February 21, 2021, [https://www.intracen.org/uploadedFiles/intracenorg/Content/Publications/Unsung\\_Heroes\\_Low-res.pdf](https://www.intracen.org/uploadedFiles/intracenorg/Content/Publications/Unsung_Heroes_Low-res.pdf).
- Kaewnuratchadasorn, P., M. Smithrithee, A. Sato, W. Wanchana, N. Tongdee, and V.T. Sult. 2020. "Capturing the Impacts of COVID-19 on the Fisheries Value Chain of Southeast Asia." *Fish for the People* 18(2): 2-8, accessed February 21, 2021, <http://hdl.handle.net/20.500.12066/6557>.
- Manlosa, A.O., A.K. Hornidge, and A. Schluter. 2021. "Aquaculture-capture Fisheries Nexus under COVID-19: Impacts, Diversity, And Social-Ecological Resilience." *Maritime Studies* 20: 75-85, accessed March 8, 2021, <https://doi.org/10.1007/s40152-021-00213-6>.
- Nkengasong, J.N. 2021. "COVID-19: Unprecedented but Expected." *Nature Medicine* 27: 364, accessed June 19, 2021, <https://doi.org/10.1038/s41591-021-01269-x>.
- Ocampo, K.R. 2020. "Fishing Communities Bear Brunt of Lockdown." *Inquirer*, accessed February 13, 2021, <https://business.inquirer.net/294753/fishing-communities-bear-brunt-of-lockdown>.
- Palo, A.S.M., M.A. Rosetes, and D.P. Carino. 2020. "COVID-19 and Food Systems in the Philippines." ACIAR, accessed February 21, 2021, <https://aciarc.gov.au/publication/covid19/7-covid-19-and-food-systems-philippines>.
- Partnerships in Environmental Management for the Seas of East Asia (PEMSEA) and Provincial Government of Guimaras. 2018. "The Second State of the Coasts of Guimaras Province." PEMSEA, accessed November 16, 2020.

[http://pemsea.org/sites/default/files/Second\\_SOC\\_of\\_Guimaras\\_Province\\_\(20181205\)\\_smaller\\_opt.pdf](http://pemsea.org/sites/default/files/Second_SOC_of_Guimaras_Province_(20181205)_smaller_opt.pdf).

- Province of Guimaras Sangguniang Panlalawigan. 2020. “SP Ordinance No. 2020-04.” Province of Guimaras, accessed June 20, 2021, <https://guimaras.gov.ph/wp-content/uploads/2020/08/ordinance-no.-2020-04.pdf>.
- Rashid, H., P.L. Ng, and H.W.J. Cheng. 2020. “The COVID-19 Pandemic Puts Small Island Developing Economies in Dire Straits.” United Nations Department of Economic and Social Affairs. Policy Brief No. 64, accessed February 21, 2020, [https://www.un.org/development/desa/dpad/wp-content/uploads/sites/45/publication/PB\\_64.pdf](https://www.un.org/development/desa/dpad/wp-content/uploads/sites/45/publication/PB_64.pdf).
- Siddique, A., A. Shahzad, J. Lawler, K.A. Mahmoud, D. S. Lee, N. Ali, M. Bilal, and K. Rasool. 2021. “Unprecedented Environmental and Energy Impacts and Challenges of COVID-19 Pandemic.” *Environmental Research*, 193, accessed June 19, 2021, <https://doi.org/10.1016/j.envres.2020.110443>.
- Swinnen, J. and J. McDermott, eds. 2020. “COVID-19: Assessing Impacts and Policy Responses for Food and Nutrition Security”. In: *COVID-19 and Global Food Security*. Washington: International Food Policy Research Institute, pp. 8-12, accessed February 22, 2021, <https://doi.org/10.2499/p15738coll2.133762>.
- Sunny, A.R., S.A. Sazzad, S.H. Prodhan, M. Ashrafuzzaman, G.C. Datta, A.K. Sarker, M. Rahman, and M.D. Mithun. 2021. “Assessing Impacts of COVID-19 on Aquatic Food System and Small-Scale Fisheries in Bangladesh.” *Marine Policy* 126:104422, accessed March 7, 2021, <https://doi.org/10.1016/j.marpol.2021.104422>.
- United Nations. 2020. “Policy Brief: The Impact of COVID-19 on Food Security and Nutrition.” United Nations, Food and Agriculture Organization. Rome, accessed February 21, 2021, [https://www.un.org/sites/un2.un.org/files/sg\\_policy\\_brief\\_on\\_covid\\_impact\\_on\\_food\\_security.pdf](https://www.un.org/sites/un2.un.org/files/sg_policy_brief_on_covid_impact_on_food_security.pdf).
- World Bank. 2020. “Transforming Philippine Agriculture: During COVID-19 and Beyond.” World Bank. Washington, DC, accessed February 21, 2021, <https://openknowledge.worldbank.org/handle/10986/34012>.
- World Health Organization 2021. “Now is the Time for Unity.” United Nations, accessed June 19, 2021, <https://www.un.org/en/un-coronavirus-communications-team/%E2%80%9Cnow-time-unity%E2%80%9D>.
- Zhi-xiong, D., L. Xiao-dong, L. Wen-jin, and G. Liang-liang. 2020. “The Short-and Long-term impacts of the COVID-19 Pandemic on Family Farms in China – Evidence from a Survey of 2,324 Farms.” *Journal of Integrative Agriculture* 19(12): 2877-2890, accessed February 25, 2021, [https://doi.org/10.1016/S2095-3119\(20\)63390-1](https://doi.org/10.1016/S2095-3119(20)63390-1).