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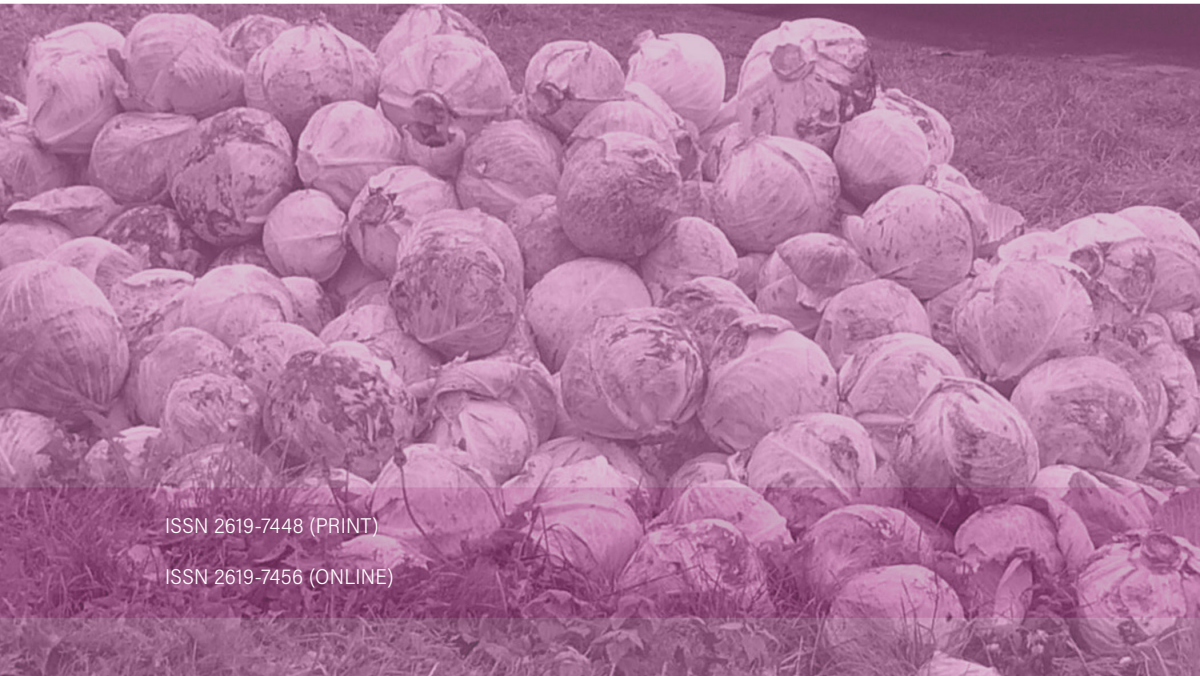
Lessons from the COVID-19 Pandemic

Darlene Dolly A. Cruz



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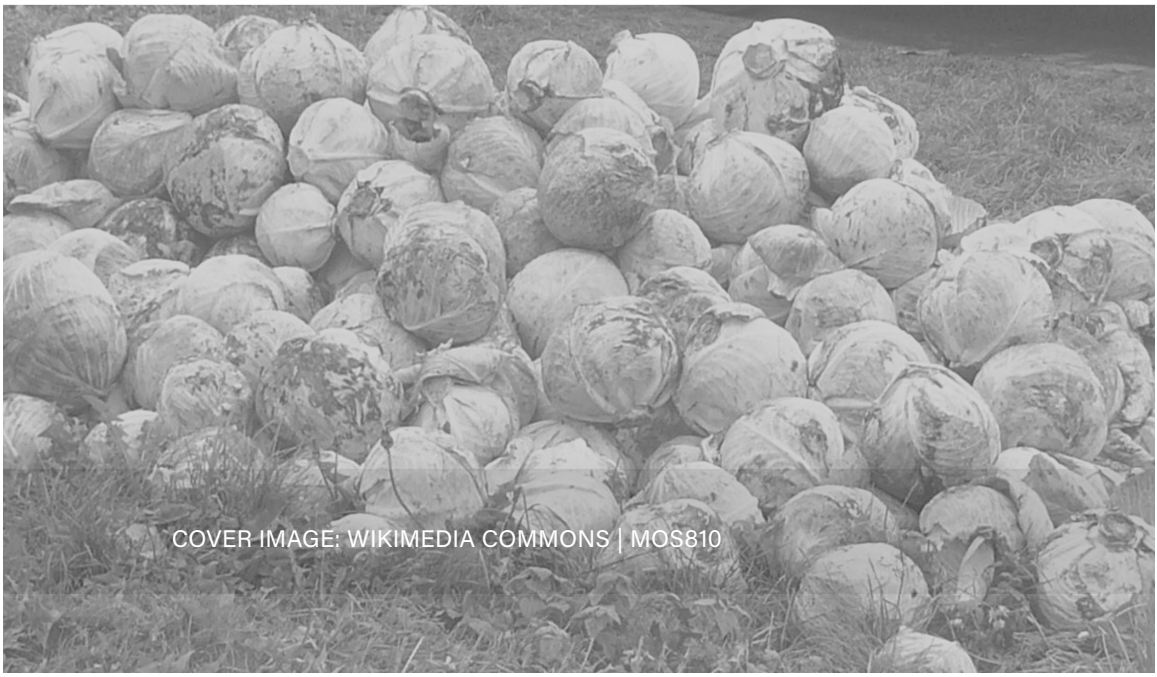

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Future-Proofing Philippine Agriculture and Food Systems: Lessons from the COVID-19 Pandemic

Darlene Dolly A. Cruz[1]

The agriculture sector plays a crucial role in Philippine economic development. From the late 1990s to early 2000s, it contributed up to 20% to the Gross Domestic Product (GDP) and employed about 40% of the labor force. The sector's contribution to the GDP has since been declining from 12.7% in 2010 to 9.3% in 2018 (World Bank 2020b); nevertheless, it has continued to be the source of livelihood for almost one-third of the country's workforce.

The COVID-19 pandemic, which first hit the country in January 2020, and the lockdown imposed to contain the virus, have caused massive disruptions in the country's economic activities and implementation of development programs. As a result, many businesses shut down, causing widespread job losses. The disruption of the food supply chain also contributed to food scarcity and widespread hunger, especially in the urban centers.

The upending of economic activities and food systems highlighted the weaknesses in the country's agriculture industry

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and underscored the significance of the sector as a critical segment in our economy and food systems. This crisis has emphasized the importance of healthy agriculture not just in addressing hunger but also in stimulating local economies as a necessary survival strategy, and as a fundamental element in driving economic and social development.

This paper studies Philippine agriculture in the context of the COVID-19 pandemic, focusing on the following: (1) the vulnerabilities of the sector to supply chain disruptions; (2) government crisis management programs in place and how these compare with those of other Asian developing economies; and (3) prospects for a reboot of the frail Philippine agriculture toward the development of resilient agricultural and food systems.

Profile of the Agricultural Sector in the Pre-Pandemic Years

Agriculture plays a significant role in Philippine development. Half of the Philippine population is categorized as rural/agricultural communities, and the agriculture sector "employs about 30% of the country's labor force" (Llanto 2016, 17). Agriculture contributes to national development by providing food, production inputs, and employment opportunities in the rural sector.

Despite the sector's contribution to the economy, agricultural households are among the poorest in the country. According to a 2018 poverty incidence report of the Philippine Statistics Authority (PSA), farmers and fisherfolks make up the largest group of poor Filipinos whose incomes are insufficient to meet their basic needs. Farming households earn incomes below the national poverty threshold[2] of

2 Poverty threshold is the "minimum income required to meet the basic food and non-food needs, such as clothing, fuel, light and water, housing, rental of occupied dwelling units, transportation and communication, health and education expenses, nondurable

approximately Php 10,481 per month and below the daily threshold of Php 436 per day (using a 24-working day factor). This translates to a poverty incidence of 31.6% among farmers and 26.2% among fisherfolks. Both are way higher than the national average of 12.1%.

Compounding the plight of the rural poor is their limited access to social services. According to the Philippine Institute for Development Studies (PIDS 2012, 27), agri-poor households, compared to non-agri-poor households, have less "access to basic amenities like electricity (77% against 50%), potable water (75% versus 56%), and sanitary toilet facility (77% versus 59%)."

Several factors affect the growth of the Philippine agriculture sector. The biggest concerns include farm size or landlessness among the majority of crop cultivators, insufficient government support services, weak links between producers and markets, and increasing vulnerability to periodic droughts, typhoons, and floods due to the continuing degradation of natural resources.

Inadequate Public and Private Investments

Philippine agriculture suffers from low productivity. Growth in total factor productivity[3] (TFP) in the past two decades had been dismally lower than that of other Southeast Asian countries. The agriculture TFP rating for the country from 2002 to 2013 was an average of 1.87, while those of other countries in the Association of Southeast Asian Nations (ASEAN) ranged from 2.22 to 2.85. Between 2016 and 2019, the sector's productivity increased by about

furnishing, household operations and personal care and effects" (PSA 2019).

3 TFP is an "indicator of how efficiently agricultural land, labor, capital, and materials (agricultural inputs) are used to produce a country's crops and livestock (agricultural output)—it is calculated as the ratio of total agricultural output to total production inputs" (IFRI 2017, 105). In simple terms, it is "increasing the efficiency of agricultural production [by] getting more output from the same amount of resources."

32%, a painfully slow growth when compared to those of Vietnam (73%), Indonesia (50%), and Thailand (67%)(World Bank 2020b, viii). In the main, low productivity is due to inadequate public spending on agriculture and low private sector investment:

(1) Agriculture infrastructure and technologies are inadequate and outdated. The sector lacks post-harvest management systems such as drying, processing, storage, transport, and logistics facilities, as well as services supporting food quality, nutrition, and safety maintenance. Palay drying is still done on cemented and asphalt roads. Prices of crops and marine continue to fluctuate based on the effects of inclement weather since producers cannot store their harvest. The majority of rural roads get constantly flooded during typhoons and heavy rains, disrupting the transport of goods to markets (World Bank 2020b).

(2) Water management systems are in disrepair. The majority of irrigation canals are either old and underutilized "due to inappropriate designs" or dilapidated due to poor maintenance (ADB 2012, 2). The neglect is oftentimes related to inadequate budget and delayed rehabilitation or repair reinforcement (World Bank 2020a).

(3) Access to financial services is also difficult and costly for small farmers. Banks and insurance companies ask for numerous documentary requirements, and transaction costs are high. Even with legislated programs such as the Agri-Agra Reform Credit Act of 2009 (Republic Act 10000) and the creation of the Agricultural Credit Policy Council (Executive Order 113, s. 1986), credit access and insurance support to farmers and fisherfolks remain limited. Based on a Bangko Sentral ng Pilipinas (BSP) survey, as of March 2020, Philippine banks logged only 11.02% compliance, compared to the required 15% for agricultural credit, while compliance to agrarian reform credit is only 0.97% versus the mandated 10% (Cuaresma 2021). This means that banks are not servicing the agriculture sector as the law

intended. Smallholders complain that they cannot submit loan collaterals, especially in light of the tenurial problems they face. BSP also pointed out that banks prefer to pay the penalties for low compliance rather than face the high "cost of doing business with small farmers" (Rivas 2018).

Weak Linkages between Producer, and Market and Sprouting Agro-Enterprises

Weak linkages between producers, particularly smallholders, and the agri-based enterprises affect agricultural growth in the country. On the one hand, transport challenges such as "lack of farm-to-market roads discourage[s] farmers from increasing production" (ADB 2012, 2). They are unsure whether their harvest will reach traditional (wholesale or retail) buyers, as well as emerging lucrative markets. On the other hand, to meet schedule and volume requirements, agribusiness tends to rely on imports, instead of getting their supplies from small (local) producers. In 2016, for instance, "food manufacturing and service establishments relied on imported raw meat materials, which made up as much as 85% of their total volume requirement" (Palo et al. 2020, 185 citing Peñaflor 2016).

Anti-Environment Policy and Land Conversion

Agricultural output is also impacted by anti-environment policies and land conversion projects. According to IBON Foundation (2020), land degradation due to soil erosion is "severe in 70.5% of the country's land area." Major causes of land and environmental degradation include:

(1) Widespread conversation of land for real estate development

(2) Large-scale production of commercial crops such as palm oil that causes deforestation, pollution of land and

waterways, and the release of greenhouse gasses into the atmosphere.

(3) Resumption of mining (Ranada 2021) that threatens watershed cover due to continuing extraction activities that damage topsoil, and

(4) "Inadequate environmental management programs, and lax implementation of environmental laws" (ADB 2012, 1) have also added to ecological disruption and contributed to continuing natural resource degradation (Guzman 2020).

Such environmentally harmful practices worsen climate change and its impact on the most vulnerable farming and fishing communities. If these actions remain unabated, the losses in agriculture due to climate risks will continue.

The COVID-19 Pandemic and Philippine Agriculture

The COVID-19 pandemic severely disrupted human social activities and resulted in substantial economic losses. All over the world, countries imposed strict movement restrictions to contain the spread of the virus, which affected the flow of market goods, such as agricultural commodities and food supplies.

In the Philippines, uncoordinated border controls and the absence of standardized transport guidelines extended the travel time of agricultural goods. Frequent changes in prerequisite papers, numerous yet different permit applications, and unpredictable changes in health protocol guidelines added to the frustrations of traders. Workers of agri-food manufacturing and processing industries were also faced with mobility restrictions since public transportation was disallowed during the first weeks of the lockdown.

In consequence, farming communities, which especially affect a number of producers of perishable vegetables and fruits, saw their incomes plunge. This is partly due to the diminished buying capacity

of consumers since many lost their jobs or became underemployed due to reduced working hours. Many farmers were forced to let their harvest rot in the field than incur additional debt by bringing their produce to trading posts only to sell them at very low prices.

The effects of the COVID-19 pandemic on agriculture and food systems include supply-chain[4] challenges. On the production stream, mobility restrictions on farmers and other agricultural labor translated into the overall reduction of output of the agri-food sector. The restrictions also limited access to farm inputs, resulting in lower production. From the demand side of the stream, border controls limited the free flow of goods to markets and consumers. Aside from income losses, the pressure resulted in shifts and changes in relationships between and among producers and supply traders.

Philippine Government Responses to the Pandemic in the Agricultural Sector

The Department of Agriculture (DA) hoped to reboot the Philippine agricultural and fishery sector during the pandemic through the Plant, Plant, Plant program called ALPAS (or (Ahon Lahat, Pagkaing Sapat) Kontra Sa COVID-19. With an approved Php 31-billion supplemental budget (DA-AFID 2020b), it is a short-term response program that emphasizes adequate food supply by providing financial assistance to vulnerable sectors and minimizing wastage brought about by the disruption in the industry's supply chain (DA-AFID 2020d).

Among the immediate efforts include:

(1) Expansion of the KADIWA ni Ani at Kita Program that buys agricultural commodities from producers at the best

4 The food supply chain is "a network that connects an agricultural system (the farm) with the consumer's table, including processes such as manufacturing, packaging, distribution, and storage" (Choudhary 2021, 602 citing Chen et al. 2020).

prices and sells these at low prices to poor households (DA-AFID 2020d). The program went online on May 4, 2020, through e-KADIWA.

(2) Price caps on major agricultural commodities to ensure stable prices amidst the pandemic.

(3) Campaigns with LGUs (local government units) to purchase farmers' produce as part of their food relief distribution program.

(4) Intensified drive toward urban agriculture through barangays with available space and aggressive online promotion and webinar training programs on urban agriculture.

(5) Distribution of cash subsidy and financial aid to farmers, fishers, and struggling smallholders such as FSRF (see below).

The KADIWA ni Ani at Kita is a "marketing system" where micro and small enterprises "(MSEs), farmers', and fishers' groups sell their produce directly to consumers at reasonable prices" (DA-AFID 2020d). Outlets are situated in DA offices in urban centers, particularly in the National Capital Region (NCR), and in commercial establishments, particularly gasoline stations and shopping malls.

The heaviest government investments went into a direct cash transfer program—the Financial Subsidy to Rice Farmers (FSRF). Under the program, 600,000 "small rice farmers who plant on one hectare or less, located in 24 provinces covered by the Rice Farmers Financial Assistance (RFFA) program" will each receive Php 5,000.00 in cash. This is covered by a Php 3-billion FSRF fund "earmarked in the 2020 General Appropriations Act" (GAA). Roll-out started in April 2020 (DA-AFID 2020a). Prior to this, "an earlier batch of 600,000 farmers, tilling up to two hectares of land, continue[d] to receive Php 5,000.00 each under the RFFA" (DA-AFID 2020c).

> Other notable responses [to] and initiatives [for] COVID-19 particularly aiding agricultural distributors are the Philippines' cargo land and food pass accreditation system, as well as the bulk-buying of farm produce from farmers in some localities. For the retailers, some regulations related to a price freeze for basic commodities were also implemented in the Philippines, including the imposition of purchase limits on selected staple foods. (Gregorio and Ancog 2020a, 7)

The cargo and food pass system, referred to as the Food Lane Conduct Pass, is a scheme that allows for a seamless, smooth, and continuous transport of essential agricultural cargoes (food, crops, farm inputs, and related commodities), as well as the free movement of agriculture frontliners—farmers, fishers, and workers in food processing facilities. Food lanes were identified to ensure the quick passage of truckers, logistics operators, and frontliners at border checkpoints to ensure that production and supply of staple and essential food items remained uninterrupted. The conduct pass is processed by the DA through its regional offices to facilitate expeditious accreditation.

Aside from these short-term amelioration responses, DA also continued its other flagship programs to boost farmers' incomes. These include the Rice Competitiveness Enhancement Fund (RCEF),[5] the Expanded Survival and Recovery Assistance Program for Rice Farmers, "SURE Aid[6] loan assistance program, and palay-buying through the National Food Authority" (DA-AFID 2020c).

Central to the rice competitiveness enhancement program is the creation of a Rice Fund through Republic Act 11203 or the Rice

5 RCEF is a law created to "improve rice farmers' competitiveness and income amidst liberalization of the Philippine rice trade policy that lifted quantitative restrictions on rice imports and replaced it with tariffs, among others" (DA n.d.).

6 SURE Aid is a loan assistance program, and continuous palay-buying window through the National Food Authority (NFA) to boost farmers' productivity and incomes" and provide an additional credit facility (DA-AFID 2020c).

Tariffication Law. It aims to improve rice farmers' competitiveness and income with an annual appropriation of Php 10 billion for six years, beginning in 2020. Half of the allocation will go to the Mechanization Program (farm machinery and equipment accessibility and use, and stronger local agricultural machinery manufacturing). Thirty percent will go to the Seed Program and the remaining 20% will be shared equally by the Credit Program (direct lending with minimal interest and minimum collateral) and by the Extension Services Program (capacity-building of rice producers, development of farm schools, and scholarship schemes for farming families).

The Expanded SURE Aid and Recovery Project or SURE COVID-19 financing program through the Agricultural Credit Policy Council (ACPC) is a credit program aimed at helping "MSEs, and small, marginal farmers and fishers adversely affected" by the community lockdowns (Sunstar 2020). "Under the SURE COVID-19 loan program, eligible farmers and fishers may borrow up to Php 25,000 with no collateral, zero interest, and payable in 10 years. Eligible MSEs may avail of up to P10 million, zero interest, and payable in five years" (Visayan Daily Star 2020; cf. DA-AFID 2020a).

Weaknesses of the Philippine Agriculture Pandemic Responses

Much is needed to improve the pandemic response for the agriculture sector. With food being a social and political litmus, the Philippine government expectedly became sensitive to demands from the sector. Yet, it has been observed that government programs were mainly aimed at boosting consumption, despite the need to also promote agricultural production in order to ensure food sufficiency. The DA's ALPAS program, for instance, prioritized cash assistance for consumption (IBON 2021a). A similar consumption-driven program that the DA implemented with the Department of Agrarian Reform (DAR) was the "Buhay sa Gulay" urban gardening program that sought to boost vegetable crop production in Metro Manila.

There are also questions on the programs' impact on alleviating the plight of small farmers. One, the ALPAS amelioration package only covered a small percentage of small farmers: it targeted only 1.2 million farmers nationwide when, as per Guzman (2020), rice farmers alone numbered 2.5 million. Two, the DA also allocated much of its funds to projects that did not more directly address the long-term development crisis in agriculture. Out of the Php 8.5 billion released for ALPAS, only Php 5.95 billion went to small grants and loans. The budget for programs promoting resiliency in rice and fisheries amounted only to Php 1.75 billion and one billion pesos, respectively (Table 1).

TABLE 1. Budget Allocation for ALPAS Programs

PROGRAMS	ALLOCATION (Billion Pesos)
Rice resiliency	1.75
Fisheries resiliency	1.2
Expanded SURE Aid	3.0
TOTAL	5.95

Source: Briones (2020); cf. FAO (2021).

In general, the Philippine government's pandemic interventions in the agriculture sector "overly focused on individual consumers to go on survival mode instead of improving the production and conditions of farming communities" (Kodao Productions 2021; cf. IBON 2021b). In so doing, the programs did little to build the agricultural sector's abilities to reboot itself to optimize potentials for sustainable and broad-based growth.

COVID-19 Responses and Lessons from ASEAN and South Asia

According to the Food and Agriculture Organization (FAO), the pandemic's significant effects on agriculture lie in the agro-food systems' supply and demand. Both directly impact food security (Siche 2020).

On the one hand, the food supply chain is "a network that connects an agricultural system (the farm) with the consumer's table, including processes such as manufacturing, packaging, distribution, and storage" (Choudhary 2021, 602 citing Chen et al. 2020). On the other hand, "demand implies the willingness and ability of consumers to pay money for a particular good or service, during any particular period" (Siche 2020, 5 citing Gottheil 2013). Food security "implies that everyone has unrestricted access to food, which allows them to satisfy their basic needs" (Siche 2020, 5 citing Rosales and Mercado 2020).

The impact of the pandemic on the supply and demand systems has raised several possibilities in rebooting agriculture and in preparing the sector so that it can be more be resilient in case of disruptions to production and consumption due to another pandemic or other emergencies. Among our neighbors in the ASEAN, notable responses have been implemented to address such disruptions.

Some of these responses from other countries are similar to the programs implemented by the Philippine government. These include the Thai and Malaysian governments' initiatives to assist the agricultural distributors like "bulk buying of farm produce from farmers." Price freeze measures for basic commodities, "including the imposition of purchase limits on selected staple foods," were also implemented across the ASEAN region (Gregorio and Ancog 2020a, 7).

There are, however, other initiatives that promote food security and are common in the ASEAN region that have not been implemented in the Philippines. Such measures include promoting strategic food buffering and online or e-commerce-based transactions and strategic programs. Gregorio and Ancog (2020a, 7) document these practices that have emerged in other Southeast Asian countries.

> Cambodia has embarked on virtual extension services using telecommunications-based services to assist farmers amid the social distancing regulation. On the other hand, Singapore has long been implementing a program targeting its agricultural processing sector to beef up national food reserves in preparation for disruptions like COVID-19, while also maintaining an open supply chain with its neighboring country Malaysia, among other countries in the region. Vietnam, on the other hand, has invested on digital agriculture to upgrade the connectivity between farms and markets, while also setting up rice dispensing machines in the rural and urban areas providing 1.5 kg of rice per household.

Beyond ASEAN, Nepal is like the Philippines in that it has become a net importer of many food commodities. Both countries' inability to produce enough for their population stems from the national government's insufficient support for small farmers. Small farms' productivity suffers from their limited "access to inputs like seed and fertilizer, irrigation, and technical know-how" (Adhikari et al. 2021, 2). Yet, local governments in Nepal recently embarked on what have been considered best practices to address the impact of COVID-19. Some of these practices include

> Free threshers for wheat harvesting (e.g., Saptari district in eastern Terai); a system of buying vegetables from farmers and distributing them free to the affected people (e.g., Khotang district in eastern hills); a program to pay four months' interest for loan taken by the affected people (e.g., Province 2 government); "agriculture ambulance service" for transport of farmers' products (e.g., Province 5 government), and cash grant to farmers if they use existing fallow lands for farming (e.g., Gulmi district in western hills). (Adhikari et al. 2021, 4)

In India, the government allowed farmers to sell their produce anywhere, temporarily suspending a policy that had restricted such practice. The government also removed "stocking limits and allowed agro-processing enterprises and large private buyers to buy directly from farmers [to] create[d] competition and backward linkages with

farms." For the logistics, an SMS-based preregistration system was used to "manage and regulate the arrival of agri-produce in [the state of] Madhya Pradesh. This "innovation" is now promoted to be "deployed and strengthened in all states" (Kumar et al. 2020, 837). In Haryana State, a type of farmer clustering model was adapted to provide a direct marketing solution. A group of "81 farmer producer companies (FPCs," similar to the Philippine's Farmer Cooperative Associations or FCAs), collected their members' vegetables and fruits and sold these to "end consumers." The government also launched a mobile application, Kisan Rath, which "connects farmers and traders across the country with transporters" (e.g., logistics services)(838).

Overall, there have been a number of interventions implemented by countries from which the Philippines may learn to ease and overcome the COVID-19's adverse effects on agriculture.

Recommendations for Preparing Philippine Agriculture: Post-Pandemic Transformation Towards Inclusive Growth and Development

Raise Government Support for the Agricultural Sector

Even before the pandemic, the Philippine agriculture sector has been neglected compared to other economic sectors. The budgets for both the departments of agriculture and agrarian reform has continuously been reduced. In 2019, the proposed 3.7% of the total, inclusive of that for agriculture and agrarian reform for that year, was much lower than the historical range of about 4 to 6% since the mid-1980s (IBON 2021a).

As of 2021, only 1.5% of the national budget was allocated for agriculture. "This pales in comparison with the agriculture budgets of rice-exporters [like] Vietnam, Thailand, and Indonesia, which are 6.3%, 3.6%, and 3.3% of their national budgets, respectively" (Bisenio 2020).

If the Philippines follows the examples of our ASEAN neighbors, adequate investments and budget allocation, and corresponding supportive policies and programs can address the decades-old low agricultural productivity. With sustainable, consistent support, the country's farmers and fisherfolk can confidently and progressively increase their yield and produce stable food supplies, invest back their incomes in production activities, secure their tenurial rights, and improve their own and their family's overall quality of life.

Ensure Uninterrupted Movement of Agricultural Commodities

The pandemic, as well as border closures and community lockdowns, restricted mobility and disrupted the free flow of goods across the agri-food systems value chain. Subsectors affected by the disruptions in the flow of goods were aggregators, transportation and warehousing, and manufacturers and processors. For urban communities, the threat of food security loomed as supplies of staples and other food products were not reaching markets. Moreover, job losses among the vulnerable sectors reduced their already meager purchasing power.

The pandemic upended the flow of agri-food goods, highlighting the relationship of the agricultural food system to the production and income of farmer-producers. The resulting value chain[7] disruption surfaced the important relationships of producers to distributors/traders, processors or aggregators, retailers, and finally, consumers.

From a policy perspective, the pandemic's disruption of the free flow of goods emphasizes the need to have a national policy that declares agriculture production and food manufacturing (and

7 "The term 'value chain' was first introduced in a 1985 piece by Porter, and has greatly evolved in relevance and definition since then. In the current era of outsourcing and multi-firm collaboration, it could be understood as the interdependent production process geared to create value for end consumers. It involves a whole universe of suppliers and service providers, from the producers of raw materials, to consolidators, processors, logistics providers, packagers, product developers, administration, management, marketing organizations, wholesalers, and retailers" (Pelkmans-Balaoing 2019, 4 citing Sturgeon 2001, 2).

related value chains) as essential services. As such, the policy should keep open the trade corridors related to these sectors. There is also an apparent need to set up a system for continued supply-chain monitoring and industry engagement to discuss these concerns.

Another area to look into are digital solutions that will connect farmers to markets, decentralizing/reforming supply chains. E-platforms would link value chain actors efficiently, minimizing flow risks during disruptions, and lowering the impact of shocks on prices and supply availability. E-platforms also allow buyers to directly procure from producers, creating stronger backward linkages with farmers (Kumar, Padhee, and Kumar 2020).

Aside from the DA, the Department of Trade and Industry (DTI) has launched programs to assist micro, small and medium enterprises (MSMEs) to embrace digital solutions (financial technology such as online payments) and provided digital platforms (like virtual trade fairs). Various government agencies also need to coordinate their assistance, including efforts for policy development and program planning.

Provide Physical and Digital Infrastructure Support to Small Producers and Micro and Small Agro-Enterprises

Sustainable and responsive support services have yet to materialize. These include extension services, especially on access to farm machinery, and the "construction, operation and maintenance of farm-to-market roads, small-scale irrigation systems, and other rural infrastructure" (ADB 2012, 3)(like post-harvest technologies and facilities). Even during the pandemic, government agencies failed to make significant headway in program development and implementation for these services. Seeing how regular agency budgets were reduced even during the pandemic, it can be assumed that there will be even less investments for these services in the post-pandemic period.

Aside from the usual input support covering irrigation, technological know-how, marketing services, and access to mechanized farming equipment, small producers need real-time information, such as fluctuating market and farmgate prices. A unified national "dashboard" (Kumar, Padhee, and Kumar 2020, 837) can be created to provide farmers and fishers with adequate and accurate information that will help them more effectively meet market demand. The dashboard can be similar to the stock market data sets or the COVID-case monitoring of the Department of Health (DOH) that can be easily accessible to smallholders and tech-challenged farmers and fisherfolks.

There is also a need for government to lead in developing logistics networks that would provide storage for agricultural produce and to engage aggregators in inclusive and equitable contractual arrangements. Logistics companies or organized aggregators can assist, train, and collaborate with small producers to manage and regulate movements and storage of agri-fishery produce. Systems can address supply–demand challenges, especially for highly perishable goods.

The government can also look into incentivizing technology developers and users to efficiently manage supply and forecast shortages. Government support in the connectivity and interface of adopted and among members of farmer producer companies or organizations, can help match the supply of and demand for highly perishable goods and thus reduce wastage.

Localization of Agro-Industrial Supply Chains Toward Local Resiliency

Producers, who are strongly linked to vendor-driven markets or dependent on aggregators, experienced heavy losses when the lockdowns were imposed. In Nepal and India, the creation of local supply-demand grids connected vendors, processors, and producers.

As a policy response, the national government can create incentives and provide infrastructure to local and regional government units that have supported local grids and expanded market platforms in their areas.

In keeping with local community and rural development, associated MSMEs that are connected to agriculture activities such as those that "use raw materials from agriculture and supply inputs" can also be provided incentives to set up factories and establishments in the locality. Promoting homegrown industries will not only generate jobs for rural workers but also lessen the vulnerabilities of rural agriculture and city migrant workers from economic shocks (Kumar, Padhee, and Kumar 2020, 838).

Another often neglected policy need is the stockpiling of buffers for national-level shortages. The pandemic "revealed a need for regional and community buffer stocks to mitigate the impact" of economic disruptions on "poor households" (Kumar et al. 2020, 839). In fact, if the provincial local government did not cooperate with urban centers, there would not be healthy food relief packages, which is made up of nutritious newly harvested vegetables and staple food crops. It is, therefore, imperative that provincial agriculturists work with regional and national DA offices in determining a pandemic-resilient stockpiling system, aside from the historical buffering mechanisms developed for staple items like rice vis-à-vis poor harvests, import-related risks, and price fluctuations.

Rural Poverty, Food Security, and Self-Sufficiency

There is a need to promote local food self-sufficiency through the development of "well-planned food production systems while sustaining efforts to significantly improve agricultural productivity and income..." (Gregorio and Ancog 2020a, 9). In this connection, there is a need to study "how physical and financial technologies and social organizations" (10) can come together in order to make local initiatives work and become efficient.

The Philippines is a net importer of staple food, making disruptions in the global food supply chain a grave concern. This was especially worrisome during the early days of the pandemic, when in March 2020, the Vietnamese government declared that they would be suspending rice exports (Tu, Minh, and Chau 2020).

In view of such disruptions in the global market, the Philippines needs to work toward increasing the production of basic food staples to meet the demands of the domestic market. An immediate step would be to help farmers overcome debt burdens incurred due to the pandemic. The Philippine government can enact guidelines to condone or relieve farmers' payments of production loans to both private and public lenders while simultaneously extending cash assistance for agriculture production. Additionally, there is a need for continuous food aid and similar amelioration packages, including medical and other social protection services to help uplift farming communities.

As a long-term transformative objective, new policies can help reduce rural poverty by raising farmers' incomes, productivity, and competitiveness. The government should appropriate a budget for production subsidies, credit and insurance, production infrastructure, and inputs.

ASEAN countries that have industrialized their agriculture sectors have provided subsidies, especially for rice, a staple crop in our region. Vietnam, Thailand, and Malaysia provide cash assistance per hectare, price supports for harvest sold, or price pledging[8]—the consolidation of small farms into estates[9] with full government

8 In Thailand, the "government procures rice from farmers at the government-guaranteed prices" (Laiprakobsup 2019, 3 citing Najim et al. 2007). However, this needs to be implemented properly with accurate pricing and competitive with world market rates.

9 Malaysia increased "its rice production and stock by 200 percent, and it was able to reduce rice imports" by "encouraging rice farmers to join government-supported rice estates and providing assistance through farmers' associations in the estates"

support. Rice farmers do not also have to pay taxes for farm inputs or production equipment, like farm machinery, thereby increasing their available resources to improve their farms.

Equally important, the government needs to undertake agrarian reform, consisting of both land redistribution and support services toward raising the productivity and incomes of small producers. One need only to look at Vietnam. Aside from providing support to and an adequate budget for small farming, the government carried out responsive land reform programs from the mid to late 1990s and land use policies in 1993. Vietname revised these policies three times between 1998 and 2003 (Laiprakobsup 2019).

Once smallholder producers stabilize their incomes and improve their productivity, they are in a better position to adopt value-adding technology. For example, smallholders of upland and rain-fed farms can be trained and incentivized to include high-value vegetables, fruits, and industrial tree crops like coffee and cacao while also adopting only sustainable and regenerative farming practices.

These value-adding production systems can further increase farm incomes and can eventually lead to rural-based industries through the establishment of high-velocity compaction processing and market economic activities.

Concluding Remarks

There is still no systematic impact assessment of COVID-19 on agriculture and food systems. Countries and researchers have churned out numerous briefs and projected studies, but comprehensive analyses still need to be conducted. Nonetheless,

(Laiprakobsup 2019, 3 citing Najim et al. 2007).

there is significant information that points to some important policy directions.

Given the magnitude and scale of the impact of the pandemic and the structural weakness of the agriculture sector, the national government and other stakeholders will need to step up to provide long-term solutions so that the country can attain food self-sufficiency. Toward this end, the government needs to support efforts to set up university-industry linkages that will provide more innovative and strategic policy options.

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