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This insight is part of the centre's COVID-19 series, looking at current developments in the global pandemic and its future implications for the social, political and economic spheres in the region.

India's Approach to Food Security Resilience Amid COVID-19: Relevance to ASEAN?

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The International Monetary Fund recently lauded India's feat of minimising the COVID-19 pandemic's impacts on extreme poverty, owing to its food subsidy policies; in contrast, more than 4.7 million people fell into extreme poverty among ASEAN member states (AMS). This NTS Insight highlights relevant aspects of India's food security approaches which allowed it to provide encompassing food subsidies amidst disruptions. It then assesses their relevance to AMS in facing future disruptions. India's feat built on its digital identity and digital ration card systems, to minimise leakages in subsidised food. These are supported by India's food procurement and distribution/stockpile management systems for achieving stockpile targets. Its government guarantees to purchase whatever crops farmers produce, at a pre-announced price. On surface, India's feat seems to contradict AMS' purely laissez-faire approach of leaving supply outcomes to the market. In reality, India's farmers are able to sell their crops in open markets, and government guarantees only supplement the market, to ensure sufficient food stocks and reduce reliance on higher-priced imported crops. As such, it is worth exploring whether more can be done in improving AMS' resilience amidst growing food supply chain instability, including strengthening systems for digital identity, distribution, stockpile management and procurement.

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Introduction

Southeast Asia has shown signs of a “U-turn” in its progress in addressing undernourishment since 2015.¹ Whereas undernourishment fell from 18.1% of the region's population in 2005 to 9.7% in 2015, it started to increase to 9.9% in 2016. This represented an increase of three million undernourished people, based on the United Nations Food and Agriculture Organisation's (UN FAO) 2018 report.²

ASEAN food security has been impacted by several stressors over the past decades. Climate change damaged hundreds of thousands of hectares of cropland annually, through droughts, floods, pests and diseases, especially in staples of rice and maize.³ Srinivatsan et al. argue ASEAN is likely to see further increases in warm day temperatures, in the number of days of drought, and in flood-prone areas as well.⁴ Montesclaros and Teng further argue that climate factors interact with pre-existing production-related challenges which threaten the region's food insecurity, including

water scarcity, trade instability, and migration of rural agricultural workers towards urban-based jobs.⁵ In early 2020, the COVID-19 pandemic further upended food supply chains globally and within Southeast Asia.⁶ Pandemic-induced movement restrictions translated to difficulties in going to work or finding employment opportunities.⁷ These created the need for economic support and social safety nets to avert poverty-induced undernourishment amid the pandemic.⁸ Today, rising food and energy prices and Russia's invasion of Ukraine contribute to further instability in global food supply chains.⁹

Amidst trends of successive disruptions on food supply chains, ASEAN member states (AMS) suffered an increase of 4.7 million people in extreme poverty amid COVID-19,¹⁰ which translates to worsened undernourishment too. In contrast, a report published by the International Monetary Fund (IMF) in April 2022 lauded India's success in keeping “extreme poverty”¹¹ to the pre-pandemic low of 0.8% amid the COVID-19 pandemic, owing to the country's food subsidy policies.¹² Extreme poverty links to food insecurity, as it is measured as the share of the population with insufficient income to afford their most basic needs (including food), and the IMF report included food subsidies in measuring the real income of individuals. As such, subsidised grains effectively prevented an increase in extreme poverty amid the pandemic. Even if India lies beyond Southeast Asia, its success at minimising food insecurity amid the pandemic nonetheless deserves further enquiry. In this regard, this NTS Insight assesses the relevance of India's food security approach to Southeast Asia, in reducing the burdens of disruptions on poorer populace amid an atmosphere of increasing risks of food supply chain disruption.

¹ Jose Ma. Luis Montesclaros, “Southeast Asia's Food Security: Inflection Point?” in Mely Caballero-Anthony and Lina Gong (Eds.), *Non-Traditional Security Issues in ASEAN: Agendas for Action*. Singapore: ISEAS – Yusof Ishak Institute, 2020, pp. 67-93.

² UN FAO, *the state of food security and nutrition in the world 2018: building climate resilience for food security and nutrition*, Rome: UN FAO, 2018, pp. 4-6.

³ ASEAN Food Safety Information System, *ASEAN Agricultural Commodity Outlook* No. 06, June 2021.

⁴ Srinivatsan V. Raghavan, Jiang Ze, Jina Hur, Liu Jiandong, and Nguyen Ngoc. “ASEAN Food Security under the 2 C-4 C Global Warming Climate Change Scenarios.” *Towards a Resilient ASEAN 1* (2019): 37-52.

⁵ Montesclaros, Jose Ma, and Paul S. Teng. “Agriculture and Food Security in Asia.” In *Climate Change, Disaster Risks, and Human Security*, Singapore: Springer, 2021, pp. 137-168.

⁶ Mely Caballero-Anthony, Paul S. Teng and Jose Ma. Luis P. Montesclaros, “COVID-19 and Food Security in Asia: How Prepared are We?” NTS Insight No. IN20-03, Singapore: S. Rajaratnam School of International Studies, 2020.

⁷ Deconinck, Koen, Ellie Avery, and Lee Ann Jackson. “Food supply chains and Covid-19: Impacts and policy lessons.” *EuroChoices* 19, no. 3 (2020): 34-39; Organisation for Economic Co-operation and Development. *Food supply chains and COVID-19: impacts and policy lessons*. OECD Publishing, 2020.

⁸ Jose Ma. Luis Montesclaros and Mely Caballero-Anthony, “The Burden of COVID-19: Urgent Need for Social Safety Nets”, *RSIS Commentary*, 19 March 2020.

⁹ Genevieve Donnellon-May and Paul Teng, “Invasion of Ukraine – Asia's Food Security in Trouble?”, *RSIS Commentary*, 5 April 2022.

¹⁰ Asian Development Bank, *Southeast Asia Rising from the Pandemic*, Mandaluyong City, Metro Manila: Asian Development Bank, March 2022.

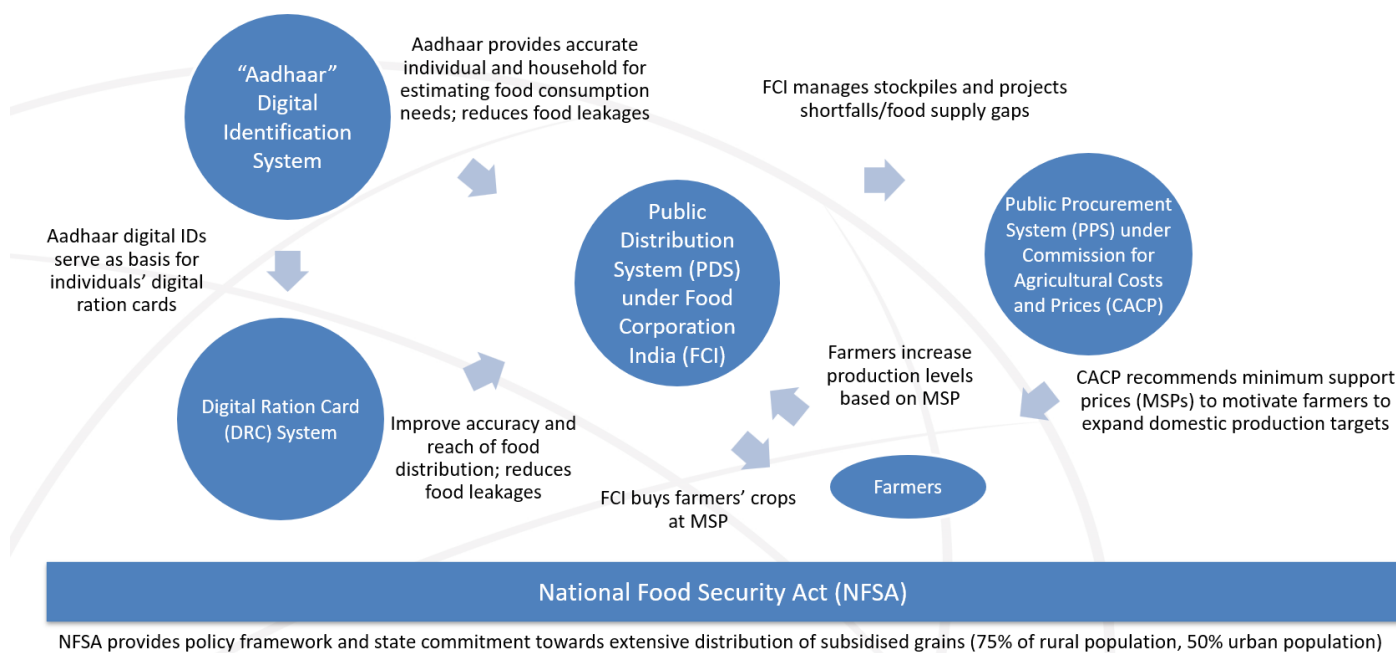
¹¹ Based on income threshold of 1.9 international dollars (\$) at purchasing power parity (PPP), and adjusted for inflation, with 2011 as reference year.

¹² Surjit S. Bhalla, Karan Bhasin, and Arvind Virmani, “Pandemic, Poverty, and Inequality: Evidence from India,” *IMF Working Papers* (2022).

India's Approach to Food Security: Digital Ration Card System and Its Enablers

Prominently, the key policy noted by the recent IMF report was India's Pradhan Mantri Garib Kalyan Anna Yojana (PMGKAY) policy, which provides emergency safety-nets by distributing subsidised food to eligible poor households.¹³ The PMGKAY builds on a number of other initiatives within India's public distribution system (PDS) as well as other poverty-reducing food transfers in the food sector, which were put in place even prior to the pandemic. **Figure 1** highlights key policies behind India's food security approach, which enabled the PMGKAY's extensive reach.

Figure 1: India's Food Security Approach



Source: Author

1. National Food Security Act

Foremost, India's National Food Security Act (NSFA), provides the policy framework and the state's commitment towards extensive distribution of subsidised grains. The government allocates grains for lower-income households, to cover 75% of the rural population and 50% of the urban population. Within the NFSA, each lower-income "Priority Household" is entitled ration cards for five kilograms of grains per month at subsidised rates, while the "Antyodaya Anna Yojana" (AAY) households who belong to the "poorest of the poor" are given ration cards for up to thirty-five kilograms of grains per month at subsidised prices. Subsidy rates likewise differ, with the AAY households paying as little as 3 Rupees (RS 3) per kilogram of rice, and RS 2 per kilogram of wheat.¹⁴

2. Digital Ration Card System

Digitalisation plays a key role in distributing India's food aid. In particular, the Indian government implements "digital ration cards" (DRC) system, which are digital cards which can be used by qualified citizens to purchase subsidised grain staples.¹⁵ Over 222 million DRCs have been released as of 1st March 2022, including approximately 200 million cards for "Priority Households" (PH) with lower income levels, and 20 million cards for the "poorest of the poor", also known as the "Antyodaya Anna Yojana" (AAY).¹⁶ With each household having more than one person, the total number of beneficiaries

¹³ Ibid.

¹⁴ Department of Food and Public Distribution, Government of India. National Food Security Portal: Public Distribution System (PDS). (Accessed 2 March 2022) https://nfsa.gov.in/portal/PDS_page.

¹⁵ Department of Food and Public Distribution, Government of India. National Food Security Portal. (Accessed 2 March 2022) <https://nfsa.gov.in/public/nfsadashboard/PublicRCDashboard.aspx>.

¹⁶ Ibid.

exceeds 700 million individuals, including more than 70 million AAY and 650 million PH. From January 2017 to February 2022, in fact, over 166 million metric tonnes of grains (including both rice and wheat) have been distributed using automated e-Point of Sale (e-POS) machines which allow for electronic weighing of grains in Fair Price shops.

The DRC is under the government's "One Nation One Ration Card" slogan, and another distinguishing factor about it is its inter-state portability. Given India's 28 state and eight union territories, the movement of people for employment purposes is part and parcel of upward social mobility. The DRC, in this regard, has allowed individuals to draw their subsidised grain allocations, even in states where they reside temporarily. For instance, India's New Delhi saw up to one million transactions made by individuals from other states/territories.¹⁷

3. Digital Identification System

A key enabler for the DRC system, is India's "Aadhaar" national digital identity system, which allows for ensuring that the target individual recipients are accurately identified. Each individual is given a unique 12-digit identification number that is tied to his or her biometrics. This system covered over 1.3 billion individuals as of March 2022.¹⁸ This is not only the most expansive digital ID programme in the world; it has also been touted as one of the "most sophisticated,"¹⁹ given its use of biometrics technologies to verify each individual's identity.

An encompassing system for digital identity which is linked to individuals' biometrics allows for reducing the risk of leakage of limited welfare resources to unintended beneficiaries, such as "over-reporting" of benefit collections. In fact, according to the Abdul Latif Jameel Poverty Action Lab (JPAL), India's previous Smart Card system in Adhra Pradesh led to a 40% reduction in leakage in selected welfare programs.²⁰ This was the smaller-scale predecessor of the nationwide Aadhaar system.²¹ There were also significant reductions in fake households registered with fake payrolls, and in kickbacks received by local government officials, based on self-reported personal assets.²² This is not to say that Aadhaar is a perfect system, since additional layers of fraud are possible, in generating fake IDs. The government has since provided a mechanism of verifying the authenticity of Aadhaar cards, through a website available in the public domain.²³

4. Public Procurement System

Providing subsidies to over 700 million individuals within 220 million households is a fiscal feat for India, given its low GDP per capita of USD 1,997 (in constant 2015 dollars).²⁴ While India's success may appear to be a technological feat, another key element behind it is its Public Procurement System (PPS) where government ultimately takes accountability in ensuring sufficient quantities of grains are produced and kept in stock.²⁵ This is carried out through India's own version of contract farming, whereby government provides farmers with guarantees to purchase any number or quantity of crops produced by farmers, at a price which the government sets (provided food standards are met). This practice is unlike the

¹⁷ Alok Mishra, "Delhi sees over 1 mn transactions using ration cards issued from other states," *Hindustan Times*, 11 April 2022.

¹⁸ Aadhaar Dashboard. (accessed 2 March 2022) https://uidai.gov.in/aadhaar_dashboard/index.php.

¹⁹ "World Bank gives Aadhaar thumbs up; wants other nations to adopt it too", *Business Standard*, 17 March 2017, https://www.business-standard.com/article/economy-policy/world-bank-gives-aadhaar-thumbs-up-wants-other-nations-to-adopt-it-too-117031700241_1.html.

²⁰ Piali Mukhopadhyay, Karthik Muralidharan, Paul Niehaus, and Sandip Sukhtankar. "Implementing a biometric payment system: The Andhra Pradesh experience." *UC San Diego Policy Report. La Jolla: UCSD* (2013).

²¹ Vishnu Padmanabhan, "Smartcards for Smarter Payments", *JPAL Policy Briefcase*, September 2017.

²² Abhijit Banerjee, Esther Duflo, Clement Imbert, Santhosh Mathew, and Rohini Pande. "E-governance, accountability, and leakage in public programs: Experimental evidence from a financial management reform in India." *American Economic Journal: Applied Economics* 12, no. 4 (2020): 39-72.

²³ "How to online verify Aadhaar card against fraudsters", *India Today*, 7 April 2022. <https://www.indiatoday.in/information/story/how-to-online-verify-aadhaar-card-against-fraudsters-1934413-2022-04-07>

²⁴ World Bank, "World Development Indicators", *World Bank Website*, <https://data.worldbank.org/indicator/NY.GDP.PCAP.KD?locations=IN>.

²⁵ Department of Food and Public Distribution, Government of India. National Food Security Portal: Public Distribution System (PDS). (Accessed 2 March 2022) https://nfsa.gov.in/portal/PDS_page.

general practice across countries whereby food production levels are left to the open market, and farmers bear the losses should they fail to sell their crops.

India applies its PPS through its “minimum support price” (MSP) system. Prior to the next farming season, India’s Commission for Agricultural Costs & Prices (CACP) under its Ministry of Agriculture & Farmers’ Welfare, recommends an MSP at which the government guarantees to purchase all crops produced by farmers.²⁶ India’s central government in turn takes the final decision after considering information on demand and supply, as well as other views from states/territories. The MSP was developed partly “To provide incentive to the producer for adopting technology and for maximising production” levels.²⁷ The CACP leverages economic fundamentals of the dynamics of prices, supply, and demand, in determining the MSP to recommend. For instance, farmers respond to higher MSP levels by increasing their target production levels, i.e., using more inputs like fertilisers and better seeds (including applying for agricultural credit), to boost productivity. In this manner, the government exercises significant control over the production outcomes in the country, and shoulders the burden of bearing market risks in crop production.

5. Public Distribution System

A further aspect that support India’s PPS, is its stockpile management approach within its Public Distribution System (PDS). The state agency, Food Corporation India (FCI), is responsible for purchasing the grains produced by farmers, for maintaining the country’s food stocks, and for distributing food grains throughout the country’s PDS.²⁸ In a country where all of its grains are domestically produced, over 30% of total grain production is collected by the FCI through the procurement system, and is then distributed to consumers through the country’s PDS.

Thus, the FCI’s role, given its knowledge of domestic demand and food stock levels, is to signal when there are expected shortfalls in domestic food stocks. The CACP uses this information to adjust MSP levels whenever necessary, and farmers help bridge domestic supply gaps by raising farmer production accordingly. India’s national ID system further allows for ascertaining the number of target recipients of subsidised food, and the DRC system aids in the distribution process.

Comparing Approaches to Food Security: AMS and India

Today, India as well as AMS are exploring the benefits of digitalisation in improving food security outcomes. This section assesses the relevance of India’s food security approach to AMS.

1. Laissez-Faire and Market Support Approaches in Achieving Food Security

Within the framework of the ASEAN Economic Community (AEC), AMS implement laissez-faire approach to the food sector, whereby market dynamics of demand, supply, and prices, determine the amount of food that is produced. Free trade allows for expanding the food that consumers can purchase at affordable prices, and the markets that farmers can cater to. This in turn incentivises farmers to increase their production levels. It also increases farmer’s incomes, thus improving their own economic and food security too.

AMS support their agricultural sectors by encouraging the adoption of digital technologies for improving agricultural productivity among farmers, leveraging mechanisms like the ASEAN Sectoral Working Groups for crops,

²⁶ It is referred to as the MSP since farmers are still allowed to sell their crops to other purchasers at higher prices, and are not limited to selling their crops to FCI.

²⁷ R.S. Deshpande, “Impact of Minimum support prices on the agricultural economy,” *Proceedings of the Indian Academy of Sciences (Economic and Political Science)*, vol. 113, no. 1, pp. 1–10, 2003.

²⁸ FCI, “About Us”, FCI Website, <https://fci.gov.in/aboutUs.php&strip=1&vwsrsrc=0> (accessed 30 March 2022).

livestock, and fisheries, as well as the ASEAN Technical Working Group for Agricultural Research and Development. In 2021, the 43rd Meeting of ASEAN Ministers on Agriculture and Forestry endorsed the “ASEAN Guidelines on Promoting the Utilization of Digital Technologies in the Food and Agriculture Sector.”²⁹ These included recommendations on promoting digitalisation in food production, which involves “smart farming” or applying Internet of Things technologies (commonly referred to as “IoT”) to automatically adjust farming practices. These boost crop productivity amidst changing crop growing environments.³⁰ Recommendations involve digitalisation within supply chains, whereby digital e-commerce allows farmers to increase their farming income by selling directly to remote consumers,³¹ and traceability technologies provide assurance of quality and food safety in the food production process.³² In turn, the adoption of these technologies promotes greater market efficiency and farmer competitiveness.

On one hand, India and AMS are similar in that India's food security approach also involves a *laissez-faire* approach similar to AMS, whereby all farmers in India are also allowed to sell their grains in the open market. India is also venturing into digitalisation following *laissez-faire* approaches, including collaboration with the private sector in digital farmer advisory, e-commerce, and traceability.³³

What sets India apart from AMS, however, is India's provision of additional support to farmers, in the form of guarantees to purchase all crops sold by farmers at the pre-announced MSP. This presents two advantages. Firstly, it provides India's farmers with stable market demand, thus shielding them from market uncertainties. This is important, since market uncertainty contributes to farmers' under-utilisation of productivity-enhancing technologies. Farmers are concerned about whether they can sell all their crops; otherwise, the prospect of being unable to do so makes it less financially-rewarding for farmers to adopt productivity-enhancing technologies like seeds and fertilizers in the first place.³⁴ Thus, India's market assurances serve as an additional incentive towards technology adoption; in fact, the MSP was originally developed to promote the adoption of technologies, as shared in the previous section.³⁵

The second benefit of India's approach is that allows government to take accountability in ensuring a sufficient amount of food production and food stocks through its PPS and PDS, rather than leaving food production outcomes purely to the market. It does this as a matter of necessity, owing to India's low income / developing country status. In particular, it would not be viable for India to provide extensive crop subsidise if it relied heavily on higher-priced imported crops. This approach is especially relevant to lower-income ASEAN countries, including Laos, Cambodia, and Myanmar.

As such, India's approach to food security includes some form of food-security-focused intervention, which complements rather than replaces the market, through guarantees to purchase whatever crops farmers produce at pre-identified prices. In contrast, within AMS' *laissez-faire* approach, the food availability and economic accessibility are left completely to the market, and are by-products of farmers own decisions to improving their productivity levels. AMS do not supplement the market with any additional guarantees, unlike India, which does so through its procurement and distribution systems.³⁶

²⁹ ERIA, “President of ERIA Participates in the 21st ASEAN Plus Three Agriculture and Forestry Ministers Meeting”, ERIA Website, <https://www.eria.org/news-and-views/president-of-eria-participates-in-the-21st-asean-plus-three-agriculture-and-forestry-ministers-meeting/> (accessed 29 March 2022).

³⁰ Jose Ma Luis Montesclaros, Suresh Chandra Babu, and Paul S. Teng. “IoT-enabled farms and climate-adaptive agriculture technologies: Investment lessons from Singapore,” *IFPRI Discussion Paper* 1805, International Food Policy Research Institute, 2019.

³¹ GSM Association, *E-commerce in agriculture: new business models for smallholders' inclusion into the formal economy*, GSM Association, 2019.

³² Mirabelli, Giovanni, and Vittorio Solina. “Blockchain and agricultural supply chains traceability: Research trends and future challenges.” *Procedia Manufacturing* 42 (2020): 414-421.

³³ India Brand Equity Foundation (IBEF), “Digital Agriculture - The Future of Indian Agriculture,” *IBEF Website*, <https://www.ibef.org/blogs/digital-agriculture-the-future-of-indian-agriculture> (accessed 25 April 2022).

³⁴ For instance, farmers would be worse off than if they had not applied invested money in adopting these technologies.

³⁵ R.S. Deshpande, Impact of Minimum support prices on the agricultural economy, Op. Cit..

³⁶ As earlier noted, this is achieved through the CACP setting an MSP level that allows farmers to recover investments in technology, and which the FCI which procures crops from farmers, following the larger mandate of India's NFSA.

2. Stockpile Management Systems

India's MSP system is complemented by its strong stock-management system, which provides information on the demand, supply, and stocks of grains. On one hand, AMS like Thailand and Vietnam do have strong stockpile management systems, although these are primarily for export purposes.³⁷ Nonetheless, the surplus grains that they hold for export purposes can serve as a "buffer", as these that can be rerouted towards domestic consumption during times of disruption. For instance, amid the COVID-19 pandemic, Thailand encouraged household rice hoarding amid the pandemic, while Vietnam imposed rice export restrictions to retain more rice for domestic consumption.³⁸

Unlike Thailand and Vietnam, however, most AMS are net importers of rice and grains, like Indonesia, Malaysia, and the Philippines, and therefore do not have buffers in the form of surplus grains/rice for export purposes. While a previous RSIS policy report has noted that these three countries maintain rice stockpiles for food security purposes, it also found that they lack clarity on the use of stockpiles.³⁹ Signs of the weakness of stockpile management in these countries can be gleaned from news articles over the past decade. Indonesia's Badan Urusan Logistik (Bulog), which is the parallel of India's FCI in conducting distribution, drew flak from Indonesia's president in 2020 for the conundrum of rising rice prices in domestic markets, amidst falling farmgate rice prices⁴⁰ (or the price at which farmers sell their crops). Similarly, in 2014, Malaysia saw a failure in its Padiberas Nasional Bhd (Bernas) to provide subsidised rice to poorer households despite an oversupply in rice. A whistle-blower shared that rice quota were asked to pay bribes to corrupt government officers to obtain subsidised rice.⁴¹ Moreover, one study computed that in the Philippines, close to half (48%) of the procured rice in 2006, which was allocated for redistribution at subsidised prices, was actually sold to the commercial sector at market prices.⁴² This was under the purview of the Philippines' National Food Authority (NFA), tasked with distributing rice. By 2019, the NFA was stripped of its rice import powers, leading to a shift in government's approach towards helping boost the productivity of domestic farmers instead as a means to reduce the cost of rice.⁴³

As such, poorer individuals in countries with weak stockpile management systems are more likely to face the burdens of disruptions, in the form of higher prices of food when international markets are less stable. This is because having stronger stockpile management systems will allow them to minimise their risk exposure during disruptions. In contrast to AMS, India is able to avoid leakages in the food system, building on its use of digital technologies in improving transparency in food distribution, including its digital identity system and DRC system. In fact, a previous study by JPAL has shown that prior to the implementation of its national digital identity systems, there were shortcomings in transparency which presented a temptation to officials to receive kickbacks.⁴⁴ Governance agencies are more prone to leakage of limited welfare resources in the absence of such systems.⁴⁵ In fact, many AMS lack functioning national identity systems to support food distribution. Data from the World Bank's "Identification for Development" database shows that a significant share of ASEAN populations are still excluded from national registries (**Figure 2**). Relative to the total populations of

³⁷ Mely Caballero-Anthony, Paul P. S. Teng, Maxim Shrestha, Tamara Nair and Jonatan A. Lassa. "Public Stockpiling and Food Security". *RSIS Policy Brief* 150603, May 2015, p.6.

³⁸ Apornrath Phoonphongphiphat and Cliff Venzon, "Coronavirus exposes ASEAN divisions on rice security," *Nikkei Asia*, 15 April 2020.

³⁹ Mely Caballero-Anthony et al., "Public Stockpiling and Food Security," Op. Cit., 6.

⁴⁰ Colum Graham, "Indonesia's rice racket", *New Mandala*, 23 December 2020.

⁴¹ Gooi Hsiao Leung, "Subsidy abuse leading to rice oversupply", *MalaysiaKini*, 15 January 2015.

⁴² Aashish Mehta and Shikha Jha. "Corruption, food subsidies, and opacity: Evidence from the Philippines." *Economics Letters* 117, no. 3 (2012): 708-711.

Shikha Jha and Aashish Mehta. "Effectiveness of public spending: The case of rice subsidies in the Philippines." (2008).

⁴³ Governance Commission for Government Owned and Controlled Corporations, Office of the President, Philippines. *Memorandum Order No. 2019-13 (Restructuring of the National Food Authority)*. 2020. <https://nfa.gov.ph/images/files/cgs/2020-26-A-Approved-NFA-Restructuring-Plan.pdf>.

⁴⁴ Abhijit Banerjee et al., "E-governance, accountability, and leakage in public programs: Experimental evidence from a financial management reform in India," Op. Cit.

⁴⁵ Piali Mukhopadhyay et al., Implementing a biometric payment system: The Andhra Pradesh experience, Op. Cit.

countries above the respective cut-off ages for inclusion into the national registry, as many as 34% of the individuals in Myanmar are still unregistered, followed by 19% in the Philippines, 13% in Laos, and 6% in Cambodia.

It is therefore imperative for AMS to strengthen their stockpile management systems, and to explore whether these can be further improved through digital-based identification and food distribution systems, following India's digital ID and DRC practices. The need for more transparent and accurate accounting for food requirements of consumers is in fact even greater in lower-income Mekong Countries, where a high share of individuals are not even registered at birth, including Cambodia (27%), Laos (25%), and Myanmar (19%).

Figure 2: Unregistered Populations among ASEAN countries, 2018⁴⁶

Economy	Total Country Population	% Unregistered Population as % of Total Population (For people above cut-off age)	Source for Registered Population Above Cut-off Age	% Unregistered Population as % of Total Population (For people below cut-off age)	Source for Registered Population Below Cut-off Age
Cambodia	16,245,729	6%	Voter Data	27%	Birth Registry
Indonesia	266,794,980	0%	Voter Data	28%	Birth Registry
Lao PDR	6,961,210	13%	Voter Data	25%	Birth Registry
Malaysia	32,042,458	-	Direct Administrative Data	5%	Birth Registry
Myanmar	53,855,735	34%	Survey Data	19%	Birth Registry
Philippines	106,512,074	19%	Voter Data	10%	Birth Registry
Thailand	69,183,173	-	Direct Administrative Data	1%	Birth Registry
Vietnam	96,491,146	4%	Voter Data	4%	Birth Registry

Source: World Bank (2018). 2018 Identification for Development (ID4D) Global Dataset.

3. Budgetary Considerations

A further consideration relates to the budgetary allocation required to replicate India's model. One plausible misconception is that India maintains an exceptionally large budget allocation to fund its PDS and PPS. For instance, Roehlano Briones narrates a previous attempt in the Philippines to implement a similar procurement systems as India's, through its previous National Rice and Corn Commission (NARIC) in 1935 (NARIC can be seen as a parallel to India's CACP today).⁴⁷ The NARIC implemented a price ceiling for rice, which can be seen as parallel to India's MSP. However, owing to budget constraints, it was only able to procure 1% of the total rice produced by farmers in its first years of operation historically, in 1941.

On one hand, it is true that India provides a large budget to support its agriculture in absolute terms. OECD statistics showed that in 2018, India maintained a budget of USD 68 billion for supporting agriculture, second only to China. Within Southeast Asia, the two most populous countries, the Philippines and Indonesia, maintained budgets of only USD 1.9 billion and USD 5.3 billion, respectively.⁴⁸

⁴⁶ Data was not available for unregistered individuals (above the cut-off age) in Brunei, Indonesia, and Malaysia. Singapore's figures for "unregistered" populations were excluded owing to the large share of migrant population which are expectedly excluded from voting registries.

⁴⁷ Roehlano M. Briones, "Options for reform of the National Food Authority." *Philippine Institute of Development Studies Policy Notes* No. 2018-09, 2018, p.1.

⁴⁸ OECD, "OECD Agricultural Statistics - Agricultural support estimates". OECD, 2021. https://www.oecd-ilibrary.org/agriculture-and-food/data/oecd-agriculture-statistics/agricultural-support-estimates-edition-2020_466c3b98-en (accessed 11 June 2021).

However, it is important to contextualise India's budget, relative to population size and to national GDP. India's large population of approximately 1.4 billion people, is more than ten times that of the Philippines (110 million), and more than five times that of Indonesia (273.5 million), respectively. As a share of GDP, India's total support for agriculture is significantly smaller, at 0.15% of its GDP in 2018, relative to the Philippines (3%) and Indonesia (2.99%).⁴⁹ Furthermore, relative to India's GDP per capita of USD 1,997, the Philippines' GDP per capita is 60% larger, at USD 3,252, while Indonesia's is at USD 3,894, close to double India's.⁵⁰ India's budgetary spending on agricultural support, in per-capita terms, is likewise only at less than \$30 per person; this is less than a third of the Philippines (USD 98 per person) and Indonesia (USD 116 per person).⁵¹

Therefore, even with a modicum of the Philippines' and Indonesia's spending on agriculture, these two countries easily exceed India's budgetary allocation for agricultural support as a share of national GDP, or in agricultural support per capita. The budget should thus not pose a threat to replicating India's model, of keeping extreme poverty and food insecurity to a low, amid the pandemic.

Re-considering AMS Approaches

India's impressive feat of minimising COVID-19 impacts on extreme poverty levels through food subsidies, presents a potential lesson for ASEAN to learn from. On one hand, farmers in India and across AMS are free to sell their crops in the open market; as such, both follow a laissez-faire approach. However, India does not follow a purely laissez-faire approach, since it also provides its farmers with support in the form of guarantees to purchase all crops produced at a pre-announced price. Such an approach encourages farmers to adopt productivity-enhancing technologies, by relieving farmers of market uncertainty during disruptions. It likewise allows the government to ensure sufficient food production in meeting its own stockpile targets. In contrast, weaknesses among stockpile management systems among AMS are well-known, as noted in news articles cited in the previous section.

In the face of the COVID-19 pandemic, and of future potential novel disruptions to food supply chains, it is worth pondering whether India's additional approach is relevant to AMS. The commitment to purchase all farmers' crops at a pre-identified prices, need not go against the laissez-faire principle, for as long as farmers are given the freedom to sell their crops in the open market too. This supplementary approach would not only shield AMS' farmers from market uncertainties, but also allow the AMS to meet ensure sufficient domestic food production and stockpile levels, in preparing for future disruptions.

To ensure this supplementary approach to ensuring sufficient domestically available crops does not clash with AMS' laissez-faire approach, it should be further discussed in policy debates within ASEAN and AMS in the long-term. In exploring these mechanisms, AMS can potentially benefit from discussions with India, in understanding the nuances behind India's PDS, PPS (including CACP's MSP to incentivise farmers technology adoption), and FCI (stockpile management and information sharing practices).

On the digitalisation front, ASEAN can likewise explore supplementing its national identity systems with digital identity cards similar to India's Aadhaar system, in reducing linkages of limited food and other welfare resources in food distribution. This may include conducting smaller scale pilots of a biometric-tied national identity system, similar to India's

⁴⁹ Ibid.

⁵⁰ World Bank, "World Development Indicators", *World Bank Website*, <https://data.worldbank.org>.

⁵¹ OECD, "OECD Agricultural Statistics", Op. Cit.

aforementioned Smart Card system in Andhra Pradesh⁵² which served as a precursor for the nationwide Aadhaar system. Such pilots can potentially begin in cities which already have sufficient connectivity infrastructure, and be further cascaded or extended to farther-flung cities where they are more desperately needed.

⁵² Piali Mukhopadhyay et al., Implementing a biometric payment system: The Andhra Pradesh experience, Op. Cit.

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