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Introduction: Just Another Crisis?
The Impact of the COVID-19 Pandemic on Southeast Asia's Rice Sector

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INTRODUCTION

Caustic policy debates have raged over the direction of the rice sector in Southeast Asia. The clashing views of governments, opposition parties, donors, international financial institutions, academics, consumer groups, private traders, rural activists and paddy cultivators have contributed to the rancour, although these actors are of uneven clout. One principal fault line pits the policy prescription of liberalization against protectionism. This is especially acute in countries in the region that are significant rice producers but import regularly due to cultivation totals that fall short of national requirements. Indonesia, Malaysia and the Philippines compose this special group of importers. Annual production figures vary, but even with the occasional bumper harvest that can lift cultivation totals to nearly meet consumer demand, total national requirements typically encompass additional supplies for filling public stockpiles. Governments draw from these reserves amid price surges or in cases of emergency such

as drought, pest infestation, storms and floods that occur with regularity in the region. Although these net importers grow the vast majority of their rice requirements domestically—customarily, the closest to reaching self-sufficiency in rice is Indonesia (93–99 per cent), followed by the Philippines (85–95 per cent), and then Malaysia (59–75 per cent) (Otsuka 2021, Figure 4, p. 326)—the combined population of these countries is large. It amounts to about 425 million people. As such, together these governments acquire roughly 4.2 million metric tonnes of foreign rice each year, at a very approximate cost of US$1.68 billion on average.[1]

Pro-market advocates would prefer to see higher volumes of rice imports in these countries (and private traders, not governments, in the main do the purchasing). Why? Chiefly because more imports are thought to be capable of bringing down the high price of rice in these rice-deficit countries. Rather persistently their prices exceed those of their rice export counterparts in mainland Southeast Asia, sometimes as much as a factor of two to three times.[2] The reasons behind high costs for net importers can be summed by two factors. First are policy choices, which include heavy government intervention in the sector exemplified by the political and financial support of food parastatals that monopolize the import business (Rashid, Gulati, and Cummings 2008). And intervention in its many forms—from the farm level to palace politics—leads to price distortions and other inefficiencies (Anderson and Martin 2009). The second are geographical factors. High population-to-arable land ratios lead to elevated production costs compared to those in rice-abundant Thailand and Vietnam. There, wide river deltas and lower people-to-arable-land ratios keep production costs down (Dawe, Moya, and Casiwan 2006).[3]

Why are high rice prices of concern? Supporters of the comparative advantage point out that they worsen poverty. How? Principally the poor spend above national average fractions of income on food. If higher quantities of cheaper imports lower rice prices in the receiving country, this in turn enables the poor to spend more of their scarce resources on other such essential items as children's education and healthcare, leading to positive development outcomes. Price reductions, so the argument goes, have other beneficial effects as well. They would minimize smuggling, for instance, which is pervasive in the net importing countries. The large profit margins that incentivize smugglers would be squeezed as price differentials between exporters and importers narrow. Then there is the saving of public resources. If private traders are permitted to buy

the bulk of the imports, and concurrently governments de-emphasize rice production, importing governments can shift expenditures from wasteful production subsidies that amount to hundreds of millions of US dollars per year to more beneficial or efficient pro-poor programmes such as targeted, direct cash transfers. Even if governments were to continue support for smallholders—the majority of whom remain net consumers of rice—material support can be deployed to shift planting toward higher-value crops, like fruits and vegetables. Lastly, if private rice traders were to profit more regularly from imports, it has been suggested that they would be enticed to invest in the industry more broadly, boosting underfunded research and development (for higher-yielding seed varietals, for example) and reversing the deterioration in post-harvest logistics (Alavi et al. 2012).

Despite decades of international pressure of varying degrees, these governments have refused to liberalize their rice sectors for a number of reasons.[4] They argue that rice is their respective country's staple food; it contributes more to daily caloric intake averages than any other food item for the majority of their respective populations: Indonesia—52 per cent; the Philippines—46 per cent; and Malaysia—30 per cent.[5] Rice is thus essential to achieving what these governments conceive of or define as food security, which demands that this foodstuff be managed responsibly. This is regardless of the precipitously declining economic significance of rice cultivation in these national economies over the years. If the rice trade is left entirely to market forces, these governments contend that social conflict and unrest may result—for example, when periodic shortages arise on the international market. Violent conflict may be directed at the governments themselves, or between rural and urban sectors if policy too conspicuously privileges one sector over the other. In short, balancing the demands of urban consumers who prefer cheap rice with those of cultivators who seek higher farmgate prices requires careful public management. Cultivators also must be shielded from the wild price fluctuations characteristic of the international rice market. (Compared to other grain markets, the rice trade is more volatile since only 8 to 11 per cent or so of global production is traded internationally.) Given producer preference for cost certainty, rather than the maximization of returns on investment, reliable price stability has proven to incentivize growers to plant paddy in higher quantities (Timmer 1989). Moreover, these governments warn that the flooding of their respective countries with cheap imports will have dire consequences.

It will further impoverish tens to hundreds of thousands of small-scale producers by depressing their already meagre incomes, which in turn will accelerate the sale of land by farmers. National food security is further imperilled as these lands are converted to non-agricultural uses such as housing estates or golf courses.

These governments would also decry the disappearance of the smallholder for reasons that extend beyond material matters: To different extents, the former is apt to celebrate images of the rice farmer as an exemplar of such societal ideals as the authenticity that are closely associated with these countries' agrarian pasts. The stuff of Indonesian, Malaysian and Philippine nationhood, respectively, is frequently romanticized as rooted in the bucolic simplicity of rural life. As such state support of the rice cultivator aligns nicely with these ideological beliefs, just as the pursuit and attainment of self-sufficiency in rice can fulfil nationalistic aspirations. When such perennial importers as the Philippines (in the early 1970s) and Indonesia (a decade later) reached rice self-sufficiency on account of the widespread adoption of Green Revolution technologies by farmers, these achievements were proudly celebrated as national accomplishments.[6] (Importantly, they were lauded by the international community as well.) These past successes, however fleeting, are one reason why dips in rice production and comparable increases in imports are often discursively framed in these countries as developmental failures or episodes of national embarrassment. Furthermore, these governments bristle at the hypocrisy of western governments that push the prying open of agricultural markets elsewhere while protecting their own farmers with unflinching political support and ample financial inducements and have long done so. Lastly, because labour-intensive manufacturing has slowed in these countries of late, these governments would be hard-pressed to provide opportunities for a majority of their rural citizens to gain adequate formal urban employment (Rigg, Salamanca, and Thompson 2016).

Alongside these public reasons lurk private considerations too. Corruption in these Southeast Asian countries is prevalent and vested interests inside and outside government routinely capture lucrative rents and other (illicit) gains from state intervention in their respective international and domestic rice markets. After all, each country supports a food parastatal—National Rice and Paddy Corporation (BERNAS) in Malaysia, State Logistics Board (Bulog) in Indonesia and National Food Authority (NFA) in the Philippines—that for decades has been a magnet

for criticisms of alleged corrupt or unethical business practices. Market economists euphemistically refer to them as price distorters or pockets of inefficiency. Furthermore, the holding of competitive elections in each of these countries facilitates government intervention; it politicizes the distribution of resources among key voting constituencies—for example, free or highly subsidized rice for urban voters, cheap chemical fertilizer, seeds or hand tractors for producers. These allocations (and others) fuel broader, complex and entwined patronage networks that are sustained throughout non-election years too.

Production versus Livelihoods

In addition to the policy and political friction between liberalization and protectionism, a second and corresponding line of contention regarding the rice sector in Southeast Asia sets state production demands against the livelihood of growers. Whereas in the former debate, domestic and external actors are often found on opposing sides, the production versus livelihood argument tends to sow division within countries. At first blush, the relationship between production to livelihood appears complementary—the more farmers produce, the more income they earn. And while this relationship can and does hold, it is less robust than one might surmise: The complementarity does not hold uniformly across space and time, and among different classes of rural producers. Frequently, traders, who ordinarily possess better market knowledge than growers, can gain disproportionately from swings in commodity prices. Moreover, many agriculturalists are either smallholders or landless leaseholders incapable of harvesting sufficient paddy needed to cover household expenses, repay debts (most often to traders) and accumulate savings critical for overcoming health emergencies. Many farmer advocates lament that government fixation on rice production keeps producers poor because public financial help is inadequate, or that whatever aid is available is tied exclusively to paddy cultivation, thus preventing diversification to higher-value crops.[7] There are also proven concerns that whatever material support exists flows disproportionately to larger farmers with political connections among local administration, thereby exacerbating rural inequality. Advocates also gripe about low public investment in rural economies more broadly that fails to generate sufficient non-farm employment, for both permanent and seasonal work. Today, a rapidly dwindling percentage of growers rely

solely on income gained from planting; smallholders do not earn enough money from their tiny plots to support household finances (and large-scale farmers tend to invest in non-farming economic activities, again exacerbating rural inequality).[8] Equally troubling is government neglect of smallholders who grow commodities of secondary importance to food security, like copra or tubers, or who cultivate crops of duller ideological or political resonance, such as maize. Materially, these producers on average are worse off than the majority of landowning rice farmers. Farmer advocates prefer governments to link poverty and development policies in ways that encompass the primary commodity sector more holistically (Akram-Lodhi, Borras, and Kay 2007).

Although the production versus livelihood dilemma as sketched above pertains broadly to the three net importing countries, for decades a similar predicament has also entangled Thailand, a traditional major rice exporter. To be sure, if we narrowly focus on rice, Thailand's governments have had far less to fret about food (in)security than their archipelagic neighbours. For more than a century, Thailand's rice surplus has helped to feed the region (Ingram 1971). But this does not mean that balancing production imperatives with Thai farmer welfare has been free from contention—far from it. For decades, especially from the 1950s to the early 1980s, Thailand's authoritarian governments adopted characteristically pro-urban policies, exemplified by taxing rice exports. While these taxes suppressed producers' income, the revenue extracted was redeployed to industry and manufacturing (and the personal use of corrupt high-ranking officials). Even as the Thai economy boomed during this period, including rural livelihood improvement, urban income growth rates far outpaced those of the rural (Siamwalla 1975; Ricks 2018).

As the country gradually shifted to more open politics in the 1980s and elections became more competitive, the political significance of rural voters was provided with a boost. To the exasperation of urban elites, these voters backed local candidates who pledged to improve rural livelihoods. This resulted not only in more development funds expended in the countryside to build roads, markets, hospitals and schools, but also led governments to pledge to pay higher prices for paddy. Over time, a paddy mortgage scheme that softened seasonal fluctuations in farmgate prices was introduced and the export tax was essentially eliminated. (Stable rice prices on the international market also helped Thai governments to adopt these new policies.) Rural development and pro-peasant spending by the

state accelerated apace to the extent that, by the turn of the century, the anthropologist Andrew Walker could declare that Thailand had become, generally speaking, a nation of middle-class peasants (Walker 2012). Meanwhile, as elections progressively gained popular acceptance as the appropriate means for transferring political power peacefully—no small feat in a country renowned for the frequency of its coups—arose Thaksin Shinawatra, then the country's richest businessman and his Thai Rak Thai party (TRT, Thais Love Thais). Fuelled by their pro-rural platform, constitutional changes that favoured the building of stronger parties and the rise of money politics, they won elections in 2001 and 2005 by unprecedented margins.

With Thaksin's popularity and his populist policies threatening urban elite interests and especially that of the monarchy, which traditionally had depicted itself as the undisputed patron of the Thai villager, the military overthrew Thaksin's government in 2006. After elections were restored, and with Thaksin in exile because of corruption charges he faced, Thaksin's sister, Yingluck Shinawatra, and her Pheu Thai Party— an offshoot of the TRT—triumphed in the 2011 election. As premier, Yingluck pledged to buy paddy from farmers, a key electoral constituency, at inflated prices. (As noted above, the paddy pledging scheme had been used by Thai governments in different forms since the 1980s.) Yingluck's government intended to pass the high prices onto the international market but prices fell, resulting in catastrophic losses to Thai public coffers estimated at over US$8 billion. The military used the paddy pledging debacle as a pretext to topple her elected government in 2014. Although Thailand produces an annual excess of rice, with heavy state intervention in the sector and with an unresolved production versus livelihood conundrum, it is no stretch to conclude that rice is no less a political commodity in Thailand than it is in the importing countries of Indonesia, the Philippines or Malaysia.

THE COVID-19 PANDEMIC AS A RICE CRISIS?

The outbreak of the 2019 novel coronavirus (COVID-19) pandemic in early 2020 slammed unexpectedly and dramatically into the unfolding of these debates and developments, overwhelming some concerns and amplifying others. This pandemic has constituted the most disruptive global health crisis since the end of World War I and the gravest threat to the world economy since World War II. As of this writing, known COVID-19 cases

worldwide have surpassed 600,000 million with over 6.5 million deaths. Figures will continue to rise. Not only are infections and reinfections still occurring worldwide as more contagious (but less lethal) variants of the virus emerge, but pressure, too, will mount on governments that have grossly underreported death tolls to release more realistic numbers. Models estimate that the true number of fatalities is two-to-three times greater than official counts.[9]

When governments around the world began implementing unprecedented lockdowns to control the spread of the coronavirus from early 2020 onward, worries were immediately raised not only about peoples' livelihoods as factories shuttered, mass transportation slowed to a crawl and entire industries teetered on the brink of collapse. Fears also focused on the viability of supply chains, where severe bottlenecks at local, regional, national and international levels had the potential to imperil the access and availability of basic food items for hundreds of millions, if not billions, of already vulnerable people.

Today's COVID-19 pandemic aside, due to the rice sector's high susceptibility to an array of disturbances, from poor weather and pest outbreaks to geopolitical earthquakes, a backlash against ethnic minority middlemen and economic meltdowns, the industry is prone to crisis. Southeast Asia is no exception and no stranger to rice crises, although of varying magnitudes and triggers. Harvests plummeted throughout the region during World War II due to the forced requisition policies of occupying Japanese forces; millions died in ensuing famines, particularly in Indonesia and Vietnam (Huff 2020). After the war, it took years for struggling economies and devastated agricultural systems in occupied Southeast Asia to recover to pre-war rice production totals. By the mid-1960s, as birth rates boomed, poverty worsened and with power-hungry communist parties ascendant, chronic rice shortages convinced Western governments to invest heavily in modernizing rice cultivation in Southeast Asia as a means for ensuring food security and in turn bolstering (non-communist) political stability. Plant breeders, funded by wealthy Western donor organizations and governments, developed new high-yielding, fast-maturing seed varietals that, in conjunction with the application of copious quantities of chemical fertilizer and improved water control, would both boost production yields and allow farmers to harvest paddy twice a year with regularity (Griffin 1974; Cullather 2013). In the early 1970s, however, widespread drought precipitated a regional rice crisis,

rolling back the early gains of this Green Revolution. International prices remained elevated for years, as the ensuing oil crisis precipitated by the Organization of the Petroleum Exporting Countries ratcheted up prices for inorganic fertilizers (Timmer 2010, p. 2). The rice crisis also prompted the Philippine, Indonesian and Malaysian governments to redouble efforts in convincing as many cultivators as possible, regardless of landholding size, to adopt the Green Revolution package of technology. Illustratively, unprecedented state funding was made available for growers to purchase pricey inputs (high-yielding varieties, inorganic fertilizers) and for bureaucrats and engineers to expand modern irrigation systems. By this time, the governments' trust in international markets and domestic ethnic Chinese traders who dominated the industry had grown thin; as a result, the import monopoly powers of each of the food parastatals were by now firmly in hand.

Notwithstanding controversies unleashed by the Green Revolution, including its mixed record on poverty alleviation, in the main, the subsequent regionwide rice crisis did not materialize until 2008 thanks to these national production programmes.[10] (Individual countries did in the meantime experience the occasional rice crisis, including the Philippines in the mid-1990s and Indonesia amid the 1997/98 Asian Financial Crisis and its challenging political transition from authoritarianism to democracy.) The 2008 rice scare, unlike the 1970s crisis, was neither weather-induced nor occasioned by a dip in production. Instead, in late 2007 speculation in world grain markets, especially in those of wheat due to poor weather and of maize due to rising demand for ethanol—a prime ingredient in biofuel projects—spilled into the characteristically unstable rice market. A large overpay by the Philippine government of Vietnamese rice and (subsequent) export bans by Indian and Vietnamese governments prompted by shortage fears roiled the rice market more roughly than the wheat and maize markets had experienced. Rumours about Thailand's intent to impose its own ban further drove up prices as more panic buying and hoarding by domestic traders and households took hold. International prices tripled in a span of just six months (December 2007 to May 2008) from slightly over US$300 per metric tonne to slightly over US$1000. Once Japan acquiesced to requests from abroad to sell its reserves in the international market, the crisis abated (Dawe and Slayton 2010). Afterwards, although the price bubble of the crisis had been pierced, for years the world price of rice remained over US$400 per

metric tonne, failing to return to pre-crisis levels. Experts rightly asked whether policymakers and the international community had sufficiently learned from these series of events to help break the rather regular cycle of rice crises or at least mitigate the effects of the subsequent one when inevitably it would emerge (Timmer 2010).

Accordingly, when COVID-19 began its contagious spread throughout Southeast Asia and the pandemic's manifold adverse effects gripped the region, it was of little surprise that policymakers and politicians turned their attention to the health of their respective rice sectors. But so too did agricultural economists and other scholars with similar research and public welfare interests. It was in this context that foremost experts on rice policy in Indonesia, Malaysia, Thailand, the Philippines and Singapore gathered in December 2021 for a one-day virtual workshop to consider and analyse the multifarious dimensions that today's pandemic has had on Southeast Asia's rice industry, chiefly at the national level. Workshop participants, who possess ties to past or current policymakers, were tasked with addressing any number of the following questions:

- What lessons were there to be learned from past rice crises? Did policymakers apply any of them prior to today's pandemic? Why or why not?
- In a historical context, how distinctive has this current crisis and its effect on rice policy been?
- How well have policymakers adjusted to the demands and pressures of today's crisis? What main constraints have policymakers faced?
- Have the effects of the pandemic—on poverty, for example—been as damaging as feared or have their impact been less severe than first predicted? What factors account for either outcome?
- To what degree has the pandemic forced changes in government priorities in development planning and/or practice, especially regarding the rice sector?
- Has the state shown the capacity and skill to handle both a public health crisis alongside challenges in the agricultural sector? Or do we see bifurcation, or silos, where one sector operates independently of crises in other sectors? Or do we see a compounding effect wherein, like dominoes, the crises destroy the capacity of the state in other areas?
- Rent-seeking has been notoriously endemic in the rice sector. Has the

current crisis worsened or blunted this behaviour? What accounts for either outcome?
- Given the pandemic's initial threat to the viability of international trade, to what degree has the crisis forced changes to the government's approach to domestic production? Has the government adopted more autarkic policies in response? Why or why not?
- What surprising benefits, if any, has the pandemic brought to the rice sector?
- What future beckons for the rice sector? To what extent will the current crisis affect the future? Will any reforms that have been implemented in response to today's crisis take hold and endure? Or do they merely pay lip service to mollify short-term, growing dissatisfaction with the sector's governance?

The revised papers that comprise this volume constitute attempts by their writers to grapple with some of these overarching questions.

TWO MAIN FINDINGS

Rice Crisis Averted

As of late 2022, the multiyear pandemic has not precipitated a serious rice crisis of either variety—one primarily caused by production shortages, like the early 1970s, or one caused by uncertainty and speculative buying that unfolded in 2008. One prime reason for this favourable outcome is simply luck, namely, good weather. Another is that COVID-19 transmissions, thriving in the expansive density of social interactions, have been more highly concentrated in urban centres than in rural settings, especially throughout 2020 and since then. Comprehensive stay-at-home orders hurt urban economies disproportionately. (As a result, urban poverty worsened, as did urban inequality [Kang et al. 2021].) Therefore cultivation totals in the main producing states have held steady. Milled rice production in four major rice-producing countries in 2020/21 was more or less in line with annual averages from 2016/17 to 2019/20: Indonesia—35.5 million (metric) tonnes; Thailand—19.3; the Philippines—12.0; and Malaysia—1.8.[11]

Moreover, attributable to continued economic growth, the share of rice expenditures in the cost of urban *and* rural consumption baskets in

these four countries had declined during the decade or so since the 2008 rice crisis (see Table 1.1). This means that developmentally speaking, these Southeast Asian populations were in a better position to confront a COVID-19-induced rice crisis if it had become acute.

The lack of a severe rice crisis did not trivialize the validity of fears in the first half of 2020 of a repeat of 2008 or worse from occurring. First, concerns over the immobility and compromised health of agricultural labour and the overall stress applied to international and domestic logistic networks were understandable and pervasive; these networks, as it turned out, were more resilient than many had surmised. Second, Vietnam had again imposed an export ban, potentially prompting similar restrictive trade measures among other exporters. By April 2020 when Vietnam announced its ban, the world rice price from earlier in the year did increase by some 27 per cent from US$429 to US$543 per metric tonne. Fortunately, with adequate regional and global supplies and international logistics operating reasonably well, the international (Bangkok) price subsequently began trending downward, from US$459 in November 2020

TABLE 1.1
Rice Share as Percentage in Urban and Rural Household Expenditures

The Philippines	*2009 (national)*		*2018 (national)*	
	13.1		10.8	
	9.5 (urban)	16.7 (rural)	8.5 (urban)	13.3 (rural)
Malaysia	*2009/10 (national)*		*2014*	
	1.9		1.2	
			1.0 (urban)	2.0 (rural)
Indonesia	*2005 (national)*		*2020 (national)*	
	16.5		11.2	
	10.8 (urban)	25.6 (rural)	9.6 (urban)	13.9 (rural)
Thailand	*2014 (urban)*		*2014 (rural)*	
	9.2		7.5	

Sources: TDRI (2014), pp. 2-12, 2-13, 2-14, https://tdri.or.th (accessed 15 April 2022); Department of Statistics Malaysia 2019, Table 3.3, p. 129; https://www.dosm.gov.my (accessed 15 April 2022); Economic Planning Unit 2020, Table 3; https://www.epu.gov.my (accessed 15 April 2022); PSA (2009, 2018) (calculations by PIDS researchers, personal communication); https://psa.gov.ph (accessed 15 April 2022); BPS (2021), Fig. 1.3, p. 18; BPS (2006), Tables 2.1 and 2.2 (author's calculations).

to US$415 in July 2021 and US$389 by November 2021, returning to pre-pandemic levels.[12] These trends were in part transmitted to domestic rice prices in the countries under study. In the early phase of the pandemic, international prices began to rise. They then plateaued, and throughout 2021 retreated from US$536 per tonne to US$384.[13] Rice prices began to rise in 2022, slightly re-breaching the US$400 mark, more because of the impact of Russia's invasion of Ukraine on the markets for grain and oil—a critical component of inorganic fertilizers—than the pandemic itself. But throughout 2022, as wheat prices spiked, rice prices held rather steady on account of bumper harvests in major exporting countries.[14]

Refining, Not Reforming, Policy

On account of reliable production and comparably stable prices, the governments under review were less compelled by the dire circumstances caused by the pandemic—mounting death tolls, overwhelmed health sectors, sharp macroeconomic contractions, high unemployment, severe incomes losses and near collapse of tourism and related food and beverage and entertainment sectors—to introduce drastic policy changes in their respective rice sectors. Instead, quite serendipitously, nearly each of the governments under review in this volume enacted rather impactful policies *before* the eruption of the pandemic in early 2020. The source of these significant pre-pandemic policy decisions mostly resided in the domestic political realm, but they had direct effects on the rice industry. In this way, we can conclude that the impact of the pandemic served more to accelerate or amplify recent government policy changes or decisions rather than act as a catalyst of reform per se. We address each country's case study in turn.

MALAYSIA

A major policy decision that demanded attention prior to the 2020 COVID-19 outbreak in Malaysia concerned extending the rice import monopoly licence of BERNAS. BERNAS (and its predecessor) has held the monopoly since the early 1970s; this arrangement is a product of that period's own rice crisis. BERNAS's import permit—periodically renewed ever since—was set to expire in 2021, and there was nothing to indicate that the government was motivated to alter the status quo. Then

shockingly, in 2018, the political opposition, known as the Coalition of Hope (Pakatan Harapan, PH) scored a historic electoral upset against the National Front (Barisan Nasional, BN), the incumbent coalition. The BN, led by a political party known as the United Malays National Organization (UMNO), had dominated the country's elections uninterruptedly since the 1950s. Soon after taking over the reins of government, the reform-oriented PH administration announced its intent to revoke BERNAS's licence. Not only was BERNAS earning monopoly rents from its rice imports, but also it was considered an integral part of decades-long UMNO-led patronage networks that the PH had vowed to disassemble (and which had seemingly resonated with the electorate). The new PH agricultural minister announced that study teams were in place evaluating alternative import models.

In an equally stunning turn of events in early 2020, a breakaway PH faction, in collaboration with non-PH political allies, toppled its own government. When the political dust settled, Muhyiddin Yassin, a former UMNO power broker, emerged as head of a new coalition government, called National Alliance (Perikatan Nasional). Subsequently, Muhyiddin's government agreed to a ten-year extension of BERNAS's import permit. To observers the extension failed to elicit surprise; the new prime minister had long been a political patron of Syed Mokhtar Al-Bukhary, Malaysia's richest bumiputera (native son) businessman and principal owner of BERNAS. Under a prior UMNO-dominated government, in 2014, Syed Mokhtar's Tradewinds conglomerate was permitted to purchase and take BERNAS private. Put differently, since 2014 when BERNAS was delisted from Malaysia's stock exchange, about one-third of the national rice supply, approximately equal to its annual average imports, was more or less controlled by one man. When we consider BERNAS's one-third market share of domestic procurement, the magnitude of Syed Mokhtar's control is closer to two-thirds of the total supply. In return for holding the monopoly licence, BERNAS has been mandated to fulfil a range of public service obligations that range from managing the state's rice stockpile and distributing subsidies to farmers and Malay millers to ensuring safety standards in the rice supply system (Davidson 2018a).[15]

When the COVID-19 pandemic hit, the urgency of the Muhyiddin government to introduce wide-ranging measures to the rice and paddy sector was blunted, as Fatimah Mohamed Arshad shows in Chapter 2, since

many subsidies and pricing policies were already in place.[16] Having been implemented decades ago under pro-Malay directives or during the 2008 rice crisis, these included considerable production and input subsidies for (mostly Malay) growers, special subsidized rice for low-income consumers and increased emergency stockpiling (about which BERNAS habitually complains adds to its costs). As a result, the government, as elsewhere, focused its energies in 2020 on stymying a complete economic meltdown amid unprecedented movement control orders (MCOs).

The government introduced some seven stimulus packages that through 2021 amounted to over US$91 billion in financial injections. These packages could not prevent the economy from contracting a painful 5.6 per cent in 2020, but they laid the foundation for a modest rebound of 3.1 per cent growth in 2021. According to Fatimah, the lower income groups in Malaysia have suffered disproportionately: As unemployment rose due to the MCOs, incomes and consumption declined; many precarious Malaysians slid further down the country's socio-economic ladder. Malnutrition, a worrisome concern prior to the pandemic, worsened, especially among children of low-income households. The pandemic did, however, prompt the government to produce its first-ever government policy paper on food security; prior exercises had concentrated narrowly on the rice and paddy sectors. The paper, however, failed to address the major impediment to improving the competitiveness and furthering the modernization of the country's rice and paddy sector, namely, BERNAS's stranglehold on the sector, which is dulling competitiveness by denying new market entrants and thus stymying innovation, both in upstream and downstream activities. All told, as Fatimah puts it, "Clearly, crises and changing political landscape are important drivers in the policy matrix of the paddy and rice sector in Malaysia" (p. 36).

THE PHILIPPINES

In the Philippines, the major decision taken prior to the COVID-19 pandemic was President Duterte's surprising move to liberalize the country's rice imports. To be sure, for decades there had been a small group of market economists in the country who decried the debilitating state intervention in the rice trade and who pushed for liberalization to lower the country's artificially high retail rice prices, which in turn, it was hoped, would deliver

tangible health benefits to the country's tens of millions of citizens who lived near or below the poverty line (Davidson 2016). Pro-market advocates have had some success in opening up other sectors in this country's notoriously protectionist economy over the years—for example, in retail oil and in telecommunications in the 1990s. This protectionism in the main explains the country's sluggish growth rates of the late twentieth century compared to some of its Southeast Asian "tiger" economy counterparts (see Table 1.2).

Still, even these economists expressed surprise when the irascible Duterte in early 2019 announced he was revoking the NFA's monopoly rice import permit. Aside from the prominent presence of an economic reformer in Duterte's cabinet—Carlos "Sonny" Dominguez served as Finance Minister—the Duterte administration also was spooked by a bout of inflation in early 2019, a significant contributing factor of which were elevated rice prices. A pliant Congress subsequently passed a law on the matter. It established new (variable) import tariff rates—in effect, meaning that liberalization was partial—and set aside special assistance monies (10 billion Philippine pesos annually for six years). Chiefly supplied by rice tariff collections, this fund is designed to help soften the sector's transition to more market conditions, especially for the country's hundreds of thousands of smallholders, by (supposedly) improving the industry's competitiveness.

As a result of liberalization, as Roehlano Briones and Isabel Espineli recount in Chapter 3, the wholesale price of regular milled rice dropped appreciably, by about 18 per cent from mid-2018 to late 2020. Unfortunately, this price decrease was less sharp than the dip in farmgate prices,

TABLE 1.2
Average Annual Economic Growth
(Gross Domestic Product) Rates, 1980–89

Thailand	7.0 per cent
Singapore	6.1 per cent
Indonesia	5.3 per cent
Malaysia	4.9 per cent
The Philippines	0.7 per cent

Source: Wu (1991).

suggesting that traders were benefitting handsomely from rice liberalization (Montemayor 2020). While recognizing that producer incomes have been squeezed, Briones and Espineli note that, first, cheaper rice prices have resulted in a net positive gain for society as a whole, and, second, some income losses of farmers have been offset by the disbursement of the aforementioned Rice Funds. Revealingly, Briones and Espineli highlight figures from a consumer survey that shows conclusively but quizzically that Filipinos believe that retail rice prices have in fact increased since liberalization, despite indisputable evidence to the contrary. Briones and Espineli are rightly puzzled by this outcome, although some of it may stem from the heavy coverage in the media of the steep fall in prices farmers have been receiving for their crops. Misinformation campaigns that prevail on social media surely cannot be discounted here (Ocampo 2020).

Since the matter of rice import liberalization continues to be politicized, especially as populist rhetoric gained steam ahead of the May 2022 presidential elections, Briones and Espineli worry about the fate of this historic policy reform and the possibility of its reversal. Not only is the new president, Ferdinand Marcos Jr., a vocal opponent of rice trade liberalization, but we also know from studies elsewhere that the fight to maintain policy reforms can be more daunting than the struggle to enact them in the first place (Patashnik 2008). Still, Briones and Espineli conclude that liberalization most likely spared Filipinos from the ill effects of another rice crisis during the COVID-19 pandemic. The Duterte government did implement some of the most comprehensive movement restriction measures in the region, which contributed significantly to the steep 9.6 per cent contraction of the country's economy in 2020. Yet signally Briones and Espineli are grateful that the NFA was no longer in a position to mishandle rice imports—as it had done on several past occasions—that would have wreaked further economic havoc, leading to additional developmental harm to tens of millions of Filipinos during the already destructive pandemic.

INDONESIA

Unlike in Malaysia and the Philippines, governments in Indonesia did not move against its parastatal (Bulog) to curb its rice import authority prior to the 2020 pandemic. It was once attempted by the International Monetary Fund (IMF) amid the 1997/98 Asian Financial Crisis (AFC). By lending

billions to Indonesia's New Order cash-strapped government, the IMF had sought, in exchange, to reform Indonesia's partially closed economy, including eliminating Bulog's rice import monopoly. With liberalization in this sector, the IMF hoped that not only would domestic prices more closely track cheaper international prices, but also that liberalization would dislodge the deep and expansive invested interests in the trade that had accumulated over decades of policy status quo under President Soeharto. But with few trade barriers remaining and even fewer regulations in place, private traders brought in record amounts of foreign rice, which caused many Indonesians, including top policymakers, to take umbrage (Sawit and Lokollo 2007; Davidson 2018b).

As the AFC waned, so did IMF leverage. Indonesia's now democratic governments, especially under Presidents Megawati Sukarnoputri and Susilo Bambang Yudhoyono, restored Bulog's import authority—principally over medium-quality rice—and expanded the agency's responsibilities to include other commodities as well. Meanwhile, a commodity boom and the country's competitive elections have helped to stoke economic nationalist sentiments, of which particular resource and agrarian variants have been vocal (Graham 2020). Bulog has been able to take advantage by extending its control over the rice import business and other basic commodities, even if politicians persistently continue to squeeze rents from it, making the agency particularly scandal-prone. All told, rice liberalization in Indonesia is equated with not only undue foreign interference in the country's economy, but also that of its sovereignty too. If Indonesia's low-income rural and urban consumers would benefit from sizeable reductions in rice prices brought about by liberalization—as seems to have been the case in the Philippines—they are currently a silent majority (Davidson 2018c).

As Arifin Bustanul describes in Chapter 4, there are striking similarities between the effects of the 1997/98 AFC and the COVID-19 crisis. In both instances, a "ruralization phenomenon" took hold, where suddenly unemployed urban workers returned home to work, especially in Java's micro-sized rice plots. (Average rice plots on this infamously crowded island are below 0.5 hectares.) Also in both instances, most workers returned to the cities once economic conditions improved. Another similarity between the two crises has been an economic recession, although of differing magnitudes. In 1998, Indonesia's economy recorded an astonishing 13 per cent contraction compared to about 2 per cent in 2020. Politics explains much

of this difference in outcome: During the AFC Indonesia suffered a twin crisis that included acute political instability and uncertainty surrounding the fall of the country's long-time authoritarian ruler, Soeharto. During the COVID-19 crisis, political conditions have been far more stable. But why did Indonesia's economy in 2020 experience the least acute slowdown among this volume's cases? (see Table 1.3). One reason lies in the lax approach the government adopted in locking down the country, as second-term President Joko "Jokowi" Widodo sought to minimize the pandemic's damage to his economic legacy. But propping up his legacy assuredly and unnecessarily cost the lives of tens of thousands of Indonesians (Setijadi 2021).

In the rice and rural sectors, Arifin's chapter demonstrates that, since the pandemic crisis has been less disruptive than the AFC, Jokowi's government has been less compelled to pursue major reforms. Many of the government's poverty alleviation policies, like subsidized rice assistance programmes (instituted in the aftermath of the AFC) and e-vouchers for basic commodities, were in place prior to the pandemic. Increasing domination of the rice trade, especially on Java, by large wholesale millers has continued apace and the reforms that Bulog should undertake—such as modernizing its warehouse systems and forging more commercial links with private sector actors—would have been pressing regardless of the pandemic. According to Arifin, a similar case can be made for productivity gains in paddy production through better seed development, improved extension services and irrigation maintenance. Even the controversial building of food estates in the country's outer island provinces has only been accelerated due to the pandemic; their development was already

TABLE 1.3
2020 Gross Domestic Product Rates

	2020
Indonesia	–2.1 per cent
Singapore	–5.4 per cent
Malaysia	–5.6 per cent
Thailand	–6.1 per cent
The Philippines	–9.6 per cent

Source: data.worldbank.org

underway prior to Jokowi's first term. (He was first elected in 2014.) Indonesian governments firmly believe that the success of these massive estates will bolster the country's food security. But the operative term here is "success"; there is little consensus on how it is to be measured. As the pandemic has revealed, access to food, especially that that is nutritious and affordable, can lag behind availability in bulk quantities.

THAILAND

In Thailand, a key change impacting the rice sector before the onset of the COVID-19 pandemic was the military's overthrow of Yingluck's elected government in 2014, which, as was noted above, stemmed from her administration's rice pledging fiasco, among other reasons. But owing to path dependency and certain structural conditions, including an abundance of rice farmers—their numbers are disproportionately large given Thailand's relatively high level of development (Ricks 2018)—the military, led by General Prayuth Chan-o-cha, found it frustratingly difficult to quit pledging rice prices to farmers. In part, this was because it made for good politics and lent political stability to the country. Having eliminated Yingluck's pledging programme, the junta subsequently offered generous subsidies to rice farmers. Then, in 2016, during a sharp fall in rice prices, it introduced another subsidy scheme by incentivizing growers to store their grain rather than sell it immediately. To many, this policy bore a close resemblance to rice pledging. The military government vehemently denied Yingluck's accusations that the new scheme was rice pledging in all but name (Watcharasakwet and Chaichalearmmongkol 2016;[17] Laiprakobsup 2017).

Eventually, Prayuth's leverage over the country's politically rambunctious farmers did improve. After years of delay, during which a new constitution in 2017 was promulgated, Prayuth's interim government won heavily engineered elections in 2019. The regime spent years crafting electoral rules that all but assured the former general's path to the prime ministership. Notably, the government banned offshoots of the TRT and Pheu Thai parties and determined that the Senate, which along with the House of Representatives selects the premier, would be fully appointed by the junta (McCargo 2019).

Thanapan Laiprakobsup and Manthana Noksawak detail in Chapter 5 that the country's rice farmers have suffered considerably since the

outbreak of the 2020 pandemic. In addition to the restrictive mobility orders and the negative effects they have had particularly on off-farm economic activities, two additional factors have hurt rice farmers. The first was a devastating drought, the country's worst in decades that has caused hundreds of millions of US dollars' worth of economic damage. But Thanapan and Manthana caution that the governments' neglect of farming has exacerbated the drought's deleterious effects. Officials have been slow to invest in upgrading such infrastructure as irrigation works and water retention ponds—issues that the drought readily exposed. Governments have even diverted scarce water supplies for industrial and manufacturing usage, leaving farmers out to dry, so to speak. The second corresponding factor has been changes to the country's political dynamics. In short, they have shifted against farmers' interests. With electoral rule changes in place, Prayuth's government is now less dependent on the bloc votes of farmers. Accordingly, his Palang Pracharath-led government has been less pressed to funnel resources to them. Thanapan and Manthana point to the disappointing Rice Mega Farm programme as evidence. The programme was intended to consolidate farming operations to increase farmer leverage against traders and millers. But the coalition government's infighting, bureaucratic centralization and inertia as well as a lack of funding have contributed to the project's poor performance. Thanapan and Manthana go so far as to conclude that Prayuth's government has abandoned the country's rice farmers, returning the country to the period before the 1980s when government neglect of farmer welfare was conspicuous.

SINGAPORE

At first blush, including Singapore among the aforementioned country studies might seem misplaced. Unlike the cases above, due to the island-state's small size (724 square kilometres) and high population density (8,019 people per square kilometre), the republic produces none of its rice needs; dependence on the international market is total. But it is precisely this dependency and implications for policymaking that justifies its inclusion in this volume. After all, citizens and the country's sizeable non-citizen population still consume about 26 kilograms of rice per capita each year.[18] More importantly, not only does the country annually import about S$235 million worth of rice; but it also serves as a vital transshipment hub for

the region's rice trade. Illustratively, its rice exports amount to about S$80 million each year, the majority of which is purchased by Indonesia.[19] The country's outsized role in the transshipment of rice and other agricultural commodities has been longstanding (Wong 1978).

Singapore's extreme dependency on the international market for food—estimated by the government at about 90 per cent[20]—was not preordained. To be sure, given obvious land constraints, the country would never fulfil its food (or rice) demand domestically. But as late as the 1960s, local farms did supply the city-state with about one-quarter of its vegetable needs. Remarkably, in the 1980s local production of hen eggs, poultry meat and chicken neared self-sufficiency levels (Ludher and Paramasilvam 2018, p. 3).

Deliberate government policies, however, shifted the country's economy aggressively toward export-oriented industrialization and as the population expanded so too did the government's building of housing and other infrastructure that extended into the country's former farming belt on the island's fringes. About four per cent of the agricultural land of the 1960s presently remains (Ludher and Paramasilvam 2018, p. 2). Still, open trade policies, the strong fiscal position of the government and purchasing policies such as diversification of supply sources helped to propel the country to the top of international rankings in food security, of which the tightly regulated domestic media is often proud to report.[21] While the prevalence of food insecurity among low-income households is less publicized (Nagpaul, Sidhu, and Chen 2020), the island-state's macro success seems to have vindicated its muscular neo-merchantalist strategy for agricultural trade policy and management.[22] Singapore's active promotion of increasing regional trade integration among members of the Association of Southeast Asian Nations (ASEAN) is well documented, as is its signing of bilateral free trade agreements with governments around the world to hedge against some ASEAN member intransigence (Terada 2009).

But as the COVID-19 pandemic hit the island-state in early 2020, as Jose Luis Montesclaros and Paul Teng chronicle in Chapter 6, Singapore's high import dependency strategy came under strain, along with its diversification approach. In the first half of 2020, with rice temporarily unavailable from Vietnam and with Thai rice prices soaring, Singaporean traders were forced to seek alternative suppliers like Pakistan and Cambodia that, prior to the pandemic, were known to export lower-quality rice at relatively high prices. As was noted above, subsequently international prices did begin to soften.

Similar to the cases surveyed above, a major decision regarding the food sector in Singapore was taken prior to the pandemic's outbreak. In 2019, the government announced its catchy "30 by 30" policy, aiming for 30 per cent of food demand to be produced domestically by 2030. Few doubt the ambitiousness of the target, although some experts have questioned its realism (Goh 2022). According to Montesclaros and Teng, the impetus behind the policy resided in the sector's failure to reach raised production targets following the 2008 rice crisis and attendant shortage fears. Learning from this middling performance, the government this time decided to throw its financial weight behind the new directive. Notably, it earmarked hundreds of millions of Singapore dollars for novel initiatives, including a S$144 million package for research grants. The government is leveraging its surfeit of highly skilled human capital and its proven track record in attracting foreign investment to promote the development of new technologies, from plant-based protein production to novel urban farming production techniques such as vertical systems where plants are grown in stacks of trays with minimal soil requirements and with computerized or robotic water infiltration techniques (Dean 2020). Still, Montesclaros and Teng, while appreciative of the government's efforts at bolstering internal food capacity—though arguably overdue—recognize that even the programme's complete success will still leave the city-state 70 per cent dependent on international food sources. To secure adequate levels of rice at affordable prices for future generations, Montesclaros and Teng suggest that Singapore, through technology transfer, aid and expertise, could do more in helping to improve rice productivity in neighbouring export countries in order to ensure adequate supply in the international market.

FUTURE DIRECTIONS

Before the COVID-19 pandemic, mounting threats to the well-being of the region's rice sector were well documented. Ageing farming populations, global warming that imperils reliable water supply, rapid conversion of productive lands out of agriculture, soil erosion exacerbated by deforestation, ecological degradation caused by chemically dependent production, limited farmer access to affordable credit, dwindling public finance for research and development (Anderson 2022, p. 7), changing consumer diets and tastes and the inexorable penetration of supermarkets

number among these challenges. Facing an increasingly precarious future, the region's rice sector could hardly afford to have a "global pandemic" appended to the list. Fortunately, as the case studies that comprise this volume have underscored, the rice sector proved more resilient than many had feared. This pertains both to production and post-harvest marketing systems. The former performed better than the latter, although this was mostly due to the providence of beneficial weather. It was not wholly attributable to policy intervention and field implementation, although some governments would surely like to take credit for their "foresight". Governments did generously make available new monies during the height of the COVID-19 pandemic in the form of lost income supports, but these expenditures were not focused on productivity gains in the rice sector per se. Amid the intensity of implementing emergency measures of uncertain duration, longer-term planning is apt to be sidelined.

These insights did not stop observers from seizing the dramatic impact of the COVID-19 pandemic as an opportunity to advance certain policy positions. Put differently, has the crisis been a powerful enough shock to convince key actors to pursue structural reforms or to further strengthen status quo positions? Food sovereignty proponents have interpreted the disruption of global trade flows as a warning sign of the fragility of the neoliberal approach to food security with its over-reliance on large agro-multinationals and global logistics. For these scholar-activists, the pandemic has exposed the system's illogical and unjust practices and, as importantly, has presented a chance to shift the gravity of food systems to the local control of smallholder producers who prefer, if given proper resources, to grow healthy, nutritious food sustainably that is tailored for local markets and tastes. If the transformative pandemic has taught us anything, this argument goes, is that people, and not capital, should be at the forefront of food systems (Bello 2020).[23] On the other hand, the fears fostered by the pandemic did not dissuade trade enthusiasts of their own paradigmatic views on the matter. For them, the pandemic highlighted that further integration and opening of markets and accompanying logistic systems are still the most proven, reliable and cost-effective measures to overcome precisely those problems posed by the pandemic. Vulnerabilities and gaps in current global supply chains, as much as the pandemic itself, were what threatened food supplies, food safety, nutritious diets and livelihoods. Bolstering the resilience of the present globalized system to withstand future exogenous shocks should top policymakers' agendas,

not the erection of more protectionist walls (FAO 2020; Fan et al. 2021; Anderson 2022).

Conflicting viewpoints lend difficulty to crisis planning. Assuredly, crises will happen, but their unpredictability in form, scope and timing are their defining features, even as some have already started to ponder a post-COVID world. This is especially pronounced in the rice sector. History has taught us that the next crisis is forthcoming. Preparing for it, however prudent, can be costly and fraught with predicaments. Increasing stockpiles, a common response to a crisis, adds burdens to scarce public resources, especially since rice cannot be stored indefinitely. But how we interpret the lessons learned from crisis governance or management complicates future planning as well. Are opening economies further truly the solution? What fair or objective indices of evaluation do we use to make this judgement? For example, questions have been raised about past studies' inadequate quantification of the environmental impact of global supply chains (Roberts and Lamp 2021). It is also relevant to ask about the extent to which vested interests lurk behind the push to open economies more widely to international trade and investment, or conversely, to close them more tightly.

For some countries this volume has surveyed, future paths are more settled than others, none more than Singapore. Given land constraints, it absolutely must pursue open policies, but more unsettlingly, also convince others that it is in their interests to follow its lead. Traditional rice exporters such as Thailand (and Vietnam) should follow suit, as they benefit from further agricultural trade integration, although key politicians and connected traders do so more than ordinary paddy producers. Yet, how far traditional exporters can be trusted in moments of crisis not to resort to trade-restricting measures is a pressing question. Notably, Vietnam slapped embargoes on rice exports during each of the past two major crises, while Yingluck's government, although unsuccessfully, sought to pass artificially high domestic rice prices onto international buyers. So, while Singapore, along with some business leaders, economists and technocrats in other ASEAN member states may trumpet regional multilateralism in food governance and crisis management—for example, risk-sharing through the bolstering of a regional rice reserve (Mujahid and Kornher 2016)—such cooperation is not ensured, especially under crisis conditions. When the chapters that comprise this volume are read closely, save for the Singapore case, the role ASEAN may play in future food crisis

management hardly gains attention. This means that doubt is prevalent about the organization's effectiveness and reliability in such vital matters as food security. Although it was just noted that, in theory, rice exporters such as Thailand and Vietnam *may* support further agricultural trade integration, reports about the scheming of these two countries in particular to raise rice export prices ostensibly to help boost farmers' income amid inflationary pressures throw regional multilateralism into further doubt (*Straits Times*, 30 August 2022).[24]

The three net importers face knottier and more variable decision-making matrices. Reaching and sustaining complete self-sufficiency in rice in Malaysia is wildly optimistic. But this does not necessarily foreclose devoting more resources to boosting domestic production in order to ease dependence on foreign rice. There the ethnic dimensions of rice policy (and rural development) have upended cost-benefit analysis for decades. It will continue to do so for the foreseeable future, even if certain policies tend to favour Malay elites with connections over smallholders. We need not look further than the domination of the country's rice supply by a single businessman's corporation. Complex constraints also hound policymaking in Indonesia and the Philippines, both of which are more capable than Malaysia in achieving self-sufficiency in rice. Even though the Philippines recently liberalized its rice imports, new President Ferdinand Marcos Jr. could as easily reverse the reforms. He has hinted at the possibility. If his administration does not, given the incomparable strength of the executive in this country, a future president will still hold the power to do so. This specific reform is not set in stone. Nor is it predetermined that cheaper international prices will be fully transmitted to consumers amid traders' efforts to keep prices sticky. If this continues to be the case, the positive development outcomes might be more moderate than market reformers had championed. And in Indonesia, supporters and opponents alike agree that government rice-boosting programmes are costly, but disagree over the extent of costs governments should be absorbing. Should higher portions of the expenditures be spent in more productive ways? To the consternation of many, politics figures prominently in this determination, as attested by the integral role the military has played in the development and operation of new, massive food estates.

In terms of the nexus between food security and development, there are no easy solutions, under crisis conditions or otherwise. How has the COVID-19 pandemic affected our evaluations of the balance to be struck

between access to rice and the grain's availability? The crisis has exposed considerable friction between availability and access. Should governments increase resources devoted to improving paddy production or should they concern themselves with broader or more robust development outcomes? What percentage of lands are to be converted (and at what costs) and whether efficient small-scale or large-scale farmers should benefit from any redistribution scheme? At what level does dependency on international trade become intolerable? At what point does subsidization of the sector become fiscally irresponsible? What are the viable employment alternatives for the hundreds of millions of denizens of rural Southeast Asia if industrial and manufacturing growth has stagnated? How should public investment be directed or reserved in anticipation of future crises? Given how the COVID-19 crisis has unfolded, boosting health sectors with enhanced public spending is warranted, but from where will the money come? Will governments risk spending less on agriculture, for example? The pandemic showed clearly that better outcomes in public health can indirectly bolster agriculture by keeping people healthier and able to work. More private sector participation can help fill the funding gap, but faced with variable rules of law environments and sensitive matters pertaining to land rights, poverty, ethnicity, rent-seeking by public officials and state ideologies extolling the virtues of rural life, the private sector has shied from making substantial investments in food crop production, especially in a staple commodity such as rice. Some of these are empirical questions, but at their core, they are political quandaries. So, intense struggles over resources and ideas, more than other influences in decision-making processes, will profoundly shape how these dilemmas unfold and are addressed, at least until the next crisis impacting the rice sector in Southeast Asia emerges.

Notes

1. This assumes rice price at US$400 per metric tonne, which was a rough pre-pandemic average from 2014 to 2019 (see https://fred.stlouisfed.org/series/PRICENPQUSDM).
2. For example, in 2007, the average retail prices of medium-quality rice in Indonesia was one and a half times more expensive than in Thailand; a decade later, it was two and a half times (Handayani 2017).
3. These are national averages. Research has shown that production costs in

select highly productive areas in the net importers can compare favourably to cultivating areas in the exporters (Bordey et al. 2016).

4. This pertained to these three countries for decades. Only recently, as discussed below, did the Philippines liberalize its rice import trade.
5. These figures are as of 2001 (http://www.knowledgebank.irri.org/ericeproduction/Importance_of_Rice.htm), except for Malaysia (Omar et al. 2019, Figure 6.3, p. 171).
6. In short, the Green Revolution package of technologies that led to double cropping and higher yields included a combination of: (1) modern, high-yielding seed varietals; (2) copious application of chemical fertilizers; and (3) improved water control (mostly through the construction and maintenance of modern irrigation systems).
7. On this point there is some overlap with the arguments of market advocates.
8. This also pertains to year-round jobs for marginal farmers or landless labourers who might benefit from shifting out of agriculture altogether. For a recent study of large-scale farmers earning nonfarming income on Java, see Ambarwati et al. (2017), especially pp. 285–87.
9. "The Pandemic's True Death Toll", economist.com, 6 May 2022 (accessed 7 May 2022).
10. In Asia, annual paddy production tripled from 200 to 600 million metric tons from 1960 to 2010 (Global Rice Science Partnership 2013, p. 80). For a recent study on the global macroeconomic gains of the Green Revolution (that also includes wheat and maize), see Gollin, Hansen, and Wingender (2021).
11. See www.ers.usda.gov/topics/crops/rice/rice-sector-at-a-glance/#Global (accessed 15 April 2022); Omar et al. (2019), p. 7, Table 1.1.
12. See https://fred.stlouisfed.org/series/PRICENPQUSDM (accessed 15 April 2022).
13. See the respective chapters of the volume.
14. It is worth noting that Indonesia and the Philippines are two of three top importers of Ukrainian wheat and protests in the former over rising food prices have grabbed the government's attention (Puma and Konar 2022; Faulder 2022; *Straits Times*, 4 March 2022; Imahashi and Phoonphongphiphat 2022). The country studies that comprise this volume were completed prior to the global inflationary impact of Russia's invasion in late February 2022.
15. These obligations, however, are not new. They were part of prior arrangements between BERNAS and the government.
16. In August 2021, Muhyiddin's government was replaced but the new government has not introduced any significant changes to the rice sector.
17. I thank Jacob Ricks for alerting me to this source.
18. https://www.statista.com/outlook/cmo/food/bread-cereal-products/rice/singapore (accessed 15 April 2022).

19. "Rice in the Husk (Paddy or Rough) in Singapore", oec.world, https://oec.world/en/profile/bilateralproduct/rice-in-the-husk-paddy-or-rough/reporter/sgp (accessed 15 April 2022).
20. https://www.sfa.gov.sg/food-farming/singapore-food-supply (accessed 15 April 2022).
21. For one example, see Koh (2018).
22. On neomerchantalism, see Helleiner (2021).
23. See also the dozens of short articles in the special issue of *Agriculture and Human Values* 37, Issue 3, September 2020.
24. I thank an anonymous reviewer for pointing to the lack of attention paid to ASEAN in these country case studies.

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