NON-TRADITIONAL SECURITY CONCERNS IN THE NEW NORMAL

Edited by
Mely Caballero-Anthony and
Jose Ma. Luis Montesclaros

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With a Foreword by

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Foreword

Foresighted and pragmatic policymaking requires acknowledging the constancy of change, and the fleetingness and perhaps inadequacy of having any fixed notion of normalcy.

For better or worse, the world has seen significant transition over the past decade. It saw the rise of new leaderships in the United States, India, China, Russia, the European Union, North Korea, and the ASEAN countries, among others. This brought about new opportunities such as talks for a Korean peace, new challenges such as growing US-China contestation over trade and technology, and armed conflicts, both fought and pondered. Russia's February 2022 invasion of Ukraine is the latest manifestation of such tensions. They have contributed to growing ideological divisions within countries and among nations in an increasingly multipolar world.

The world also saw the advent of the Fourth Industrial Revolution and widening influence of social media and technology companies, alongside the spread of fake news and cybersecurity threats, among others. These developments have been discussed in various RSIS publications and research initiatives.

Amid these changes, what remains constant is the need to prioritise the welfare of the people — the individuals living in every part of our planet. All states must be concerned with addressing issues that present existential threats to various societal groups even if these do not emerge from military sources, but from what are called non-traditional security or NTS issues. From this perspective, the COVID-19 pandemic has arguably been the most impactful over the past decade, even if it unravelled internationally only two years ago.

The COVID-19 pandemic has served as a litmus test of the stability and readiness of the global healthcare system. The number of infections recorded exceeded 450 million cases as of the middle of the first quarter of

2022, with more than 6 million deaths. The pandemic has also tested the international economic system, with negative rates of economic growth, much worse than the 2007–08 global financial crisis.

Beyond its direct impact, COVID-19 has led to further knock-on disruptions to NTS concerns such as food security, climate security, civilian use of nuclear energy, and humanitarian assistance and disaster relief, among others. This monograph seeks to provide a brief assessment of the new normal that is unfolding, particularly within Southeast Asia, and to translate what this means for policymakers as they seek to navigate and prepare for novel threats going forward.

Ambassador Ong Keng Yong
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Non-Traditional Security Perspectives on the New Normal: An Introduction

Jose Ma. Luis Montesclaros and Mely Caballero-Anthony

What is the "new normal", and how can Southeast Asia better prepare for and cope with it? This is the overarching question that this monograph seeks to shed light on, with a focus on non-traditional security (NTS) issues. NTS issues are defined by the Consortium of Non-Traditional Security Studies in Asia as "challenges to the survival and well-being of peoples and states that arise primarily out of nonmilitary sources", with examples including "climate change, cross-border environmental degradation and resource depletion, infectious diseases, natural disasters, irregular migration, food shortages, people smuggling, drug trafficking, and other forms of transnational crime".[1]

The looming issue that is commonly associated with the new normal, and which inspired this monograph, was the onset of the COVID-19 viral infection, which the United Nations World Health Organization (WHO) declared a pandemic after it spread globally in March 2020.[2] This has been seen as a landmark disruption in many respects. From the perspective of health security, COVID-19 is practically intractable given its trait of asymptomatic transmission.[3] This renders the typical temperature tests unreliable since a carrier of the virus can spread it even if the person does not manifest any of its symptoms. Another trait of the pandemic, which has led to

1 Mely Caballero-Anthony, "Non-traditional Security and Multilateralism in Asia: Reshaping the Contours of Regional Security Architecture?" Policy Brief, The Stanley Foundation, 2007.

2 WHO, "WHO Director-General's Opening Remarks at the Media Briefing on COVID-19, 11 March 2020", https://www.who.int/dg/speeches/detail/who-director-general-s-opening-remarks-at-the-media-briefing-on-covid-19---11-march-2020.

3 Monica Gandhi, Deborah S. Yokoe, and Diane V. Havlir, "Asymptomatic Transmission: The Achilles' Heel of Current Strategies to Control Covid-19", *New England Journal of Medicine* 382, no. 22 (2020): 2158–2160.

significant economic impacts, is its long incubation period, or the period before symptoms start to emerge, which lasts typically two to three weeks. To minimise the risk of infection, countries have been forced to implement strict quarantine measures at the individual level, as well as movement restrictions and lockdowns at the city-, community- and country-levels to reduce person-to-person contact.[4]

The past two years since the COVID-19 virus was declared a pandemic have been very different from the pre-COVID-19 era, to say the least. These changes have practically upended lifestyles and work and consumption patterns among individuals since quarantine measures prevent anyone confirmed to have the virus from being economically active (especially in the case of service-sector jobs that require face-to-face contact) over a relatively protracted period. They have also led to the relocation of expatriates and migrant workers alike, and even transformed the way international travel is seen, whether from the perspective of convenience or cost. In fact, some have posited that these changes may even lead to a reversal in globalisation, undoing the progress in international trade and labour integration since the start of the 21st century.[5]

This monograph is divided into two parts, representing the key areas of work within the Centre for Non-Traditional Security studies (NTS Centre) and is based on the RSIS webinar "Non-Traditional Security Concerns in the 'New Normal'", held in 2021. The first part, on Sustainable Security, focuses on what this new normal looks like in the region from the perspectives of food security, climate security, and nuclear security, while the second part, focused on Humanitarian Assistance and Disaster Relief, analyses COVID-19 both as a health disaster and as a "simultaneous disaster" that exists concurrently with natural disasters. In both cases, the focus is to examine the implications of COVID-19 for national and regional efforts to govern these issues and to explore possible pathways for future action.

4 WHO, "Considerations for Quarantine of Individuals in the Context of Containment for Coronavirus Disease (COVID-19)," *WHO Interim Guidance* RN: WHO/2019-nCoV/IHR_Quarantine/2020.2, 2020. https://www.who.int/publications/i/item/considerations-for-quarantine-of-individuals-in-the-context-of-containment-for-coronavirus-disease-(covid-19).

5 Jonty Bloom, "Will coronavirus reverse globalisation?" BBC News, 2 April 2020.

SUSTAINABLE SECURITY: FOOD, CLIMATE AND NUCLEAR SECURITY

Has Southeast Asia reached a new normal in NTS? **Chapter 2** of this monograph zooms in on the impacts of COVID-19, as a hybrid health–economic crisis, on the issue of food security. This is in light of the United Nations' second Sustainable Development Goal of "Zero Hunger", or of ensuring individuals have access to safe and affordable food.[6] The approach Chapter 2 takes is to categorise COVID-19's food security impacts within the broader spectrum of the drivers of food insecurity: economic access, food availability, and physical access. It then juxtaposes food security challenges amid COVID-19 against the "old normal" challenges of food poverty, climate change, and trade stability, which have affected the respective drivers of food insecurity.

Chapter 2 finds that while the pandemic has contributed to the increase in hunger levels observed from end 2019 to end 2020, it does not present a clean break from the challenges faced in the past. Rather, it serves to deepen the rifts that have occurred amid the pandemic, in terms of worsened poverty (economic access), further disruption to food production and reduction in agricultural productivity (food availability), and greater instability in markets as a result of panic-buying and supply chain disruptions (physical access). If anything, COVID-19 should spur society to accelerate the pace at which it addresses hunger, both from the institutional perspective of ensuring open and unfettered trade in commodities and from the technological perspective of integrating the utilisation of agricultural technologies in food production and distribution, and the implementation of government social safety nets.

However, in spite of COVID-19's salience, it is not the only crisis that has affected society. **Chapter 3** argues that at the larger level, the world has been facing a triple planetary crisis of climate, nature, and pollution. It reflects on the relevance and sufficiency of a human-centric approach to the care of the environment in solving these concurrent problems conclusively. Similar to the previous chapter, this chapter contextualises the challenges today within the historical challenges of the past, providing a continuity

6 Roser H. Ritchie, M. Roser, J. Mispy, and E. Ortiz-Ospina, "Sustainable Development Goal 2: End Hunger, Achieve Food Security and Improved Nutrition and Promote Sustainable Agriculture", SDG Tracker.org, https://sdg-tracker.org/zero-hunger.

from the first global conference on the environment, held in 1972, to the latest one, COP26, held in Glasgow in 2021.

Chapter 3 argues that alternative approaches to environmental predicaments were already debated 50 years ago and that progress has been made in the development of more holistic perspectives on these issues today. It stresses the need for further dialogue, with these alternative perspectives in mind, to formulate truly potent solutions to the world's increasingly alarming problems arising from the triple planetary crisis.

Adapting to the new normal is not just about understanding the negatives or being cognisant of the NTS challenges that are emerging today. Rather, it also requires recognising the novel opportunities to transform the approaches to facing these issues. **Chapter 4** discusses the role of nuclear technology in addressing some of the NTS issues that have emerged in the COVID-19 era. One among these approaches is to leverage nuclear-derived testing techniques in supporting disease surveillance and prevention. For instance, what is known as real-time reverse transcription polymerase chain reaction or RT-PCR is a novel nuclear-derived diagnostic technique that is now being used for COVID-19 testing.

Similarly, Chapter 4 raises the potential for nuclear technology to provide a sustainable and scientific approach to tackling another environmental problem related to the triple planetary crisis cited in Chapter 3 — the worsening of marine plastic pollution since the COVID-19 pandemic. As such, rather than seeing nuclear technologies as threats to the safety of individuals, it would be more helpful to enhance the nuclear security regime so that today's global issues can be addressed through safe and secure use of nuclear energy and technology.

HUMANITARIAN ASSISTANCE AND DISASTER RELIEF

While COVID-19 in itself has been seen as a health disaster,[7] it also adds to the complexity of humanitarian assistance and disaster relief (HADR) operations in responding to natural disasters as an NTS threat. This, in brief, is what Part II of this monograph focuses on. **Chapter 5** looks at COVID-

7 Steven Phillips and Michelle A. Williams. "Confronting our next national health disaster—long-haul Covid", *New England Journal of Medicine* 385, no. 7 (2021): 577–579; Waleed Alabdulmonem, Ali Shariq, and Zafar Rasheed, "COVID-19: A Global Public Health Disaster", *International Journal of Health Sciences* 14, no. 3 (2020).

19 from the perspective of disaster governance in the region. Essentially, it frames COVID-19 as a natural hazard, in line with the definition used by the International Federation of Red Cross and Red Crescent Societies (IFRC).[8] This framing allows for a comparative assessment of countries' responses to the pandemic and their responses to other forms of disasters; whereas preparation for other disasters is measured based on the availability of medical supplies (antibiotic ointments, bandages) as well as other personal care items, the supplies required for the pandemic are masks, laboratory surveillance, and oxygen tanks, among others.

Thus, both pandemics and natural hazards can be compared as far as the size and adequacy of preparation required are concerned. Chapter 5 finds that, regionally, the Association of Southeast Asian Nations (ASEAN) distinguishes between pandemics and natural disasters, unlike the IFRC, and that this differentiation has led to different degrees of prioritisation between the two types of phenomena. Prior to the pandemic, the preparation for natural disasters was given significantly more attention owing to the saliency and frequency of natural disaster occurrence (with over 1,365 natural disasters from January 2020 to October 2021), while pandemic preparedness was given relatively less importance. This landscape has quickly evolved upon COVID-19's emergence, however, and this shift is to some extent what marks the start of a "new normal" in disaster preparedness. COVID-19's presence makes for simultaneous or concurrent disasters, alongside the natural hazards that continue to pose risks to the lives, livelihoods and properties of individuals; it presents a test of the region's ability to respond in solidarity against future novel threats.

Another commonality between both disasters is the need to deliver aid in the form of either cash or relief goods to communities who are immobilised as a result of the pandemic. While the use of cash-based interventions is already well established in the case of natural disasters, **Chapter 6** highlights that, similar to other disasters, the pandemic can also trap individuals in situations where they may not be able to access their basic needs, whether through unemployment or the lack of physical access to goods, thus raising the need for cash assistance. For instance, it notes that amid the pandemic cash assistance was provided within 429 programmes introduced by 164

8 IFRC, "Types of Disasters", n.d., https://www.ifrc.org/en/what-we-do/disaster-management/about-disasters/definition-of-hazard/.

countries from March to December 2020. Thus, the decades of experience with relief aid during natural disasters offers wisdom on how countries can better organise themselves to get resources to individuals who are badly hit by COVID-19.

However, there are differences as far as the effectiveness of these programmes is concerned, as can be seen from a contrast between success in Malaysia and the Philippines and challenges in the South Pacific island states of Fiji and Tonga. Thus, Chapter 6 argues for the need for novel forms of cash and voucher assistance, i.e., in the form of digitised transfers, while at the same time nuancing these with the need for a bespoke approach that responds to unique needs in particular contexts. While COVID-19 has elsewhere been treated as a primarily urban disease that impacts cities the strongest in terms of the rate of spread of infections within densely populated areas,[9] Chapter 6 shows that individuals within rural areas can also be badly hit when populations are diffused or spread out geographically such that the goods themselves are not in close proximity to individuals, or individuals may even be barred from entering shops owing to movement restrictions. In these cases, cash transfers may not be effective at all, thus prompting the need for further investigation on how best to serve aid to geographically diffused communities in distress.

A further nuance to understanding the NTS implications of COVID-19 lies in the intersection between disaster management/response and gender equality. It is important to recognise that "disaster events do not land in a 'socio-economic and political void', but rather in a situation where women may already face restrictions on their agency, autonomy and rights", as **Chapter 7** argues. Gender inequality falls under the ambit of NTS issues since it can pose existential threats to segments of society that may be disadvantaged as a result of institutions which discriminate and fail to provide equal opportunity to individuals regardless of gender. During times of disaster, women are more likely to serve as "shock absorbers" by caring for their households, such that a greater portion of mortalities from disasters are female. They likewise suffered from an increase in gender-based violence

9 Jose Ma. Luis P. Montesclaros and Mely Caballero-Anthony, "The COVID New (Ab) Normal: Pandemic-Proofing Cities", Asia Society Policy Institute, 8 December 2020, https://asiasociety.org/policy-institute/covid-new-abnormal-pandemic-proofing-cities.

(i.e., sexual violence against women and girls) during disasters.

COVID-19 adds to these extant gender-based challenges because pandemic lockdowns have led to increased strains on security, health and financial resources. They have also led to heightened isolation of women with violent partners, further raising the likelihood of gender-based violence within a health-disaster setting. Amid the pandemic, funding for agencies that enforce protections for women has declined, and yet the demand for such protection is particularly stronger in the case of disaster-stricken areas. Beyond disasters, the impacts of COVID-19 on the economy are likewise worse in the case of women since they are more likely to be engaged in vulnerable informal sectors or in high-contact sectors such as travel, hospitality, textile manufacturing, and retail sales. The closure of schools also has placed a greater burden on mothers, who need to allocate more time to take care of their children, especially in countries where such roles are assigned based on gender. What is hoped is that society is able to "build back better" in the new normal in reducing the unfair burdens on women, allowing for greater functional representation in decision-making processes and engendering a greater awareness of the unique needs of *all* individuals, regardless of gender, race, socioeconomic class, or other factors.

POLICY IMPLICATIONS

This monograph concludes with an assessment of the key trends occurring across the various segments of NTS issues that are impacted or worsened by the COVID-19 pandemic. It also highlights the policy implications thrown up in this new normal, from the perspectives of both sustainable security and HADR. It suggests that the prospects for the new normal are not necessarily bleak if there is constant transformation and improvement in the way old issues are faced. We can in fact thrive by building on the novel institutional and technological innovations available today and reforming existing systems to create the space for such innovations to be introduced, while at the same time paying attention to the differentiated needs of individuals in different contexts.

Part I

SUSTAINABLE SECURITY

Has Southeast Asia Reached a New Normal in Food Security?

Dissecting the Impacts of COVID-19 as a Hybrid Health–Economic Crisis

Jose Ma. Luis Montesclaros

By the end of 2020, the number of undernourished persons worldwide had increased by 118 million to approximately 768 million. This increase equates to practically a fifth (18%) of the previous year's figure of 650 million undernourished people.[10] COVID-19, declared a pandemic at the start of the year, has been seen as one of the probable causes for the increase in hunger throughout 2020. However, solely attributing the increase in undernourishment to the pandemic would be an exaggeration as Asia's food system was already reeling from a number of other disruptions at the start of the year. These include the spread of the African swine fever to China, the world's largest pork consumer; the rise of fall armyworms, which damaged corn crops in East, Southeast and South Asia; and the onset of the worst drought in Thailand in four decades.[11] These incidents in combination made for a perfect storm for the food sector. [12]

Has COVID-19 opened the way towards a "new normal" in food security in Southeast Asia and the world over, and what are its policy implications? This question is pertinent from a policy perspective since the pandemic falls under the classification of "wicked" problems. Such problems are by nature "complex, unpredictable, open ended, or intractable".[13]

10 Food and Agricultural Organization (FAO), The State of Food Insecurity in the World, 2021, xv.

11 European Commission's Directorate-General for European Civil Protection and Humanitarian Aid Operations, "Thailand — Drought, DG ECHO Daily Flash of 10 January 2020", reproduced in ReliefWeb, https://reliefweb.int/report/thailand/thailand-drought-dg-echo-government-media-echo-daily-flash-10-january-2020.

12 Paul Teng, "Swine Fever, Climate Change, Armyworm: A Perfect Storm for Asia's Food Prices", *South China Morning Post*, 10 January, 2020, https://www.scmp.com/week-asia/health-environment/article/3045515/swine-fever-climate-change-armyworm-perfect-storm.

13 Brian W. Head and John Alford, "Wicked Problems: Implications for Public Policy and Management", *Administration & Society* 47.6 (2015): 712.

COVID-19 is multifaceted and multi-sectoral in nature, having led to a hybrid crisis in the health and economic sectors, i.e., a "hybrid health–economic crisis". To understand the pandemic's impacts on food security, this chapter contextualises the challenges amid COVID-19 in light of those faced in the pre-COVID-19 "old normal". This approach allows for ascertaining whether these are really new problems or simply variants of the old problems. This chapter argues that while COVID-19 presents a significant challenge to food security, it is not entirely new in the context of the previous challenges faced in the pre-COVID era.[14] Nonetheless, the pandemic provides impetus to exploring transformative efforts in addressing age-old food system challenges.

DRIVERS OF FOOD SECURITY

The UN Food and Agriculture Organization (FAO) defines food security as a "situation that exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life".[15] Three pertinent aspects of food security, which can be drawn from the FAO definition, are global food availability (whether there is enough food to meet global demand); physical availability (whether food is physically accessible within a country); and economic access (whether the physically accessible food is also sufficiently affordable). These factors in combination ultimately determine the undernourishment levels in a country.

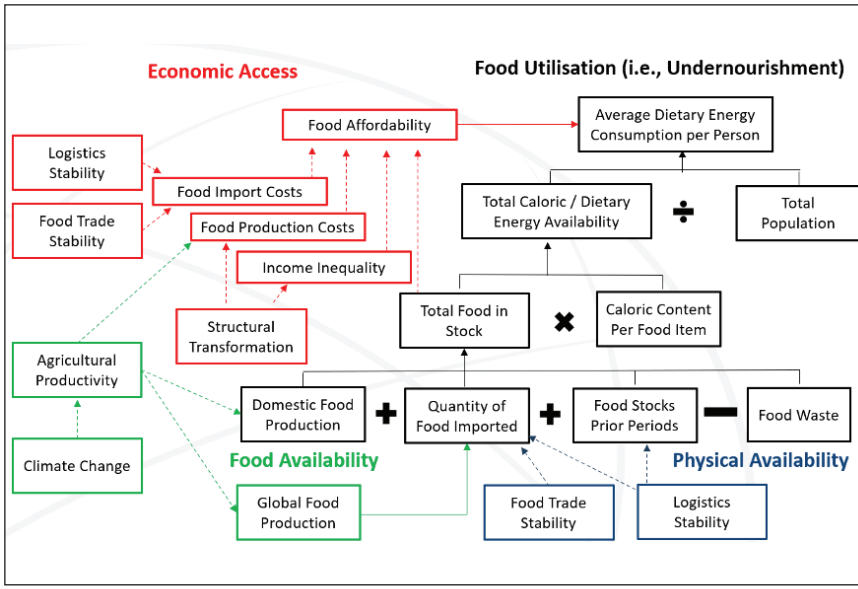
A brief summary of how these three factors work in combination is captured in Figure 1 below. It shows that economic access, physical access, and food availability factors interact with one another in shaping undernourishment outcomes. For instance, the physical availability of food determines the level of food scarcity, which in turn shapes food prices and the cost of food. Moreover, food prices serve as a double-edged sword in that they determine domestic and international levels of food production: higher prices incentivise farmers to adopt technologies to boost productivity for as long

14 The Lancet, "COVID-19: We Will Not Be Returning to the Old Normal", *The Lancet — Microbe* 1, no. 6 (2020): e226.

15 FAO, IFAD, and WFP, *The State of Food Insecurity in the World 2015.* (FAO, 2015), 53.

as food products are priced within the range that customers are willing to pay. The next section goes into further detail into each of these components.

Figure 1: Food Security Challenges in the "Old Normal"



Source: Author

The next sections show the implications of these disruptions induced by COVID-19 as a hybrid health and economic crisis, with a focus on economic access to food, food availability (production and climate change) and physical access (trade and markets).

IMPACTS OF HYBRID HEALTH–ECONOMIC CRISIS ON ECONOMIC ACCESS TO FOOD

In the pre-COVID-19 era, the key long-term challenge faced was poverty, which is associated with poor or stalled economic development as well as income inequality. Poverty prevents individuals from purchasing the needed food to meet their daily consumption requirements. This is straightforward since poverty is calculated on the basis of the minimum income required for meeting basic daily consumption requirements, which include food.

However, using a broader measurement of food security as the ability to afford a "healthy diet" and not just the basic minimum caloric requirement, the FAO found that the challenge of food insecurity is greater, with over 3 billion individuals globally unable to afford a healthy diet as of end 2019.[16]

By early 2020, when COVID-19 had spread worldwide and posed a health security threat to the global community, countries responded by restricting both domestic and international movement to stem the number of cases. These lockdowns were due to COVID-19's highly infectious nature and its intractability or ability to evade temperature checks, as well as the lack of a vaccine.[17]

The hardest hit sector was the service sector which required either international travel or face-to-face contact with customers to operate (e.g., restaurants, the entertainment industry, hotels, travel and tourism). Some industries in the manufacturing sector were impacted too because they were not treated as "essential industries", unlike the food sector. The disruption to these sectors had devastating impacts on economies since services contributed 64% of global GDP in value-addition at the start of 2020.[18] Among firms or businesses, the hardest hit were small and medium enterprises (SMEs), which made up approximately 90% of all businesses in the Asia-Pacific; these were less likely to have sufficient capital buffers to maintain normal operations amid a disruption the size of COVID-19.[19] In total, global GDP shrank by 3.2% at the end of 2020, with advanced economies shrinking by 4.6% and developing countries by 2.1%.[20]

16 FAO, *The State of Food Insecurity in the World 2020* (FAO, 2020), 19.

17 Monica Gandhi, Deborah S. Yokoe, and Diane V. Havlir, "Asymptomatic Transmission: The Achilles' Heel of Current Strategies to Control Covid-19", *New England Journal of Medicine* 382, no. 22 (2020): 2158-2160.

18 World Bank. "Services, Value Added (% of GDP)", World Development Indicators Database, World Bank website, accessed 27 November 2021, https://data.worldbank.org/indicator/NV.SRV.TOTL.ZS.

19 UNESCAP, *Policy Guidebook for SME Development in Asia and the Pacific*, 2012. https://www.unescap.org/resources/policy-guidebook-sme-development-asia-and-pacific

20 International Monetary Fund, *World Economic Outlook Update, July 2021*. IMF, 2021. https://www.imf.org/en/Publications/WEO/Issues/2021/07/27/world-economic-outlook-update-july-2021.

Given the hybrid economic and health impacts of the pandemic, the first pathway through which COVID-19 affected the food security of individuals was its impacts on poverty and income levels. Prior to the onset of COVID-19, poverty was on a falling trend, from 1.9 billion impoverished people in 1990 to 648 million in 2019.[21] In contrast, poverty increased in 2020 as a result of the pandemic, with 119–124 million more people impoverished.[22]

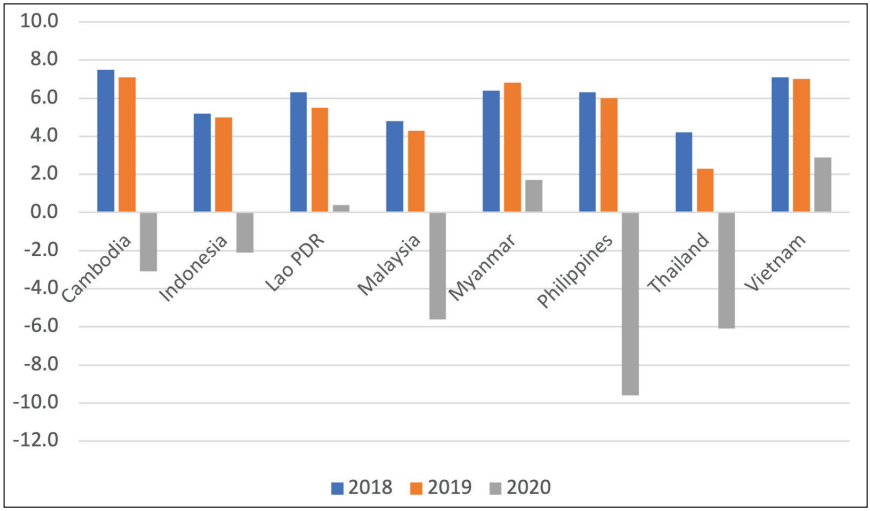
Data from the World Bank's World Economic Outlook shows that economies in 2020 contracted by 3.8% in East Asia and the Pacific, excluding China, whose GDP grew by 2.3%. Even if China was included, the region's GDP growth still slowed down from 5.8% in 2019 to 1.2% in 2020. The largest economic contractions across developing countries that were included in the bank's *Global Economic Prospects* report were in the Philippines, where it shrank by close to 10% (-9.6% growth), followed by Thailand (-6.1%) (Figure 2).[23]

21 This is based on the poverty threshold of US$1.90 per person per day in 2011, based on purchasing power parity terms. Kharas, Homi, and Meagan Dooley, "Long-run Impacts of COVID-19 on Extreme Poverty", Brookings Institution, 2 June 2021, https://www.brookings.edu/blog/future-development/2021/06/02/long-run-impacts-of-covid-19-on-extreme-poverty/.

22 Daniel Gerszon Mahler, Nishant Yonzan, Christoph Lakner, R. Andres Castaneda Aguilar, and Haoyu Wu, "Updated Estimates of the Impact of COVID-19 on Global Poverty: Looking Back at 2020 and the Outlook for 2021", World Bank Blogs, 24 June 2021, https://blogs.worldbank.org/opendata/updated-estimates-impact-covid-19-global-poverty-turning-corner-pandemic-2021.

23 World Bank. *Global Economic Prospects*, June 2021, https://www.worldbank.org/en/publication/global-economic-prospects (accessed 1 October 2021).

Figure 2: Pre-COVID GDP Growth (%) and COVID-related GDP Contraction in Developing ASEAN Countries, 2018–2020



Source: Modified from World Bank, *Global Economic Prospects*, June 2021, accessed 1 October 2021, https://www.worldbank.org/en/publication/global-economic-prospects.

Thus, within East Asia and the Pacific, the same individuals who fell into poverty can be counted among those who fell into food insecurity. Poverty resulted from job losses; one estimate, by the Asian Development Bank, even showed an increase in unemployment, with an upper estimate of 167 million within Asia alone.[24] Unemployment, coupled with food price inflation, especially in the case of developing countries, placed food further beyond the reach of poorer individuals.[25]

24 Asian Development Bank (ADB), "Updated Assessment of the Potential Economic Impact of COVID-19", ADB Brief, No. 133, May 2020, https://www.adb.org/publications/updated-assessment-economic-impact-covid-19.

25 Vasilii Erokhin and Tianming Gao, "Impacts of COVID-19 on Trade and Economic Aspects of Food Security: Evidence from 45 Developing Countries", *International Journal of Environmental Research and Public Health* 17, no. 16 (2020): 5775, https://doi.org/10.3390/ijerph17165775

CHALLENGES TO FOOD AVAILABILITY: DISRUPTIONS TO INPUT/LABOUR SUPPLIES FOR FARMING

Another challenge in the "old normal" was climate change and the slowing trends in productivity growth in agriculture that impacted food availability. The Sixth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC) noted that Southeast Asia has seen increasing instances of floods and drought and shifting temperature levels across agroclimatic zones from the 1960s to the present.[26] For instance, the maximum number of floods was 104 per year between 1990 and 1999, but this increased to a maximum of 196 floods per year from the year 2000 onwards.[27]

From a crop science perspective, these changes can translate into reduced growth in farming yields (measured in tonnes of output per hectare farmed) for cereals, which are key staples in the region. Yield growth has slowed down from 2.1% per annum in the previous three decades (1961–1990) to 1.7% per annum in the following decade (1990–2019). More pronounced yield growth slowdowns can be observed for rice, which slowed down from 2.1% per annum (1961–1990) to 1.4% per annum (1990–2019).[28]

The relationship between climate change and COVID-19 may not appear straightforward at first glance. However, what they share is their impacts on food availability. In contrast to climate change, which alters the environments for growing food, the impact of COVID-19 lies in the way it interrupts the schedules of farmers in growing their food. This is because farming is a time-sensitive process, relying on the natural growing seasons. As such, farmers need to have in hand and in a timely manner all their inputs (seeds, fertilisers, pesticides, etc.) as well as the labour for farming. By slowing down or hindering the movement of people within the country,

26 Intergovernmental Panel on Climate Change (IPCC), "Summary for Policymakers", in *Climate Change 2021: The Physical Science Basis [Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change]*, ed. V. Masson-Delmotte, P. Zhai, A. Pirani, S. L. Connors, C. Péan, S. Berger, N. Caud, Y. Chen, L. Goldfarb, M. I. Gomis, M. Huang, K. Leitzell, E. Lonnoy, J. B. Matthews, T. K. Maycock, T. Waterfield, O. Yelekçi, R. Yu, and B. Zhou (Cambridge University Press, 2021), 41, https://www.ipcc.ch/report/ar6/wg1/downloads/report/IPCC_AR6_WGI_SPM.pdf

27 FAO, "State of Food Insecurity in the World 2018", FAO, 2018, http://www.fao.org/state-of-food-security-nutrition/en/.

28 FAO, "Crops (Production), 1961–2016", FAO, http://www.fao.org/faostat/en/#data/QC. Note: Latest available data is for 2016.

the pandemic interferes with farmers' access to their farming inputs and labour, thus reducing their productivity.

These impacts are punctuated in the case of farmers who grow food within enclosed spaces, such as egg farms, as well as in the case of meat processing facilities (abattoirs). In these cases, there is greater potential for person-to-person infection, unlike farming in the fields, so it is more difficult to continue with normal operations while maintaining safe distancing among workers amid COVID-19. In Thailand, for instance, its biggest meat producer was forced to shut down operations in Saraburi province for five days.[29]

PHYSICAL ACCESS: DOMESTIC AND INTERNATIONAL FOOD INSTABILITY

The third key challenge in the old normal was the risk of instability in the food trade and in logistics. More than a decade ago, the world food price crisis of 2007–08 emerged as a result of drought-induced grain shortage in India, which significantly reduced the country's grain stocks. Given the stock management policy of the country in its public distribution system, India was forced to import grains (both rice and wheat) in order to meet its minimum food stock requirements. However, since imports were more expensive than locally grown grains (given transport costs and the suitability of India for crop production), the country found that it would be more cost-effective to restrict the exports of grains. This was especially important since the country had the explicit policy of subsidising food access.

India's export ban created ripples in the international food system since rice is a staple within Southeast Asia, and yet it is thinly traded. This means that the size of rice exports in international markets is significantly small relative to the total demand for rice. At the same time, this market was highly concentrated, with close to four-fifths (79%) of the total rice exports coming from just five countries (India, Vietnam, Thailand, Pakistan and the United States). As a result, international prices rose significantly, and to further disruption when the Philippines decided to make an advance purchase of a large quantity of rice (1.4 million tonnes) from Vietnam at above-market

29 Anuchit Nguyen, "Top Thai meat producer shuts factory on Coronavirus outbreak", Bloomberg News, 30 May 2021, https://www.bloomberg.com/news/articles/2021-05-30/thailand-s-top-meat-producer-shuts-factory-on-virus-outbreak.

rates, and Vietnam and Thailand, in turn, encouraged their own traders to stockpile rice. These moves led to an upward spiral in rice prices, with up to 200 million more people becoming undernourished globally at this time.

As fears of insufficient food stocks emerged in the wake of COVID-19, memories were revived of the trauma of contagion during the 2007–2008 world food crisis (WFC), when governments imposed food restrictions and intervened in food imports. Similar to the WFC, COVID-19 has led to a reduction in the physical access to food within countries because production disruptions occurring as a result of the pandemic have led to reduced quantities of food being physically available domestically. This situation was worsened by consumer behaviour, namely, panic-buying in supermarkets. In Singapore, as in many other countries, long queues formed in supermarkets after the government announced a tightening of COVID-19 movement restrictions. In fact, Singapore's minister for trade and industry had to give assurances that sufficient food was available and that supply lines were intact.[30]

The combination of panic-buying among consumers and the production-related challenges brought about by the pandemic made governments increasingly worried about the potential for food prices to increase in the same manner as during the WFC. Within Southeast Asia, rice export restrictions were imposed by Cambodia, Myanmar and Vietnam, and egg export restrictions by Thailand.[31] These reduced the amount of the respective commodities that could be released or sold in international markets.

HAS SOUTHEAST ASIA REACHED A NEW NORMAL IN FOOD SECURITY?

This chapter has shown that COVID-19 does not present a radical break from normality, as far as the food sector is concerned, but rather an inten-

30 Sherlyn Sim, "S'pore has adequate stocks, says Chan Chun Sing, amid long supermarket queues after Covid-19 rules tightened", *The Straits Times*, 14 May 2021. https://www.straitstimes.com/singapore/long-queues-form-at-supermarkets-as-people-stock-up-spore-has-adequate-stocks-intact.

31 VOA News, "ASEAN intervenes to fight death spiral of food export restrictions", 6 May 2020; Pearly Neo, "COVID-19 in ASEAN: 'Protectionist' measures threaten global supply chains as lockdowns persist", *Food Navigator Asia*, 14 April 2020. https://www.foodnavigator-asia.com/Article/2020/04/14/COVID-19-in-ASEAN-Protectionist-measures-threaten-global-supply-chains-as-lockdowns-persist.

sification of the old challenges faced. Firstly, even before COVID-19, the world was already struggling to address undernourishment, given the problem of poverty. Ultimately, this has to do with the problem of striking a balance between ensuring all individuals have sufficient incomes to meet their basic daily living requirements, on one hand, and, on the other hand, preventing free riding, where able-bodied individuals fail to contribute their due share to the economy. While governments struggle to address this problem, COVID-19 has had the effect of worsening unemployment and poverty rates, deepening the pre-existing social and economic rifts that prevent affordable food access.

Secondly, even in the pre-COVID era, amid rapidly growing food demand, the world was already suffering from slowing growth in agricultural productivity as a result of climate change. COVID-19 has further complicated the time-sensitive farming process, given that food farming relies on the natural seasons for growing. This is because the disruption that it has caused to the flows of labour and other inputs, such as fertilisers, can have significant impacts, especially when they occur at the start of planting seasons, when such workers and inputs are needed most.

Thirdly, the trading system for rice, a key staple in Southeast Asia, was fragile to begin with, as shown during the 2007–08 WFC; COVID-19 has added to this fragility. While the panic-buying behaviour amid the Asian financial crisis was focused on state-level rice tenders (as in the Philippines), the type of panic-buying observed amid COVID-19 pandemic was more individual-centric, with panic-buying by consumers in local settings. Nonetheless, the issue of state intervention remains in the fore, with states having imposed export restrictions amid food-sector disruptions resulting from the aforesaid problems in farming during lockdowns.

Positing that COVID-19 does not present a radical break from the normal as far as the food sector is concerned is not to discount the need for transformative efforts in addressing these age-old challenges. For instance, one study showed that while some countries were gravely affected through food trade restrictions, the impacts were less severe in the case of countries where there was a "high portion of locally produced seasonal food in

consumption".[32] This highlights the importance of enhancing the stability of regional trade and food production baskets within Southeast Asia, and of ensuring that intra-regional trade is unhampered amid the pandemic, as in the case of ASEAN's "Hanoi Plan of Action on Strengthening ASEAN Economic Cooperation and Supply Chain Connectivity in Response to the COVID-19 Pandemic".[33]

A further way forward is to explore the potential for greater adoption of digital technologies in food production. Such technologies have twofold potential benefits for the agricultural sector. Firstly, they can help reduce farmers' reliance on labour. At the same time, they can improve agricultural productivity by providing farmers with the needed early warning information and guidance on the appropriate practices to implement in the face of changing climates.[34] Where feasible, countries can also benefit from exploring the potential for digital indoor agriculture, which allows for controlled environments for growing food. This will enhance the resilience of farmers in the face of supply chain disruptions by removing the time-sensitivity of the food growing process.[35]

Secondly, through e-commerce, digital technologies have the potential to reduce the reliance of farmers on middlemen so that they can get their food directly to consumers[36] in spite of food restrictions. In this way, digital

32 Vasilii Erokhin and Tianming Gao, "Impacts of COVID-19 on Trade and Economic Aspects of Food Security: Evidence from 45 Developing Countries", *International Journal of Environmental Research and Public Health* 17, no. 16 (2020): 5775 (page 13 of 28), https://doi.org/10.3390/ijerph17165775

33 ASEAN Secretariat, "Hanoi Plan of Action on Strengthening ASEAN Economic Cooperation and Supply Chain Connectivity in Response to the COVID-19 Pandemic", 26 June 2020, https://asean.org/hanoi-plan-of-action-on-strengthening-asean-economic-cooperation-and-supply-chain-connectivity-in-response-to-the-covid-19-pandemic/.

34 Kevin Coffey, Menghestab Haile, Mea Halperin, George Wamukoya, James Hansen, James Kinyangi, Kindie Tesfaye Fantaye, and Dhanush Dinesh, "Improving early warning systems for agricultural resilience in Africa", CCAFS Info Note, CGIAR, May 2015.

35 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 No. 1805*, International Food Policy Research Institute, 2019.

36 Apichaya Lilavanichakul, "Development of Agricultural E-commerce in Thailand", *The FFTC Journal of Agricultural Policy* 1 (2020): 7–16.

technologies eliminate the need for consumers to be physically present in stores daily to purchase their food necessities. Similarly, digital technologies can be used as an alternative means for governments to deliver assistance intended to improve social safety nets; for instance, the Indian government has started to move towards issuing digital ration cards as a means of providing food aid to its citizens, and this initiative has already been rolled out in over 20 Indian states.[37] Other Southeast Asian countries can benefit from similar initiatives at digitising the manner of food distribution.

In sum, while COVID-19 presents a significant challenge to food security, it is not entirely "new" in the context of the challenges faced in the pre-COVID era. Regardless of whether COVID-19 is here to stay, improving the implementation of existing initiatives for supporting the food and agricultural sector remains an imperative. If anything, COVID-19 has the potential to serve as an impetus for galvanising societal action in addressing these age-old challenges.

37 The Economic Times, "Digital ration cards on anvil, pan-India services by March 2021", ET Government.com, 2 June 2020, https://government.economictimes.indiatimes.com/news/digital-india/digital-ration-cards-on-anvil-pan-india-services-by-march-2021/76155310.

Triple Planetary Crisis

The Enduring Human-centric Approach

Margareth Sembiring

Even as the world was grappling with the hybrid health–economic crisis in the form of the COVID-19 pandemic in 2020, the United Nations Environment Programme highlighted three concurrent pressing environmental challenges that presented crises in and of themselves. These were climate change, biodiversity and ecosystem integrity loss, and pollution, which in combination pose an interconnected "triple planetary crisis" today.[38]

Discussions of global governance of environmental protection have been ongoing over the past 50 years since the first UN Conference on the Human Environment in Stockholm in 1972. These have gradually taken shape to form a "human-centric approach" that gives primacy to how environments impact individuals and to minimising those impacts on the lives and livelihoods of individuals. Despite this approach, one can observe the continued worsening of the degradation of nature. This prompts us to question whether the human-centric approach is sufficient. To address this predicament, this chapter traces the origins of the existing approach, evaluates the gaps in this approach, and identifies alternative holistic approaches that have been tabled throughout the years as a starting point for broadening discussions on how best to move forward in the face of increasingly alarming environmental crises. It stresses the need for further dialogue through the latter approaches so that truly potent solutions can be formulated towards building back better in the face of a concurrent hybrid health–economic crisis and the triple planetary crisis.

38 UN Environment Programme, "The Triple Planetary Crisis: Forging a New Relationship between People and the Earth", 14 July 2020, https://www.unep.org/news-and-stories/speech/triple-planetary-crisis-forging-new-relationship-between-people-and-earth

COP26 AND THE HUMAN-CENTRIC APPROACH TO THE ENVIRONMENT

In the lead up to the 26th UN Climate Change Conference of the Parties (COP26) in Glasgow in late 2021, signs pointed to a clear trajectory towards achieving a decarbonised world. This consisted of a transition towards renewable energy as more countries made stronger emission reduction commitments by 2030 while aiming for net-zero economies by 2050. COP 26 was significant for at least two reasons. Firstly, the world is currently in the decade where it needs to slash emissions by 7.6% every year until 2030 if it were to achieve the 1.5^{0}C target of the Paris Agreement by the end of the century.[39] Secondly, this is also the time when countries will update their nationally determined contributions (NDCs), presumably with more ambitious targets, as requested for by the Paris Agreement's five-yearly ratcheting mechanism.[40]

In this regard, the series of events that preceded COP26, such as the Climate Ambition Summit in December 2020 and the Leaders Summit on Climate convened by US President Joe Biden in April 2021, were organised primarily to galvanise stronger climate mitigation commitments from countries although climate adaptation and financing were likewise part of the agenda. The push for a technology-based low-carbon energy transition, along with its potential economic benefits that include job creation, was a main feature in Biden's Leaders Summit on Climate. Unsurprisingly, COP26 also emphasised the importance of technological solutions. This is seen in one of its goals, i.e., that of attaining global net zero by 2050 through the acceleration of coal phase-out and the ushering in of renewable energy and electric vehicles.[41]

While the world was gearing up its efforts to decarbonise the global economy, the COVID-19 pandemic has brought into light the larger environmental issues that have been confronting humanity. The origin and

39 UN Environment Programme, "Cut global emissions by 7.6 percent every year for next decade to meet 1.5°c Paris target — UN report", 26 November 2019, https://www.unep.org/news-and-stories/press-release/cut-global-emissions-76-percent-every-year-next-decade-meet-15degc

40 UN Climate Change, "The Paris Agreement", https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement

41 UN Climate Change Conference UK 2021, "COP26 Goals", https://ukcop26.org/cop26-goals/

spread of the virus are widely believed to be a consequence of environmental degradation.[42] As the world was grappling with the pandemic in July 2020, the United Nations Environment Programme highlighted three pressing environmental challenges, namely, climate change, biodiversity and ecosystem integrity loss, and pollution, and regarded them as an interconnected "triple planetary crisis".[43] The framing of these problems into a single term implies a need for synergistic actions that will address the three simultaneously. It thus suggests minimising trade-offs for a truly conclusive solution.

In this regard, the current drive towards technology-based renewable energy development may present a gap in the efforts to address the triple planetary crisis. Part of the reason is that renewable energy development generates a high demand for minerals,[44] which will lead to intensified mining activities and their related environmental repercussions. Furthermore, the development of renewable energy technologies does not seem to come with sufficient product after-life capability.[45] The latest Global Biodiversity Outlook 5 report released by the Secretariat of the Convention on Biological Diversity in 2020 similarly acknowledges the impacts of renewable energy development on biodiversity and points to the need to minimise the ecological repercussions of renewable energy projects and accompanying mining

42 Jeffrey A. McNeely, "Nature and COVID-19: The Pandemic, the Environment, and the Way Ahead", *Ambio* 50 (2021): 767–781, https://link.springer.com/article/10.1007/s13280-020-01447-0

43 UN Environment Programme, "The Triple Planetary Crisis: Forging a New Relationship between People and the Earth", 14 July 2020, https://www.unep.org/news-and-stories/speech/triple-planetary-crisis-forging-new-relationship-between-people-and-earth

44 International Bank for Reconstruction and Development/The World Bank, *The Growing Role of Minerals and Metals for a Low Carbon Future* (The World Bank, 2017), https://openknowledge.worldbank.org/bitstream/handle/10986/28312/117581-WP-P159838-PUBLIC52

45 See for example, International Renewable Energy Agency (IRENA) and International Energy Agency (IRENA) and IEA, *End-of-Life Management: Solar Photovoltaic Panels*, Photovoltaic Power Systems Programme, 2016, https://www.irena.org/publications/2016/Jun/End-of-life-management-Solar-Photovoltaic-Panels; Pu Liu and Claire Y Barlow, "Wind Turbine Blade Waste in 2050", *Waste Management* 62(2017): 229–240, https://www.sciencedirect.com/science/article/abs/pii/S0956053X17300491#:~:text=The%20research%20indicates%20that%20there,rest%20of%20the%20world%2019%25.

activities.[46] Thus, the ongoing aggressive push for low-carbon energy transition to address climate change is likely to exacerbate the parallel crises of biodiversity loss and pollution.

Discussions to manage such negative effects are already entering international fora. For example, the International Union for Conservation of Nature (IUCN) Conference in September 2021 brought to the table the concerns over increasing demand for mineral resources driven by renewable energy development, among others, and the mining sector's impacts on biodiversity.[47]

Despite its potential pitfalls, technology-based low-carbon energy transition is very likely to continue. This is not only because phasing out fossil fuels is perceived as indispensable in cutting down emissions, but, more importantly, because it epitomises the longstanding human-centric approach to environmental governance.

THE HISTORICAL ORIGINS OF THE EXISTING APPROACH TO THE ENVIRONMENT

Human-centric, or what are known as anthropocentric, approaches to the environment can be broadly defined as approaches that place human needs and goals as the top priority in protecting and safeguarding the environment. These contrast with approaches to environmental protection and safeguarding that result from intrinsic concerns over the environment's own limits that need to be respected.

The current design to solve environmental problems can be traced back to at least the first UN Conference on the Human Environment in 1972. The declaration adopted at the end of the conference explicitly acknowledged the various harms that human activities inflict on the environment.[48] It did not fall short of recognising the impacts of environmental degradation on people's well-being and economic development as well as its inter-generational

46 Secretariat of the Convention on Biological Diversity (CBD), "Global Biodiversity Outlook 5", 2020, https://www.cbd.int/gbo/gbo5/publication/gbo-5-en.pdf

47 IUCN World Conservation Congress Marseille, "Reducing the Impacts of The Mining Industry on Biodiversity", 30 September 2021, https://www.iucncongress2020.org/motion/067.

48 United Nations, "Report of the United Nations Conference on the Human Environment, 5–16 June 1972", https://undocs.org/en/A/CONF.48/14/Rev.1

consequences. Despite limited progress in scientific evidence at that time, the declaration also implicitly acknowledged the presence of environmental limits. In some of its principles, it called for the safeguarding of natural resources, the maintenance, restoration and improvement of earth capacity, the conservation of nature, and the protection of non-renewable resources against depletion.

However, the document did not lead to solutions based on acknowledged environmental limits; instead, it reflected a strongly human-centric approach to the issue. Firstly, it viewed economic and social development as an enabler of environmental protection. Therefore, it argued against stifling economic development on account of environmental concerns, particularly in developing countries. Secondly, caring for the environment was deemed to be "expensive". As such, it was an accepted reality that developing countries may not be able to afford environmental protection and that they would require financial and technological help from the international community to strengthen environmental safeguards.

In other words, while acknowledging the harmful effects of human activities on the environment, the first global conference on the environment saw economic and social development as a solution to the problem. It believed that environmental protection could only be afforded through economic and social development. Technology, in particular, was viewed to hold a key role in managing the environmental impacts of human activities. The prospect of *no growth* or "degrowth" of the economy was therefore not an option, and even expressly condemned.

This thinking set the foundation for environmental governance worldwide despite criticisms of such an approach raised by at least two influential documents at the time of the conference: "The Limits to Growth" report by the Club of Rome and the "A Blueprint for Survival" report by the Ecologist. In essence, these documents presented an approach to the environment from a perspective that put the environment (rather than human beings) at the centre, emphasising particularly the "finiteness" of the Earth.

The "Limits to Growth" report predicted an eventual transgression of the Earth's limits or "carrying capacity" should population, industrialisation,

pollution, food production and resource depletion continue to increase.[49] Reaching such limits or exceeding the Earth's carrying capacity would effectively cap the prospects for further growth in population and industrial capacity. Although technological solutions may be able to remove, modify, or manipulate the Earth's limits, they can only delay the eventual outcome; they cannot, however, stop it from occurring. The document thus concluded that it is not possible for the population and the economy to keep growing without risking a sudden and uncontrollable collapse at a future point in time. Instead, it suggested self-imposed restrictions on economic growth as the most viable approach to environmental protection.

In a rather similar manner, the "A Blueprint for Survival" report put the blame squarely on the world's ambition to keep growing the economic output or GDP.[50] It argued that GDP is essentially a reflection of demands on the ecology. Therefore, a continuing rise in GDP cannot be accommodated by the Earth because it has its limits.

At this juncture, it became clear that it was the opposing human-centric and environment-centric approaches that stood at the crux of the debate, and that the former was inadequate. In spite of this reality, the world decided to pursue the human-centric approach by continuing its pursuit of economic growth with the hope that technology would be able to undo or outwit the Earth's limitations.

Twenty years since the first global conference, world leaders met again for the 1992 Earth Summit in Rio de Janeiro. "Agenda 21" was among several documents produced at that time.[51] It is a comprehensive action plan which incorporates some elements of the environment-centric view proposed by the previous two reports ("The Limits to Growth" and "A Blueprint for Survival"). For example, it acknowledged that the ecosystems continued to decline and pointed to unsustainable patterns of production and consumption, especially in developed countries, as the major culprit of environmental

49 Donella H. Meadows, Dennis L., Meadows, Jørgen Randers, William W. Behrens III, *The Limits to Growth* (Universe Books, 1972), http://www.donellameadows.org/wp-content/userfiles/Limits-to-Growth-digital-scan-version.pdf

50 The Ecologist, 1972, "A Blueprint for Survival", Vol. 2, no. 1.

51 United Nations, "Earth Summit Agenda 21: The United Nations Programme of Action from Rio", 1992, https://sustainabledevelopment.un.org/content/documents/Agenda21.pdf

degradation. It called on countries to consider reducing energy and materials consumption in accordance with the Earth's capacity limits in the long run. The realisation and acknowledgment of the Earth's limits were also shown in Agenda 21's call to review the existing approach to economic growth and pursue a different model that is more in line with the Earth's limited capacity, which necessarily requires changed lifestyles that are less material intensive while still bringing high standards of living. To do this, the document cited a need for new national accounting systems and indicators of sustainable development. Furthermore, the document recognised that resource use and pollution can only be minimised by changing production and consumption patterns in industrialised societies, with the hope that the rest of the world would follow suit.

The environment-centric view was not the only element in the Agenda 21 document, however. Being a comprehensive document, Agenda 21 also integrated human-centric approaches. Similar to the declaration of the 1972 United Nations Conference on the Human Environment, Agenda 21 placed priority on development and recognised the importance of technological applications for environmental safeguards. Calling on policymakers to place the environment and development at the heart of their decision-making processes, the document envisioned *an integration of economic growth and environmental care as the most ideal scenario*. It urged developing countries to pursue sustainable consumption patterns, which correspondingly necessitated technological assistance from developed countries.

In addition to the 1992 Agenda 21 document, the 1992 Earth Rio Summit saw the signing of three important conventions, namely, the UN Convention on Biological Diversity, the UN Convention to Combat Desertification, and the UN Framework Convention on Climate Change. Their signing reflected a comprehensive outlook in environmental management because the issues addressed in the three conventions were clearly seen to be interlinked, interdependent and functioning in the same global ecosystem.[52] It thus signifies an awareness of the need for a holistic approach to care for the environment. Although the merits of this alternative, holistic view have been recognised, the principal paradigm at work remains human-centric.

52 Convention on Biological Diversity, "The Rio Conventions", https://www.cbd.int/rio/#:~:text=The%20three%20Rio%20Conventions%E2%80%94on,development%20goals%20of%20Agenda%2021.

Unsurprisingly, the three conventions on protecting biodiversity, combating desertification, and mitigating climate change showed continuing strong reliance on technological applications and the necessity for related assistance in developing countries.

Fast forward to the present day, it has become increasingly evident that the approaches adopted in the 1972 and 1992 conferences have been falling short of their ideal or desired outcomes. Not only have emissions continued to go up, but biodiversity loss and desertification also have worsened. The Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) in its latest report released in 2019[53] highlighted that the health of the ecosystems is deteriorating "more than ever", as evidenced by the unprecedented rate of nature's decline and the acceleration of species extinctions. It highlighted that three-quarters of the land-based environment and about 66% of the marine environment have been significantly altered by human actions and warned that about 1 million animal and plant species are likely to vanish within the coming decades.

While this observation does not necessarily mean a sealed fate, it does raise questions about the effectiveness of the human-centric approach in the face of worsening environmental woes. The options are clear: the world can either continue with the existing approach while trying to make it more efficient, presumably with the assistance of more advanced technologies, *or* it can consider more deeply the alternative approaches to care for the environment that have been tabled over the past half century.

RECENT DEVELOPMENT OF ALTERNATIVE APPROACHES TO THE ENVIRONMENT

Since the release of the 1972 "Limits to Growth" and "A Blueprint of Sur-

53 S. Díaz, J. Settele, E. S. Brondízio, H. T. Ngo, M. Guèze, J. Agard, A. Arneth, P. Balvanera, K. A. Brauman, S. H. M. Butchart, K. M. A. Chan, L. A. Garibaldi, K. Ichii, J. Liu, S. M. Subramanian, G. F. Midgley, P. Miloslavich, Z. Molnár, D. Obura, A. Pfaff, S. Polasky, A. Purvis, J. Razzaque, B. Reyers, R. Roy Chowdhury, Y. J. Shin, I. J. Visseren-Hamakers, K. J. Willis, and C. N. Zayas (eds.), *Summary for Policymakers of the Global Assessment Report on Biodiversity and Ecosystem Services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services*, Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) Secretariat, 2019, https://ipbes.net/sites/default/files/2020-02/ipbes_global_assessment_report_summary_for_policymakers_en.pdf

vival" reports, as well as the 1992 Rio Summit reports and conventions, several other alternative concepts to solve environmental problems have been proposed in recent decades. The concept of "Integral Ecology",[54] for example, believes in the finiteness of the Earth and maintains that the well-being of humans and their environment are interconnected. It also considers moral notions or principles, treating concern for the environment as part of the "common good" and posits that "the deterioration of nature is closely connected to the culture which shapes human coexistence".[55] The concept identifies the source of environmental exhaustion and destruction to lie in the current system of economic growth, underpinned by short-term financial gain, profit maximisation, and unlimited material progress, which is accompanied by material-intensive lifestyles perpetuated by the technocratic paradigm. Models and paradigms for global development therefore need to evolve in order to consider moral principles in the management of natural resources.

The "Planetary Health"[56] perspective is another concept that looks at the environment from a holistic view. It takes human health as the basis of its argument. Like Integral Ecology, Planetary Health emphasises the interlinkage between human health and environmental health. Human health, including that of future generations, is being increasingly threatened by environmental degradation caused by economic and development gains. The concept points to growing wealth within the deeply unequal and highly resource-intensive global economy as the primary reason behind environmental damage. It extends the notion of human health to the environment by making the environment its subject. It acknowledges the Earth's limits and

54 Pope Francis, *Laudato Si': On Care for Our Common Home* (Catholic Truth Society, 2015)

55 Pope Benedict XVI, *Encyclical Letter Caritas in Veritate (29 June 2009)*, 51: AAS 101 (2009), 687.

56 Sarah Whitmee, Andy Haines, Chris Beyrer, Frederick Boltz, Anthony G Capon, Braulio Ferreira de Souza Dias, Alex Ezeh, Howard Frumkin, Peng Gong, Peter Head, Richard Horton, Georgina M Mace, Robert Marten, Samuel S Myers, Sania Nishtar, Steven A Osofsky, Subhrendu K Pattanayak, Montira J Pongsiri, Cristina Romanelli, Agnes Soucat, Jeanette Vega, and Derek Yach, "Safeguarding Human Health in the Anthropocene Epoch: Report of The Rockefeller Foundation—Lancet Commission on Planetary Health" *The Lancet Commission*, 386, no. 10007 (2015), 1973–2028, https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(15)60901-1/fulltext

pushes for stronger environmental action through, among others, reforms in taxation and subsidies across sectors at the global and national levels. It acknowledges that population control alone is not sufficient to relieve the Earth of the pressure it is experiencing and that there is a need for a reduction in the consumption of material resources and emission of greenhouse gases, especially in advanced and emerging economies.

A number of alternative economic models also have been developed to respond more directly to the problem of continuing economic growth on the finite planet. The "Steady State Economy"[57] concept, for example, considers ecological limits and envisions an economy of the "right scale" that can be achieved after a period of growth or a period of degrowth. Such an economy is characterised by a constant population, constant stocks of capital, and a constant rate in the use of materials in economic activities.

Another alternative economic model that similarly incorporates a consideration of ecological limits is "Doughnut Economics".[58] In addition to considering ecological limits, the model integrates the boundaries of societal foundations such as health, food, water, income, education, resilience, voice, jobs, energy, social equity, and gender equality, without which human life would be deprived. Having ecological limits as the upper boundary and social foundations as the lower boundary, the area in between is defined as the safe and just "operatable space" for humanity. In other words, the model believes that endless GDP growth is incompatible with the Earth's limited capacity and calls for an "agnostic" attitude towards growth, inviting the world to strive towards an alternative economic model that makes societies thrive within planetary limits instead.

CONCLUSION

The existing human-centric paradigm in environmental management was born within contested worldviews on human and environmental health. Alternative voices that proposed an environment-centric approach to the environment were not regarded with favour, much less heard. Their lack of appeal is likely because employing a human-centric approach was easier,

57 Center for the Advancement of the Steady State Economy, "Steady State Economy Definition", https://steadystate.org/discover/definition/.

58 Kate Raworth, *Doughnut Economics: Seven Ways to Think Like a 21st-Century Economist* (Chelsea Green Publishing, 2017).

considering the imperative to meet human needs.

However, given the reality of an ailing Earth almost 50 years on, a change of approach to one that is more focused on the environment may eventually become a necessity. Admittedly, technological applications have thus far been able to offer some sense of normalcy and security to members of society who can access them. But the ongoing COVID-19 pandemic serves as powerful evidence that the consequences of a destroyed environment may bypass technological advances and catch societies by surprise.

Since the first global conference on the environment was held in 1972, it has become evident that there is no shortage of alternative views that can be tapped into to review, enrich, and possibly revise the current approach to the environment. Thus, while COVID-19 is not the only crisis that is afflicting society today, it is a timely reminder that these alternative concepts should be brought to the fore of higher-level global and multilateral discussions so that an approach can be formulated that is most fitting to respond to the triple planetary emergencies confronting humanity today. A more holistic perspective on the environment could contribute to building back better in the decades to come.

From Pandemics to Plastics

Emerging Role of Nuclear Technology in Addressing Non-Traditional Security Challenges

Julius Cesar Trajano

The previous chapters touched on the need to leverage technology in addressing the "triple planetary crisis", even as society wrestles with COVID-19 as a "hybrid health–economy crisis" and its food security implications. This final chapter under the theme of "Sustainable Security" contributes an alternative perspective to addressing these challenges, one focusing on the role of nuclear energy, science and technology.

The peaceful uses of nuclear technology have increased over time and have often proven critically important in addressing complex security challenges, in particular, non-traditional security (NTS) concerns like climate change, infectious diseases, and environmental threats. Such peaceful and societally beneficial uses of nuclear energy have come about as a result of the Treaty on the Non-Proliferation of Nuclear Weapons (NPT), signed in 1968.[59] However, the use of nuclear energy, science and technology in addressing NTS concerns has been underappreciated among the NPT's key achievements over the past five decades. Yet, the inalienable right of states to peaceful uses of nuclear technology, institutionalised by Article IV of the NPT, has reinforced their efforts to meet their national development goals and attain many of the United Nations' Sustainable Development Goals, including food security, clean water, and safe environment.

Most recently, nuclear science and technology have been leveraged to address three key relevant issues that affect all countries, including Southeast Asian nations, namely, zoonotic diseases such as COVID-19, marine plastic pollution, and climate change, with its harsh impacts. This chapter provides a comprehensive overview of the role of nuclear technology in the "new normal", encompassing these three major NTS challenges. It discusses efforts by global and regional organisations in enhancing and expanding the peaceful uses of nuclear technology. In view of the expanding role of

59 Treaty on the Non-Proliferation of Nuclear Weapons (NPT), 1 July 1969.

nuclear technology, it also explains the need to strengthen the nuclear safety and security regime in Southeast Asia.

DETECTION OF COVID-19 AS WELL AS INFECTIOUS ZOONOTIC DISEASES

Many countries, including several ASEAN member states, struggled to increase their testing capacity for COVID-19 while facing a shortage of detection kits. Today, it is commonly known that rapid and accurate COVID-19 testing is a key element of any effective strategy to keep the number of infections under control. Among various COVID-19 testing technologies is the nuclear-derived method for specific, real-time detection of viruses and pathogens that are present in humans and animals, known as "reverse transcription polymerase chain reaction" (RT-PCR) technology. The International Atomic Energy Agency (IAEA) has stepped up and provided COVID-19 testing capability assistance, primarily in the form of supplying RT-PCR testing equipment to 129 requesting countries.[60] This example highlights one among the alternative, non-power-related, peaceful applications of nuclear energy, especially in health security.

Nuclear-derived detection techniques such as real-time RT PCR testing kits have been used in the rapid detection and identification of viruses that are causing some of the world's most dangerous diseases in the recent past, such as avian flu, Ebola and Zika. These are known as "zoonotic diseases", or infectious diseases that have crossed from animals to humans. Zoonotic pathogens may be bacterial, viral or parasitic, or may involve unconventional agents, while possessing the potential to infect humans through direct contact or through food, water or the environment.[61] For over 50 years, the use of nuclear techniques in medicine and nutrition has become one of the most extensive peaceful applications of nuclear technology.[62] The development of nuclear-derived detection kits by the IAEA also exemplifies the crucial role

60 IAEA, "IAEA Assistance for the Rapid Detection and Management of COVID-19", 15 October 2021, https://www.iaea.org/topics/covid-19/iaea-assistance-for-the-rapid-detection-and-management-of-covid-19.

61 WHO, "Zoonoses", 29 July 2020, https://www.who.int/news-room/fact-sheets/detail/zoonoses.

62 Nicole Jawerth, "How is the COVID-19 virus detected using real time RT-PCR?" IAEA, 27 March 2020, https://www.iaea.org/newscenter/news/how-is-the-covid-19-virus-detected-using-real-time-rt-pcr.

of other international organisations, apart from the World Health Organization (WHO), in times of global health crises.

While the IAEA is a specialist body with expertise in nuclear technology for peace and development, it does not have a broad mandate on health. It does, however, have the mandate and capability to transfer technology to help save lives, which it has fulfilled even in past crises over the previous decade. For instance, the IAEA responded swiftly by providing nuclear-derived diagnostic kits and laboratory supplies for use in the field during the Ebola crisis in West Africa in 2014. In 2016, the IAEA, in partnership with the Food and Agricultural Organization (FAO), assisted member states in deploying "sterile insect techniques", which are mosquito control systems that use radiation to help stem Zika outbreaks. This latter technique is also used now to combat other mosquito-borne diseases.[63] For COVID-19, the IAEA equipped many other countries that initially did not have their own detection techniques and capabilities. About 305 national health laboratories/institutions have benefitted from IAEA technical support, with over 2,036 RT-PCR and other diagnostic kits and related items provided to requesting countries.[64]

The IAEA's extensive experience in addressing zoonotic outbreaks and transboundary animal diseases provided the foundation for a new initiative, the Zoonotic Diseases Integrated Action (ZODIAC) programme, which was launched by the agency in 2020. ZODIAC aims to enhance interactions between science, policymakers and society by promoting collaboration to identify risks and address outbreaks of zoonotic diseases using nuclear-derived detection techniques. This effort is aimed at improving the surveillance and response capabilities of countries to prevent pandemics caused by bacteria, parasites, fungi or viruses that originate in animals and are transmissible to humans, using an integrated research approach that builds on nuclear-derived techniques.[65]

63 Sinead Harvey, "Nuclear Science to Tackle Vector-Borne Diseases," *IAEA Bulletin* 61, no. 4 (November 2021).

64 IAEA, "IAEA Assistance".

65 Estelle Marais, "Strengthening Multilateral Efforts: Resolutions Adopted at IAEA General Conference", 24 September 2021, https://www.iaea.org/newscenter/news/strengthening-multilateral-efforts-resolutions-adopted-at-iaea-general-conference.

COMBATING MARINE PLASTIC POLLUTION

Another NTS issue that nuclear technology has had a role in addressing is environmental protection. Even before the pandemic, marine plastic pollution was already posing an existential threat to marine wildlife, ecosystems, food safety and human health globally. Marine pollution is an issue of global concern, in particular for countries in Southeast Asia that rely on fisheries as a source of food and income. Every year about 8–12 million tonnes of plastic debris, including microplastics, find their way into the oceans. China is the world's biggest contributor to plastic waste, responsible for 8.9 million tonnes annually, followed by five Southeast Asian countries, namely, Indonesia, the Philippines, Vietnam, Thailand, and Malaysia. Collectively, the five countries generate 8.9 million tonnes of mismanaged plastic waste every year. Indonesia, for instance, contributes 3.22 million tonnes a year, half of which ends up in marine waters.[66]

Southeast Asia has been a major contributor to land-based plastic waste leaking into the world's oceans, with about 80% of marine plastic debris being traceable to land-based plastic waste. Today, Southeast Asia and the broader East Asia region are facing the toughest challenge in this regard. Kakuko Nagatani-Yoshida, regional coordinator for chemicals and waste at the UN Environment Programme, was quoted as saying that "South-East Asia is a primary source and victim of plastic, where it is choking seas and threatening ecosystems and livelihoods. … If we want to solve the marine litter problem globally, we have to solve it in this region."[67]

Yet, marine plastic pollution has worsened since the COVID-19 pandemic and was also identified as one the key challenges that make up the triple planetary crisis. Plastic from mismanaged disposal of single-use face masks, gloves and other personal protective equipment (PPE) used to prevent infection from the virus has ended up choking our oceans. The complex consequences of this pollution may last well beyond the pandemic. As such, the COVID-19 pandemic has exacerbated plastic pollution. In fact, a report

66 Venkatachalam Anbumozhi, "Circular economy for plastics: What is at stake for ASEAN?" *Jakarta Post*, 13 September 2019, https://www.thejakartapost.com/academia/2019/09/13/circular-economy-for-plastics-what-is-at-stake-for-asean.html.

67 UNEP, "UNEP report warns plastic policies lagging behind in South-East Asia", 13 November 2019, https://www.unep.org/news-and-stories/press-release/unep-report-warns-plastic-policies-lagging-behind-south-east-asia

by OceansAsia, a marine conservation organisation, estimated that 1.56 billion face masks had entered the oceans in 2020 and that it would take 450 years for these face masks to degrade, gradually disintegrating into more hazardous microplastics while endangering marine wildlife.[68]

The worsening plastic pollution of the oceans is a critical area where nuclear technology can play an important role by providing a sustainable and innovative solution as an alternative to conventional approaches. Many studies have documented the impact of large plastic debris on the marine environment. However, further studies are needed to provide reliable and accurate assessments of the potential damage caused by microplastics that can be ingested by marine animals, including fish. Nuclear techniques can play a critical role in this respect: they can help in assessing and understanding the dimensions of the problem, while also exploring the recycling of plastic through radiation techniques. Specifically, radioactive tracer techniques can help scientists understand how microplastics get contaminated by toxic pollutants and how they transfer such pollutants to marine organisms and to the food chain.[69]

In the area of recycling and reduction of plastic waste, when conventional methods of recycling plastic waste are no longer possible, radiation technologies can be used to recycle such waste into new commercially viable plastic items. Thus they can generate economic benefits while reducing waste volumes.[70] Recycling effectively contributes to what is known as the "circular economy".

The IAEA is at the forefront of deploying nuclear science and technology to address plastic pollution. In 2020, the IAEA launched an initiative known as the Nuclear Technology for Controlling Plastic Pollution (NUTEC Plastic), which seeks to explore and rapidly expand the use of nuclear

68 OceansAsia, "COVID-19 Facemasks & Marine Plastic Pollution", 2020, https://oceansasia.org/covid-19-facemasks/.

69 Chantal M. Lanctôt, et al., "Application of Nuclear Techniques to Environmental Plastics Research", *Journal of Environmental Radioactivity* 192 (2018): 368–375; Jennet Orayeva, "New Research on the Possible Effects of Micro-and Nano-plastics on Marine Animals", IAEA, 27 April 2020, https://www.iaea.org/newscenter/news/new-research-on-the-possible-effects-of-micro-and-nano-plastics-on-marine-animals.

70 Delina Horak, "New CRP: Recycling of Polymer Waste for Structural and Non-Structural Materials by Using Ionizing Radiation (F23036)", IAEA, 14 Oct 2020, https://www.iaea.org/newscenter/news/new-crp-recycling-of-polymer-waste-for-structural-and-non-structural-materials-by-using-ionizing-radiation-f23036

technology to fight plastic pollution in the oceans and reduce plastic waste globally. The NUTEC Plastic initiative is expected to enhance the capability of participating state-run laboratories to quantify and assess marine plastic pollution. IAEA specialists will aid scientists and experts from member states in generating data on the concentration, distribution and impacts of plastic pollution utilising nuclear techniques. Such information can then be used to develop plastic mitigation and upstream disposal measures and policies. This initiative holds the potential to demonstrate the role of radiation technology in plastic recycling and reuse and its potential economic benefits. IAEA is set to collaborate with member states, beginning with countries where recycling plants are already operational.[71]

Many ASEAN member states have commenced drafting national policies and strategies, with some being in implementation-ready stages, to mitigate the impacts of marine debris and to curb marine plastic pollution. Several of them also have pledged to participate in the IAEA's NUTEC Plastic initiative. The integration of the NUTEC Plastic project with their plastic waste control programmes will expectedly enhance their respective action plans for promoting the deployment of innovative scientific solutions in addressing today's environmental problems. Similarly, utilising nuclear technology can significantly advance the ASEAN Framework of Action on Marine Debris and the ASEAN Regional Action Plan for Combating Marine Debris, which encourage ASEAN member states to promote and enhance "science-based decisions and innovative technological solutions on marine plastic waste reduction and management".[72]

Additionally, within the region, there is a growing pool of nuclear scientists who can collaborate with environmental scientists and policymakers to develop and apply technologies for plastic waste control. Plastic pollution is admittedly a problem as big as the ocean; hence, support and contributions from different stakeholders are critical in tackling it. The region's nuclear technology research and training centres should therefore be part of the multi-stakeholder collaboration that is critical in searching for innovative scientific solutions.

71 IAEA, "A Nuclear Solution to Plastic Pollution", 14 Dec 2021, https://www.iaea.org/services/key-programmes/nutec-plastics.

72 ASEAN, "ASEAN Regional Action Plan for Combating Marine Debris in the ASEAN Member States", ASEAN Secretariat, 2021.

Apart from expressing their interest in the NUTEC Plastic initiative, ASEAN member states have conveyed their interest in participating in the ZODIAC initiative as well, which offers access to novel technologies for early detection of emerging/re-emerging zoonotic diseases and its impact on human health. Participating countries will also have access to the IAEA's coordinated response team for zoonotic diseases. Separately, the ASEAN-IAEA Practical Arrangements on the peaceful uses of nuclear technology, signed in 2019, presents a useful framework for knowledge and technology transfer to Southeast Asian nations. States in the region can maximise the growing regional cooperation in nuclear safety, security and technology spearheaded by the ASEAN Network of Regulatory Bodies on Atomic Energy (ASEANTOM).[73]

CLIMATE ADAPTATION AND MITIGATION

The peaceful use of nuclear science and technology was strongly represented and articulated through the events organised by the IAEA at COP26, the 2021 global conference on the environment in Glasgow. The IAEA's goal was to contribute to an informed debate on the benefits of nuclear power and applications. Nuclear technology was promoted as "an indispensable tool" for achieving a net-zero world. While tapping nuclear power remains a hotly debated issue, nuclear power and nuclear applications have a lot to contribute to getting global carbon emissions to net zero and boosting climate change adaptation measures.[74]

Thirty-two countries operate nuclear power plants, which provide 10% of the world's electricity and more than one-quarter of all low-carbon electricity. The IAEA argued that the use of nuclear power has prevented the equivalent of about 70 gigatonnes of carbon dioxide emissions over the

73 Vietnam Agency for Radiation and Nuclear Safety (VARANS), "Potential Participation of ASEANTOM Member States in the IAEA Initiatives: ZODIAC and NUTEC Plastic", Presentation at the 7th Annual Meeting of ASEANTOM, 24–25 November 2020 (Virtual Meeting).

74 IAEA, "Nuclear Innovation for a Net Zero World", 4 November 2021, https://www.iaea.org/topics/climate-change/solutions-for-climate-change/iaea-events-at-cop26/nuclear-innovation-for-a-net-zero-world

past 50 years.[75] It strongly recommended that nuclear power generation capacity be at least doubled over the next three decades in order to limit the average global temperature increase to well below the 2^0C called for by the 2015 Paris Agreement on climate change, based on the four model scenarios presented by the Intergovernmental Panel on Climate Change (IPCC) as well as studies by the International Energy Agency (IEA).[76]

Major nuclear power producers such as the United States, Russia and China have all included expanded nuclear power capacity in their national strategies to cut down their carbon emissions. In particular, they are all actively developing the emerging technology of advanced and small modular reactors, which are touted by the nuclear industry to be more affordable than the existing, large nuclear power plants. Currently, Russia has put into operation a floating modular reactor using this technology. Another nuclear innovation showcased at COP26 is the potential for producing low-carbon hydrogen from nuclear power, which can help to decarbonise sectors such as industry and transport.

However, the contribution of nuclear power plants in reducing greenhouse gas emissions remains debatable for other experts.[77] Nonetheless, as demonstrated in COP26, nuclear energy must not be completely ruled out. For many countries, including those in Southeast Asia that are actively studying this option, it can play a complementary role with other low-carbon sources such as renewables. These innovations and the use of nuclear power should also be seen through the climate change–energy security nexus, in which countries deploy nuclear power not just to reduce their carbon emissions but also to strengthen their energy security by diversifying their baseload power sources. In this respect, both nuclear power and renewables are complementary in the transition towards low-carbon energy. In Southeast Asia, especially the Philippines, the deployment of small, advanced reactors

75 Jeffrey Donova, "Countries detail nuclear power climate change plans in COP26 event with IAEA director general", IAEA, 4 Nov 2021, https://www.iaea.org/newscenter/news/countries-detail-nuclear-power-climate-change-plans-in-cop26-event-with-iaea-director-general.

76 IPCC, "Characteristics of Four Illustrative Model Pathways", https://archive.ipcc.ch/pdf/special-reports/sr15/sr15_spm_fig3b.pdf; IEA, *Nuclear Power in a Clean Energy System* (IEA, 2019).

77 Nikolaus Muellner, et al., "Nuclear Energy — The solution to Climate Change?" *Energy Policy* 155 (2021).

is now being explored. This is in the event that they decide to pursue nuclear power electricity generation as a means of diversifying their energy sources and attaining their low-carbon commitments.[78]

Meanwhile, the role of other peaceful applications of nuclear technology in climate change adaptation has been expanding in recent years, including in Southeast Asia. In terms of rice production, nuclear technology has helped farmers grow rice that can cope with the diverse effects of climate change. Recent innovations from Indonesia, Malaysia, the Philippines, Thailand and Vietnam showed how farmers have boosted rice production in harsh climate conditions over the past five years with the help of nuclear techniques. In the past years, the IAEA and the FAO have been helping local scientists use nuclear technology to develop climate-smart agricultural practices and improve water management.[79]

Another type of nuclear technology is food irradiation, which has become widely accepted as a proven and effective post-harvest treatment to reduce bacterial contamination, slow down spoilage and maintain food quality. Radiation processing is being used across the globe to decontaminate and extend the shelf life of food. The Philippines, for instance, continues to expand this nuclear application to ensure food safety and improve the industrial and commercial competitiveness of various agrofood products.[80] Thailand is able to keep exporting a wide range of food products thanks to a four-year collaboration with the IAEA and the FAO to help the country ensure reliable food safety testing and surveillance using nuclear techniques. Through its national laboratory on food safety, Thailand is able to disseminate to other ASEAN countries its knowledge and technical expertise in nuclear technology applications in food safety. Nuclear techniques are also being passed on to experts in other countries through a regional project

78 Carlo Arcilla, "Debunking Nuclear Myths", Presentation at the NU-CLEAR: Webinar Series on Nuclear Power — Webinar 1, Philippine Young Generation in Nuclear, 23 October 2020.

79 Lenka Dojcanova, "Nuclear science helps to adapt to climate change, COP26 participants hear", IAEA, 6 November 2021, https://www.iaea.org/newscenter/news/nuclear-science-helps-to-adapt-to-climate-change-cop26-participants-hear.

80 Revin Mikhael D. Ochave, "P600-M commercial irradiation facility to rise in Tanay", *Business World*, 17 August 2021, https://www.bworldonline.com/p600-m-commercial-irradiation-facility-to-rise-in-tanay/.

framework, and scientists from the ASEAN region are receiving training in Thailand to enhance food safety control in their home countries.[81]

IMPLICATIONS FOR REGIONAL COOPERATION IN NUCLEAR SAFETY AND SECURITY

As countries around the world aggressively expand the use of nuclear technology in addressing many global issues, the nuclear security regime has to be strengthened. International debate today is centred on concerns such as the need to update nuclear regulatory, emergency preparedness and response frameworks; the intractable nuclear waste issue; and, more importantly, public acceptance to solidify the role of nuclear power in addressing climate change.

The safety and security of nuclear technology and radioactive sources is especially critical in Southeast Asia, given that they are already widely used for peaceful applications in the region. It is critical that nuclear technology and radiological materials are secure, intended only for peaceful purposes, and do not fall into the hands of people with malicious and criminal intents. Adequate regulatory oversight over the use, transport and handling of radioactive materials and a strong nuclear security detection architecture are particularly relevant.

Several countries in Southeast Asia have yet to ratify key global nuclear safety and security treaties such as the Convention on Nuclear Safety (CNS) and the Amendment to the Convention on the Physical Protection of Nuclear Material (CPPNM), although gradual progress in this regard has been seen in the region in recent years. Since its establishment in 2013, the aforesaid ASEANTOM, as the key driver of regional cooperation in nuclear governance, has been conducting regional capacity building projects on nuclear safety and security for all member countries, in collaboration with the IAEA, European Commission, and other ASEAN dialogue partners (United States, South Korea, Japan, China, Australia, and Canada, among

81 Elodie Broussard, "Nuclear techniques help Thai food exports", IAEA, 10 November 2020, https://www.iaea.org/newscenter/news/nuclear-techniques-help-thai-food-exports.

others).[82] However, there are still key challenges to nuclear safety, security and safeguards in the region in terms of low awareness among key stakeholders, gaps in national legislative frameworks, non-participation of several countries in key nuclear treaties, inadequate resources in many aspects, and capacity issues, among others.

Regional cooperation can significantly help enhance nuclear governance in the region. In the context of Southeast Asia, regional cooperation can help address nuclear safety and security risks that may emerge from the utilisation of nuclear and radioactive materials for energy and other peaceful applications. ASEAN member states have a collective interest in ensuring that existing radioactive sources being used and transported within Southeast Asia are safe and secure. Regional cooperation can be improved through joint regional workshops and training programmes on enhancing national frameworks, capacity building, and public policy.

Today, there are still challenges to the expansion of the peaceful uses of nuclear energy and technology, due to misconceptions or concerns about such uses. There is a need to reframe nuclear issues such that nuclear technology is linked with climate change adaptation, disease detection, and the combating of plastic pollution. The misconceptions arising from issues of nuclear weapons proliferation, nuclear accidents such as in Fukushima and Chernobyl, and radioactive contamination can be addressed by highlighting how nuclear technology actually helps countries achieve several of their commitments to the Paris Agreement and Sustainable Development Goals. As demonstrated in the solution to testing for COVID-19 and arguments made at COP26, the peaceful uses of nuclear technology cannot be excluded from innovative approaches to addressing the world's most pressing and complex challenges — from climate change and its harsh impacts to the pandemic and plastic pollution.

82 Julius Cesar Trajano and Mely Caballero-Anthony, "The Future of Nuclear Security in the Asia-Pacific: Expanding the Role of Southeast Asia", *International Journal of Nuclear Security* 6, no. 2 (July 2020).

Part II

HUMANITARIAN ASSISTANCE AND DISASTER RELIEF

Transformation of Disaster Governance in ASEAN since COVID-19

Lina Gong

The COVID-19 pandemic has caused multifaceted challenges globally, including a public health crisis and economic recession. In the case of disasters, it has also induced extensive humanitarian challenges in many communities worldwide.

Southeast Asia was the earliest to bear the brunt of the ravages of COVID-19 due to its geographic proximity and close economic relations with China. Within the region, Thailand reported the world's first COVID-19 case outside China on 13 January 2020, after the disease was detected in Wuhan in December 2019.[83] So far, national pandemic responses among ASEAN member states have achieved mixed results, with some countries reporting growing numbers of new cases in the thousands daily.[84] In view of the close socioeconomic ties between ASEAN member states, the risk of additional waves of infection across the region remains. ASEAN was expected to play a central role in containing the spread of COVID-19 in Southeast Asia, given its vision to build a resilient regional community and the existing regional mechanisms for health cooperation. However, some ASEAN observers have argued that the regional organisation did not provide enough leadership in mounting a collective pandemic response in the region, and that it could have done more to help its member states, particularly in the early phase of the outbreak.[85]

While fighting the pandemic, several Southeast Asian countries have

83 "Thailand confirms first case of mystery virus from Wuhan", *The Straits Times*, 14 January 2020, https://www.straitstimes.com/asia/se-asia/thailand-confirms-first-case-of-mystery-virus-from-wuhan.

84 Center for Strategic & International Studies, "Southeast Asia Covid-19 Tracker", accessed 7 November 2020, https://www.csis.org/programs/southeast-asia-program/southeast-asia-covid-19-tracker-0.

85 Thi Ha Hoang, "Covid-19 challenges Asean to act as one", *The Straits Times*, 31 March 2020, https://www.straitstimes.com/opinion/covid-19-challenges-asean-to-act-as-one.

had to deal with natural hazards concurrently. The Philippines was affected by at least three major typhoons in 2020: Typhoon Vongfong in May, Typhoon Goni in October, and Typhoon Vamco in November.[86] Cambodia and Vietnam were hit by successive tropical storms in October 2020, which caused deadly floods.[87] Although vaccines became available in 2021, governments warned that "normal" life would take longer to return.[88] As such, dealing with concurrent disasters presents a real challenge for Southeast Asia.

Against this background, this chapter explores how ASEAN can govern the humanitarian consequences caused by simultaneous disasters in the future. Given that the region is highly prone to natural hazards and the effects of climate change amid the ongoing pandemic, it discusses shortcomings in the existing regional disaster management system, which prioritises natural hazards and extreme weather events over public health emergencies. It argues that regional disaster governance should adapt to dealing with pandemics as well as concurrent natural disasters, with the aim of drawing lessons and informing practices more broadly. To make this case, this chapter first discusses disaster governance in ASEAN, examining how the high exposure to natural hazards and extreme weather events has influenced the evolution of regional disaster governance in Southeast Asia. Next, it assesses the humanitarian ramifications of COVID-19 in Southeast Asia from the perspective of disaster governance. Thirdly, it reviews ASEAN's response to the various humanitarian needs during the pandemic. Based on these, it proposes ways by which regional disaster governance can potentially evolve in light of the simultaneous disaster risks facing the region. It argues that

86 AHA Centre, "Flash Update No. 2 — Typhoon 'Vamco', Philippines", 17 November 2020, https://reliefweb.int/sites/reliefweb.int/files/resources/FlashUpdate_02_17Nov2020-TY-VAMCO-Philippines.pdf; AHA Centre, "Situation Update No. 1 — Super Typhoon Goni in the Philippines", 7 November 2020, https://drive.google.com/file/d/1PS2qVyBigeswlkk3WRyUYV3LeSvkxHAM/view; AHA Centre, "Flash Update: No. 03 — Tropical Cyclone Vongfong, Philippines", 16 May 2020, https://ahacentre.org/flash-update/flash-update-no-03-tropical-cyclone-vongfong-philippines-16-may-2020/.

87 Loy Irwin, "'Twin storms drive 'catastrophic' Vietnam floods as a third approaches", *The New Humanitarian*, 21 October 2020, https://www.thenewhumanitarian.org/maps-and-graphics/2020/10/21/asia-vietnam-cambodia-laos-floods.

88 Sarah Boseley and Philip Oltermann, "Hopes rise for end of pandemic as Pfizer says vaccine is 90% effective", *The Guardian*, 10 November 2020, https://www.theguardian.com/world/2020/nov/09/covid-19-vaccine-candidate-effective-pfizer-biontech.

ASEAN needs to adapt its disaster governance approach to the changing "riskscape" in the region by appreciating the linkages between different types of disasters and diversifying the modalities of response. Essentially, COVID-19 provides a potential catalyst in accelerating the region's evolution in facing novel threats, particularly from the perspective of disaster governance.

DISASTER GOVERNANCE IN ASEAN

The Indian Ocean tsunami of December 2004 caused significant damage and losses to Southeast Asia. Indonesia was the hardest hit (with a death toll of 166,670 and displacement of 811,409 persons), followed by Thailand, Myanmar and Malaysia.[89] The disaster therefore was a major catalyst for the development of ASEAN's management of natural hazards. The ASEAN member states managed to complete the negotiation of the ASEAN Agreement on Disaster Management and Emergency Response (AADMER) within half a year of the tsunami and in July 2005 signed the agreement, which forms the legal basis of disaster management in the region. The speed at which the agreement was signed demonstrates that when there is political will, ASEAN can respond to collective action problems. The AADMER defines a disaster as "a serious disruption of the functioning of a society causing widespread human, material, economic or environmental losses".[90] The broad definition leaves open the possibility that AADMER can apply to different types of disasters.

How an organisation defines and categorises disasters reflects the focus of its work and influences the development of its approach and capacity. For instance, the International Federation of Red Cross and Red Crescent Societies (IFRC) defines natural hazards as naturally occurring physical phenomena caused either by rapid or slow onset events, which can be geological (earthquakes and tsunamis), hydrological (avalanches and floods), climatological (droughts and wildfires), meteorological (cyclones and storms) and

89 Prema-chandra Athukorala and Budy P Resosudarmo, "The Indian Ocean Tsunami Economic Impact: Disaster Management and Lessons", *Asian Economic Papers* 4, no. 1 (2005): 5.

90 ASEAN, "ASEAN Agreement on Disaster Management and Emergency Response", 2005, https://ahacentre.org/wp-content/uploads/2016/11/AADMER-DOCUMENT.pdf.

biological (disease epidemics and insect plagues) by nature.[91] According to this definition, epidemics and pandemics are in the same category as earthquakes, cyclones and tsunamis. Dealing with these disasters falls in the core areas of IFRC's work, which includes promoting humanitarian values, disaster response, disaster preparedness, and health and community care.[92] It also provides an instructive case of how to better integrate regional governance of natural hazards and pandemics.

Unlike IFRC, ASEAN differentiates pandemics from natural hazards. This differentiation is evident in the description of the mandate of the ASEAN Secretary-General as ASEAN Humanitarian Assistance Coordinator who "can be activated any time at the request of the affected ASEAN Member State in the event of a major disaster, whether it be a natural disaster *or* a pandemic [emphasis added]."[93] Thus, ASEAN's functional separation of pandemics from natural hazards has culminated in different systems with limited linkages in ASEAN for governing the two types of disasters. Yet, the broad mandate given to the ASEAN Secretary-General already provides the structural foundation for more integrated governance of pandemics and natural hazards: ASEAN is still tasked to lead the response to humanitarian needs in the broader context for as long as these count as disasters.

In disaster management ASEAN has prioritised natural hazards such as floods, droughts, and typhoons over other disasters such as pandemics and industrial accidents.[94] Consequently, the development trajectory of ASEAN's regional capacity and institutions has leaned towards response to natural hazards and extreme weather events. ASEAN has developed work programmes on disaster management every five years since 2004, organised regular emergency simulation exercises since 2005, launched the ASEAN Coordinating Centre for Humanitarian Assistance on Disaster Management (AHA Centre) in 2011, and established the Disaster Emergency Logistics

91 IFRC, "Types of Disasters", https://www.ifrc.org/en/what-we-do/disaster-management/about-disasters/definition-of-hazard/.
92 IFRC, "Our Vision and Mission", https://www.ifrc.org/en/who-we-are/vision-and-mission/.
93 ASEAN, "AADMER Work Programme 2010–2015", ASEAN Secretariat, 2013, 102.
94 ASEAN, "AADMER Work Programme 2016-2020", ASEAN Secretariat, 2014, 32.

System for ASEAN (DELSA) in 2012.[95] These developments have enabled ASEAN to be a central actor for responding to natural hazards in the region.

Beyond the ASEAN institutions, extra-regional countries and organisations are key partners in disaster governance in the region, and their contributions have also had a focus on natural disasters. For instance, external financial support still accounts for a big portion of ASEAN's spending on disaster governance, although ASEAN has been striving to enhance financial sustainability. The AHA Centre had a revenue inflow of US$4.3 million in 2020, out of which US$2.7 million was from external partners.[96] In previous disaster relief operations, international partners supported the affected countries in areas such as logistics and transport, apart from delivering emergency relief items. During typhoon Haiyan in the Philippines in 2013 and the double disasters of earthquake and tsunami in Indonesia in 2018, dozens of countries deployed military assets to assist the relief efforts. The AHA Centre was supported by the UN Office for the Coordination of Humanitarian Affairs (OCHA), when it was entrusted by the Indonesian government to manage inflows of international aid in 2018.[97]

ASEAN's focus on natural disasters is understandable due to the highly frequent occurrence of natural hazards in the region. Between 2012 and 2020, the region was hit by 1,722 disaster events, with 78.1 million people affected, 6.3 million displaced, and damages caused worth US$2.6 billion.[98] According to the 2021 report of the Intergovernmental Panel on Climate Change (IPCC), extreme weather events in the region, such as heatwaves and strong monsoons, have significantly increased in the past decades and

95 Mely Caballero-Anthony, *Negotiating Governance on Non-Traditional Security in Southeast Asia and Beyond* (Columbia University Press, 2019), 146–50; Angela Pennisi di Floristella, "Dealing with Natural Disasters: Risk Society and ASEAN — A New Approach to Disaster Management", *The Pacific Review* 29, no. 2 (2016): 296–297.

96 AHA Centre, "Annual Report 2020", https://ahacentre.org/wp-content/uploads/publications/AHA-Centre-Annual-Report-2020.pdf

97 IFRC, "Real-Time Evaluation Indonesia: Earthquakes and Tsunami (Lombok, Sulawesi) 2018", 23 January, 2019, reproduced on ReliefWeb, https://reliefweb.int/sites/reliefweb.int/files/resources/Indonesia_3.pdf.

98 ASEAN Disaster Information Network (ADINET), "Homepage", http://adinet.ahacentre.org/.

are projected to intensify further.[99]

However, the pandemic has highlighted the vulnerability of this bias in attention towards natural disasters and the need for more localised approaches, given the curtailment of international staff and resource deployment amid the pandemic. The prioritisation of natural hazards has led to uneven development in ASEAN's governance of different disasters, with pandemic preparedness and response receiving relatively less support and thus progressing more slowly. The existing institutions for disaster management do not have sufficient resources and mandate to respond to the pandemic, while the health sector of ASEAN does not possess the operational capacity to deliver emergency aid to the member states in need. Consequently, ASEAN has played a limited role in the early stage of the region's COVID-19 response, focusing on information sharing and coordination, which is discussed further in the next sections.

HUMANITARIAN NEEDS DURING SIMULTANEOUS DISASTERS

COVID-19 has led to extensive needs for health-related humanitarian assistance worldwide, including Southeast Asia. The outbreak of the initially unknown infectious disease led to needs for unconventional humanitarian aid, such as N95 masks and other personal protective equipment, sanitising products and test kits, particularly in the early days of the outbreak. In Indonesia, a lack of medical equipment posed a big challenge in its national pandemic response, causing many deaths in the country's health workforce.[100] At a global teleconference in early April 2020, the Indonesian foreign minister called for cooperation to cope with the shortage of critical medical supplies.[101]

As major donors struggled with their own domestic outbreaks and were unable to provide timely help, ASEAN member states cooperated among

99 IPCC, "Climate Change 2021: The Physical Science Basis", 2021, https://www.ipcc.ch/report/ar6/wg1/downloads/report/IPCC_AR6_WGI_Full_Report.pdf.

100 Linda Yulisman, "Covid-19 claims many lives of health workers in Indonesia as cases soar," *The Straits Times*, 6 September 2020, https://www.straitstimes.com/asia/se-asia/covid-19-claims-many-lives-of-health-workers-in-indonesia-as-cases-soar.

101 Apriza Pinandita, "COVID-19: Indonesia calls for global cooperation to overcome medical supply shortage", *The Jakarta Post*, 17 April 2020, https://www.thejakartapost.com/news/2020/04/17/covid-19-indonesia-calls-for-global-cooperation-to-overcome-medical-supply-shortage.html.

themselves and with partners that were able to assist. During the ASEAN Summit on COVID-19 in April 2020, then president Rodrigo Duterte specifically highlighted the shortage of vital medicines and medical equipment in the Philippines and called for intra-ASEAN cooperation in meeting the challenge.[102] At their summit in Vientiane in September 2016, ASEAN's leaders adopted the "ASEAN Declaration on One ASEAN, One Response", which represents the region's commitment to collective response to disasters in Southeast Asia and beyond.[103] Many thus expected the regional organisation to play a more active role in assisting its member states in dealing with various humanitarian needs arising from the pandemic.[104] However, for the most part, ASEAN member states individually tackled their humanitarian challenges through bilateral solutions, as is discussed further in the next section. This pattern of response shows that the regional bloc still has much to improve in its disaster governance, particularly in the face of a pandemic, to achieve "One ASEAN, One Response".

As COVID-19 vaccines became available in late 2020, securing steady and affordable supplies of the vaccines has become a key to long-term success in the combat against the pandemic.[105] However, due to the vast demands and limited production capacity, countries have been competing for COVID-19 vaccines in what some describe as "vaccine nationalism", which places developing countries in a disadvantaged position in the competition for vaccine access.[106] During the 37th ASEAN Summit in November 2020, Singapore Prime Minister Lee Hsien Loong stressed the importance of "vaccine multilateralism" as part of the efforts to mitigate the pandemic's long-term impact in the region. After the summit, ASEAN issued a Chair-

102 Bhavan Jaipragas, "Asean holds special Coronavirus summit, but will its plans come to fruition?" *South China Morning Post*, 14 April 2020, https://www.scmp.com/week-asia/politics/article/3079899/asean-holds-special-coronavirus-summit-will-blocs-plans-come.

103 AHA Centre, "Operationalising One ASEAN, One Response", AHA Centre, 28 March 2018, https://ahacentre.org/publication/operationalising-one-asean-one-response/, 1.

104 Hoang, "Covid-19 Challenges Asean to act as one".

105 Shamila Sharma, "WHO, national regulators and vaccine manufacturers in South-East Asia region discuss COVID-19 vaccines", WHO, 11 December 2020, https://www.who.int/southeastasia/news/detail/11-12-2020-who-national-regulators-and-vaccine-manufacturers-in-south-east-asia-region-discuss-covid-19-vaccines.

106 Alice Cuddy, "Coronavirus vaccines: Will any countries get left out?" BBC, 22 November 2020, https://www.bbc.com/news/world-54961045.

man's Statement that mentioned "vaccine security and self-reliance" as a priority of the ASEAN Post-2015 Health Development Agenda, which was in line with the Declaration on ASEAN Vaccine Security and Self-Reliance (AVSSR) adopted in Bangkok on 2 November 2019.[107] Although the Chairman's Statement framed vaccine access as a matter of national security and emphasised the need for self-reliance, ASEAN member states have nonetheless secured COVID-19 vaccines mainly through bilateral channels. This was primarily because ASEAN and member states still need time to build up regional stockpiles of COVID-19 vaccines and other medical supplies for a public health emergency.[108]

Natural hazards added to ASEAN's struggle with COVID-19. Between January 2020 and October 2021, the region was hit by 1,365 disasters, with 1,345 people killed, 32.4 million affected, and 3.8 million displaced.[109] The occurrence of natural hazards meant that the affected countries had to carry out disaster relief under various COVID-19 restrictions, such as mask-wearing, stricter sanitisation and social distancing. Concurring disasters also led to shortages in manpower in many disaster relief organisations. Normally, in the wake of a disaster in the region, the AHA Centre dispatches the ASEAN–Emergency Response and Assessment Team (ASEAN-ERAT) to assist the affected county to assess the damages and needs. But deployments were curtailed owing to the infection risks and travel restrictions arising from COVID-19. In addition, international humanitarian supply and logistics chains have been affected by a reduction in air and sea freight, low handling capacity at ports and longer customs clearance. These restrictions have forced international humanitarian agencies to rely on national and local organisations to reach affected communities, including in Southeast Asia.

107 ASEAN, "Chairman's Statement of the 37th ASEAN Summit: Cohesive and Responsive", Hanoi, 12 November 2020, https://asean.org/wp-content/uploads/43-Chairmans-Statement-of-37th-ASEAN-Summit-FINAL.pdf.

108 Justin Ong, "Singapore to donate $8m of medical supplies to Asean stockpile for public health emergencies", 26 October 2021, https://www.straitstimes.com/singapore/politics/singapore-will-donate-nearly-8-million-of-medical-supplies-to-asean-stockpile?login=true.

109 ADINET, "Homepage".

ASEAN'S HUMANITARIAN RESPONSES AMID THE PANDEMIC

ASEAN's COVID-19 response has been an amalgamation of both its pre-existing Health Sector mechanisms as well as newly created ad hoc mechanisms. The four main mechanisms involved in ASEAN's response to COVID-19 are: (i) the ASEAN Emergency Operations Centre Network (ASEAN EOC Network), which has been sharing daily situational updates; (ii) the ASEAN BioDiaspora Virtual Centre, which uses big data analytics to produce reports on Risk Assessment for International Dissemination of COVID-19 across ASEAN Region; (iii) the Regional Public Health Laboratories Network (RPHL), which accesses exchanges on laboratory readiness, technical and material support, as well as in laboratory surveillance; and (iv) the ASEAN Risk Assessment and Risk Communication Centre, which disseminates preventive and control measures.[110] In order to deal with the specific situations of COVID-19, ASEAN also created several ad hoc agencies, including the ASEAN-China Ad Hoc Health Ministers Joint Task Force, and held ad hoc meetings, including the ASEAN Special Summit on COVID-19, to inform and coordinate their COVID-19 response.[111]

As the outbreak in the region worsened between March and May 2020, ASEAN solidarity was seen in Singapore and Vietnam's aid responses to their fellow ASEAN member states. These involved the sending of financial aid and medical supplies, including personal protective equipment, hand sanitisers, diagnostic kits and polymerase chain reaction (PCR) diagnostic machines, to several ASEAN countries, including the Philippines and Indonesia.[112] Nevertheless, most assistance aimed at filling policy and resource gaps in the national responses of the hardest-hit ASEAN countries has been bilateral in nature: countries such as China, the United States and Japan have been providing aid to the ASEAN countries directly, rather than through the aforementioned ASEAN mechanisms.

110 Ferdinal M. Fernando, Jennifer Frances E. De La Rosa and Mary Kathleen Quiano-Castro, "COVID-19:A Collective Response in ASEAN", *Shifting Currents*, 2020, https://asean.org/storage/2017/09/The-ASEAN-Magazine-Issue-1-May-2020.pdf.

111 Phuong Pham, "COVID-19 has revealed ASEAN's institutional weaknesses", *Global-is-Asian*, 7 July 2020, https://lkyspp.nus.edu.sg/gia/article/covid-19-has-revealed-asean-s-institutional-weaknesses.

112 Center for Strategic and International Studies, "Southeast Asia Covid-19 Tracker", CSIS, 2020, https://www.csis.org/programs/southeast-asia-program/southeast-asia-covid-19-tracker-0.

ASEAN, for its part, did deliver assistance to member states, with the AHA Centre playing a supporting role in the COVID-19 response. During the Special ASEAN Summit on Coronavirus Disease 2019 on 14th April 2020, there was a renewed push for expanding the mandate of the AHA Centre to cover public health emergencies. In the summit declaration, the ASEAN member states resolved to "bolster national and regional epidemic preparedness and response, including through … strengthening the capacity of existing ASEAN's emergencies response network namely the … ASEAN Centre for Humanitarian Assistance on disaster management (AHA Centre) for future public health emergencies".

The AHA Centre opened its Disaster Emergency Logistics System for ASEAN (DELSA) warehouses to mobilise its relief stockpiles for release across ASEAN member states. This step allowed for items such as mobile storage units, hygiene kits and prefabricated offices to be made available to the member states during the pandemic as an interim measure to fill any operational gaps in national responses.[113] However, these efforts were not able to significantly alleviate the severe shortage in medical supplies in the region: conventional stocks of humanitarian aid could not meet the specific needs in the COVID-19 outbreak due to the special characteristics of the pandemic.

In October 2020, Cambodia, Laos and Vietnam were struck by successive tropical storms and subsequent deadly floods. As the affected countries declined the deployment of ASEAN-ERAT, the AHA Centre was only able to deliver emergency relief aid. The limited involvement of ASEAN in responding to the floods in the three mainland Southeast Asian countries highlighted two important issues in the development of ASEAN's disaster governance in the future: (1) that the agenda of localising disaster management should be continued and deepened because regional and international responses can be disrupted in simultaneous disasters; and (2) that there is a need to explore new modalities of disaster response in adapting to simultaneous disasters in the context of the restrictive environments.

113 Ina Rachamawati, "Mobilising DELSA Relief Items for Covid-19 Response", *The Column* 61, https://thecolumn.ahacentre.org/posts/highlight/vol-61-mobilising-delsa-relief-items-for-covid-19-response/.

BUILDING ASEAN'S RESILIENCE IN SIMULTANEOUS DISASTERS

It is important to keep in mind that ASEAN is one of the most disaster-prone regions in the world. Even though vaccination programmes have been rolled out across the region, it is evident that the COVID-19 virus will not disappear completely and will instead become endemic in most countries in the near future. As such, countries would need to adapt and learn to live with the virus as part of the "new normal". The risk of concurrent disasters is extremely likely — and indeed has been occurring in Southeast Asia throughout the COVID-19 outbreak. It is therefore imperative that there be greater cooperation and coordination among the different components of disaster governance in ASEAN to effectively cope with such challenges.

The region's historical experiences with the severe acute respiratory syndrome (SARS), the swine influenza (virus subtype A-H1N1) and the highly pathogenic Asian avian influenza (virus subtype A-H5N1) forced it to recognise that public health emergencies, particularly in the form of infectious diseases, is an ever-present threat. This had previously led ASEAN to embark on institutionalising a more coordinated and effective health response among its member states.[114] Epidemics and pandemics were previously flagged as hazards for inclusion in the long term of the AADEMER Work Programme. COVID-19, however, has forced the region to recognise the importance of further advancing the institutionalisation of ASEAN's pandemic preparedness and response.

The establishment of the ASEAN Centre for Public Health Emergencies and Emerging Diseases Centre represents a notable first step towards this direction. By creating such a body to manage potential public health emergencies — one similar to the AHA Centre — ASEAN can potentially improve its ability to coordinate among its members as well as enhance its capacity to respond to both medical emergencies and future epidemic threats. International buy-in is also evident, with ASEAN partners, including Japan and Australia, also pledging support and investment in this endeav-

114 Gro Harlem Brundtland, "Global Health and International Security", *Global Governance* 9, no. 4 (2003), 417–423; 6; Sara E. Davies, "Securitizing Infectious Disease", *International Affairs* 84, no. 2 (2008), 295–313.

our; these have further cemented ASEAN's centrality amid pandemics.[115] However, the integration and support from financial sources within the regional bloc remains underutilised.

To further improve ASEAN's disaster resilience, it is important to enhance cooperation and coordination between ASEAN's mechanisms for different disasters, including natural hazards and pandemics/epidemics. For instance, in line with the "Joint Statement of the Special ASEAN Plus Three Summit on Coronavirus Disease 2019 (COVID-19)", a reserve of essential medical supplies could be housed in the AHA's DELSA stockpiles in the region — although, with emergency medical and relief equipment already stored in these satellite warehouses across Southeast Asia, storing vaccines and/or other needed medication may require additional storage areas. There is also a need to develop procedures and mechanisms that would allow the regional bodies mandated to deal with different disasters to coordinate and cooperate in times of simultaneous disasters.

In addition to integrating regional institutions that are tasked to deal with different disasters, ASEAN should also innovate and adapt its modality of disaster governance. Remote programming provides an alternative for ASEAN in the face of constraints on regional deployment. This essentially refers to remotely controlling, managing, supporting and partnering for projects and activities with a view to allowing foreign humanitarian actors to connect through local organisations to communities in need *even without* a physical presence in the affected areas. Although remote programming was initially introduced in the broad humanitarian sector in the 1990s as part of a solution in insecure or restrictive environments, the curtailment of international travel during the ongoing pandemic shows that a public health emergency can also affect access for humanitarian action, including disaster relief.

Furthermore, the region should pay attention to the need to use technologies that enable the adoption of remote programming in disaster governance. Videoconferencing facilitates communication and coordination

115 "ASEAN, Japan enhance cooperation towards post-pandemic recovery," ASEAN, 14 October 2020, https://asean.org/asean-japan-enhance-cooperation-towards-post-pandemic-recovery/; Prime Minister of Australia, "Investing in our Southeast Asian partnerships", Media Release, 14 November 2020, https://www.pm.gov.au/media/investing-our-southeast-asian-partnerships.

between partners at local, national and international levels amid border closures and lockdowns. Artificial intelligence and data analytics also have allowed virtual collaboration, such as crowdsourcing and crowdfunding. Digital payment has been used in cash programming. Many of these technologies have been adopted in the COVID-19 responses in ASEAN member states. Therefore, amid the COVID-19-induced restrictive environments that have coincided with simultaneous disasters in the region, ASEAN should explore ways of increasing and institutionalising the use of remote programming in disaster governance in the future, instead of seeing it as a last resort.

CONCLUSION

As a highly interactive and open region with frequent travel and migration, ASEAN is susceptible to the rapid spread of infectious diseases across the region. The challenge of dealing with such transboundary threats can be compounded by their concurrence with other disasters. In view of ASEAN's commitment to responding to disasters as one region, as opposed to 10 separate member states, it is essential to coordinate and integrate the different components of regional disaster governance in order to allow for stronger collective responses.

ASEAN has extensive and time-proven experience with natural hazards, which provides useful lessons for the development of a coordinated response to pandemics and other types of disasters that are not counted as natural hazards. Moreover, the established facilities and logistics systems for dealing with natural hazards can be transformed for multiple purposes to allow for ASEAN's timely response to different disasters in the future. Other sectors in ASEAN including the health sector — which had its gaps exposed by COVID-19 — should draw lessons from the evolution of ASEAN's disaster management in terms of policymaking and capacity and institution building.

The risk of simultaneous disasters highlights the need for ASEAN to be prepared for operating in complex and restrictive environments, for which innovation and adaptation are essential. This chapter has highlighted how new modalities of disaster governance, such as remote programming, can be explored to be part of "first responses" in addressing future challenges and risks. As ASEAN is highly disaster-prone and the possibility of concurring disasters remains, an integrated and adaptive approach to disaster governance is essential to build a resilient regional community.

Cash-based Programming in the New Normal of Disaster Governance

Christopher Chen

While the previous chapter focused on the fast-changing "riskscape" of ASEAN at the broader, macro-level, given the presence of simultaneous disasters, this chapter zooms into a particular important mechanism for disaster and emergency response in the same context. Donors and humanitarian agencies have increasingly viewed cash-based interventions as an appropriate emergency response to meet immediate needs in the aftermath of a disaster. The relative successes of cash transfer programming (CTP) in recent major disasters have helped to strengthen its position as a significant response option. For example, in the response to Typhoon Haiyan in the Philippines in 2013, over half a million people received cash through the extension of an existing government social protection programme.[116] By providing affected populations with immediate access to funds to purchase supplies, CTP cuts down the time delays that are often associated with the procurement procedures of in-kind donations.

While cash programming is not a new concept in the humanitarian space, it has been gaining traction in recent years. Between 2015 and 2019, cash and voucher assistance rose from US$2.0 billion to US$5.6 billion, making up 17.9% of international humanitarian assistance.[117] It is growing in importance compared with in-kind aid, which has traditionally accounted for the vast majority of international aid, including food, medicine, shelter materials and household goods. In recent years, cash assistance has been a popular response to the COVID-19 crisis, with 429 programmes introduced

116 ODI, *Doing Cash Differently: How Cash Transfers Can Transform Humanitarian Aid*, ODI, 2015, https://www.humanitarianresponse.info/sites/www.humanitarianresponse.info/files/documents/files/odi_paper_doing_cash_differently.pdf.

117 CaLP Network, *The State of the World's Cash 2020*. CaLP, 2020. https://www.calpnetwork.org/publication/the-state-of-the-worlds-cash-2020-full-report/.

by 164 countries from March 2020 to December 2020.[118] It has proven to be an efficient means of getting support to affected people quickly, empowering families to meet their basic needs and mitigating some of the negative socioeconomic impacts of COVID-19.

This chapter assesses the impact of cash transfers on the well-being of vulnerable populations during the pandemic, the challenges that humanitarians face when trying to implement cash-based programmes, and the future of cash programming. In doing so, it raises critical questions of whether cash can *and should* be used as a standardised intervention model in humanitarian assistance. For the purpose of this chapter, the terms cash and voucher assistance (CVA), cash-based intervention (CBI), and cash transfers will be used interchangeably as they are umbrella terms for any humanitarian programming that uses cash and/or vouchers.

WHY CASH?

The use of CBI involving the provision of humanitarian assistance to help people access the goods and services they need before, during, and following a crisis has been gaining momentum over the past decade. This is owing to the growing evidence that cash provision, in contexts where it is appropriate, can lead to better modes of facilitating the provision of humanitarian assistance. Proponents of humanitarian cash transfers provide various reasons for why giving aid in the form of cash can be a highly effective way of reducing the suffering of vulnerable populations and disaster-affected communities.

Firstly, cash puts people at the *centre* of assistance and allows beneficiaries to address their essential needs according to their priorities. It empowers vulnerable populations by giving them autonomy and the flexibility to choose how to spend the cash, thus imbuing them with a sense of dignity and agency.[119] Providing cash therefore helps to "align the humanitarian system with what people need, rather than what humanitarian organisations are mandated and equipped to provide".[120] Secondly, studies have found

118 Ugo Gentilini, et al., *Social Protection and Jobs Responses to COVID-19: A Real-Time Review of Country Measures*, World Bank Group, 11 December 2020. https://documents1.worldbank.org/curated/en/467521607723220511/pdf/Social-Protection-and-Jobs-Responses-to-COVID-19-A-Real-Time-Review-of-Country-Measures-December-11-2020.pdf.

119 Ugo Gentilini, et al., *Social Protection and Jobs Responses to COVID-19*.

120 ODI. *Doing Cash Differently*.

that cash disbursements can generate positive impacts on local markets and economies in the aftermath of disasters and conflicts. For example, in Lebanon, Rwanda and Uganda, the World Food Programme found that every (US) dollar given in cash to a refugee or vulnerable person translated to US$2 in the local economy.[121] Hence, it is evident that cash-based programming helps to support the local economy by encouraging purchases from local suppliers.[122]

Thirdly, CVA can be an efficient aid strategy as it increases the cost-effectiveness of providing humanitarian assistance.[123] Cash transfers can help make limited humanitarian resources go *further*. It usually costs less to get cash transfers to people relative to the time it takes to deliver in-kind assistance because it relieves aid agencies of the need to transport and store relief goods.[124] For instance, the International Rescue Committee found that their unconditional cash transfer programmes garnered cost efficiency, ranging from a minimum cost saving of US$0.14 cents for every dollar transferred to as much as US$1.32 for every dollar transferred.[125] Finally, the growth of digital payments systems has allowed for delivering cash transfers in increasingly affordable, secure and transparent ways. By providing affected populations with immediate access to funds to purchase supplies, digital payments systems also cut down the time delays that are often associated with procurement procedures.

121 WFP, *Cash-Based Transfers — Empowering People, Markets and Countries,* WFP, November 2020, https://reliefweb.int/sites/reliefweb.int/files/resources/WFP-0000121457.pdf.

122 Silke Pietzsch, "Unconditional Cash Transfers: Giving Choice to People in Need", *Humanitarian Practice Network Magazine*, February 2011, https://odihpn.org/magazine/unconditional-cash-transfers-giving-choice-to-people-in-need/.

123 Shannon Doocy and Hannah Tappis, "Cash-based Approaches in Humanitarian Emergencies: A Systematic Review", *Campbell Systematic Reviews* (2017): 1–200, https://doi.org/10.4073/csr.2017.17.

124 ODI. *Doing Cash Differently*.

125 IRC, *Cost Efficiency Analysis: Unconditional Cash Transfer Programs*, IRC, 2016. https://www.rescue.org/sites/default/files/document/954/20151113cashcefficreportfinal.pdf.

Box 1: Case Studies of the Philippines and Malaysia

Two case studies in the Southeast Asian region showcase some of the benefits of using cash-based interventions in a COVID context.

Philippines[126]

The pandemic has had severe economic and social implications for people in the Philippines, particularly those who are already coping with other crises and poverty. The charitable foundation Oxfam and its local partner, People's Disaster Risk Reduction Network (PDRRN), adapted their response to the pandemic by innovating and transforming their existing programmes in order to continue to deliver life-saving assistance. For instance, when cases of COVID-19 steadily increased in many Philippine communities, Oxfam together with PDRRN, adapted the Building Resilient, Adaptive and Disaster-Ready Communities (B-READY) pre-emptive cash transfer programme to strengthen the disaster preparedness of communities in the context of the pandemic. The B-READY project used electronic prepaid cards to deliver humanitarian cash directly to households in anticipation of a disaster. Oxfam and its partner were able to co-develop and adopt context-specific cash transfers and safety protocols for COVID-19 to ensure that B-READY programme activities could be safely delivered while complying with local and national regulations in the context of the pandemic.

Malaysia[127]

In Malaysia, COVID-19 has had a disproportional negative impact on vulnerable groups, including urban refugees, who often enjoy limited human rights and depend on humanitarian assistance and/or informal labour opportunities. In response to this situation, the

126 Oxfam, "CVA and COVID-19: Stepping Up to Current Needs and Future Crisis", Oxfam Cash and Markets Brief, 2020. https://www.calpnetwork.org/wp-content/uploads/2020/09/Stepping-up-CVA-with-COVID-19-Paving-the-way-we-respond-to-future-crisis-Oxfam-Aug-2020.pdf.

127 UNHCR, *UNHCR Cash Assistance and COIVD-19: Main Findings from Post-Distribution Monitoring*. UNHCR, 2021, https://www.unhcr.org/5f7ac4d14.pdf.

United Nations High Commissioner for Refugees (UNHCR) provided urban refugees with urgent cash assistance to help mitigate the socio-economic impacts of the pandemic. Some 80% of the cash recipients were those who experienced loss of income during the movement control order in Malaysia. Some 85% of respondents received the cash in time to meet their most urgent essential needs, with food, rent and utilities being the top expenditure items. More than 30% felt that the UNHCR's cash assistance had significantly improved their living conditions while over 60% highlighted that cash assistance had alleviated their feelings of stress. As such, cash assistance has helped these refugees meet their basic needs and effectively tackle some of the immediate, negative socioeconomic consequences of COVID.

Cash transfers are not without their shortcomings, however. Some policymakers have expressed concern that poor households will use cash to purchase alcohol, tobacco, or other "temptation goods".[128] They fear that since people have the freedom to utilise cash transfers in ways that they believe benefit them the most they may be tempted to purchase such temptation goods or to spend the cash on non-essential, anti-social and vice-related activities. However, studies have indicated that CVA recipients rarely spend cash on temptation goods.[129] It has been found that cash assistance is not more likely to be used irresponsibly than other kinds of assistance, given the fact that the goods received in in-kind assistance can also be sold to buy other things.[130]

Amid the success of cash-based programmes, most environments in which humanitarians operate are constrained in some way. In the current pandemic situation, the lack of access to affected populations is the biggest constraint. In response to this, humanitarian organisations have invested in information and communications technology (ICT) solutions to support the planning, design, targeting, implementation, and monitoring of their

128 David K. Evans and Anna Popova, "Cash Transfers and Temptation Goods", *Economic Development and Cultural Change* 65, no. 2 (2017): 189–221.
129 David K. Evans and Anna Popova, "Cash Transfers and Temptation Goods".
130 ODI, *Doing Cash Differently*.

operations. Improving the effectiveness of humanitarian operations has become an aspirational goal, and related to this is the idea that innovation and the use of new technologies can expedite the achievement of this goal.[131]

Indeed, the pandemic has accelerated the adoption of tools and platforms to facilitate digital cash transfers (DCTs). The use of DCTs has advantages that have been especially useful during the pandemic.[132] They are seen by some as a safer option for providing rapid relief *where conditions allow*. For instance, in 2020, 60% of mobile money providers reported partnering with a humanitarian organisation to deliver CVA.[133] Organisations are also switching from in-kind assistance to digital CVA as it allows remote delivery, less clustering at distribution sites, and reduced transmission risk. For instance, mobile cash transfers can replace the setting up of food distribution stations. These allow people to buy food at their own convenience and help to avoid the massive gatherings that food distribution points tend to draw. They help avoid fuelling further the spread of COVID-19 infections.[134] Furthermore, DCTs are a flexible and easy way of delivering assistance as they obviate the need for direct personal interaction, thereby reducing the risk of transmission during the pandemic.[135]

While technology can be an enabler of localisation as well as help increase the effectiveness of humanitarian responses, it is important to note that its use is largely dependent on systems in place in the affected countries. While the rapid expansion of mobile phones in developing countries has opened up new opportunities to reach people at scale and in a timely manner, cash-based transfers could be problematic in countries that do not

131 Christopher Chen, "Humanitarian Technology: Taking the 'Human' out of Humanitarianism?" *RSIS Commentaries*, 5 August 2019, https://www.rsis.edu.sg/rsis-publication/nts/humanitarian-technology-taking-the-human-out-of-humanitarianism/#.XxGLaigzZPY.

132 One can in fact draw parallels between DCTs and remote programming, as raised in the previous chapter, in that both mechanisms reflect a transformation of existing mechanisms to allow for greater flexibility while limiting the need for face-to-face contact.

133 CaLP Network, *The State of the World's Cash 2020*.

134 Sara Jerving, "Cash transfers lead the social assistance response to COVID-19", Devex, 14 April 2020, https://www.devex.com/news/cash-transfers-lead-the-social-assistance-response-to-covid-19-96949.

135 Annalisa Merelli, "Covid has spurred a digital cash revolution in developing countries", *Quartz Africa*, 14 September 2021, https://qz.com/africa/2058395/covid-spurred-digital-cash-transfer-adoption-in-poor-countries/.

have the necessary digital infrastructure. Neither would DCTs be helpful in countries where the recipients have limited access to needed supplies. Nevertheless, technology is an endeavour worthy of future investment and could shape the way aid is provided in a post-COVID-19 world.

CHALLENGES OF IMPLEMENTING CASH-BASED INTERVENTIONS: ASSESSING THE FEASIBILITY OF CASH ASSISTANCE IN SOUTH PACIFIC STATES

Especially since the pandemic, CVA is an increasingly common tool used in humanitarian responses. Its implementation, however, comes with various challenges. Some key questions to consider in assessing the viability of CVA programmes include: How do we implement digital CVA programmes in communities without adequate digital infrastructure? How do we implement CVA programmes in communities *without* robust markets? And, what happens when cash is disbursed but movement and supply chain restrictions prevent affected populations from purchasing goods?

For example, despite the considerable use of cash assistance by governments and non-state actors in major emergencies around the world, its discernible impacts are limited to only a few countries. The use of CVA in humanitarian responses in South Pacific islands such as Fiji and Tonga has been relatively small scale. These countries are small-island developing states, and the population of each is spread across multiple islands.[136] The combination of these factors results in higher transport costs in getting goods to market. People also have limited access to financial services on remote/outer islands, while there is generally a low level of financial literacy in rural areas.[137]

The following two comments by humanitarian workers, obtained from the author's interviews during fieldwork in Fiji and Tonga from 23 August to 6 September 2019, showcase the limitations of cash-based interventions in the Fijian and Tongan contexts:

> If you give cash, the person has to buy something from somewhere … but in remote parts of Fiji, there is no place to buy [some] goods."

136 Mark Pelling and Juha I. Uitto, "Small Island Developing States: Natural Disaster Vulnerability and Global Change", Global Environmental Change Part B: Environmental Hazards 3, no. 2 (2001): 49–62.

137 Mark Pelling and Juha I. Uitto, "Small Island Developing States".

> Cash-based programming might not work in Tonga … because there are not a lot of vendors … it is actually easier and more cost-efficient to ship from …

These statements demonstrate that cash will only be appropriate in situations where food or other items that people need are available in local markets or can be supplied relatively quickly through market mechanisms.

An earlier study on the feasibility of CVA conducted by Save the Children laid out four preconditions for its successful implementation:[138]

(1) CVA must have the potential to meet the needs of the target population. In other words, the target population should be accustomed to using cash to meet at least some of their needs in normal conditions; at the same time, they need to be familiar with and have access to financial services.
(2) There needs to be community and political acceptance, where people understand and accept CVA as a viable form of assistance and support in the aftermath of a crisis. This implies that other key stakeholders such as governments and private sector bodies also share this acceptance of CVA.
(3) CVA requires appropriate market conditions to be in place; in particular, there should be a functioning market with sufficient stocks of basic commodities to meet demand across all sectors. People should also be able to physically access these commodities quickly and without excessive external costs. Similarly, traders should be willing and able to participate in CVA programmes.
(4) There needs to be a particular set of operational conditions in place to ensure the success of CVA programmes. In particular, organisations need to be able to deliver cash safely and effectively to the people who need it, a task that requires functional and reliable payment systems to be in place for transferring money. Similarly, organisations should have programmatic expertise and operational capacity to deliver CVA.

Access is a critical issue in Fiji and Tonga. Even in normal times, transport is costly and time consuming in most rural areas. This condition is

138 Save the Children, Oxfam, and WFP, *Introductory Research on the Feasibility of Cash and Voucher Assistance in Rural Fiji*, 2018, https://resourcecentre.savethechildren.net/pdf/pacific_cash_feasibility_report_1.pdf/.

worsened in the aftermath of disasters, when routes can become damaged or demand for mobility through these routes can rise rapidly relative to what the routes can accommodate. Consequently, both the cost and time taken to reach markets can increase. Access constraints suggest that the degree to which cash transfers are a feasible way for people to meet their needs after disasters is strongly related to where they live.

In Fiji and Tonga, there appear to be feasible opportunities to transfer cash through service providers on the major islands, but access to financial services on the outer islands varies considerably. In fact, the same study by Save the Children found that in the rural areas of Fiji, there was a generally low level of financial literacy — including in the basics of how bank accounts work — and many families do not usually have bank accounts.[139] As such, trying to implement CVA programmes in such areas might be counter-productive. This raises an important cautionary note or caveat to assuming that conditions in a particular country are present for CVA to be a realistic or practical solution in meeting the needs of individuals during disasters just because the people express their preference for a cash response, or because cash is in vogue elsewhere. Rather, it is important to pay attention to contextual variables, on which hinges the effectiveness of aid modalities. In Fiji and Tonga, for example, the centralised distribution of in-kind items by aid organisations might be a more efficient way of delivering relief to communities than using cash transfers. Mitigating contextual challenges thus becomes an important consideration for the humanitarian sector and will determine the success of future cash transfer programmes.

FUTURE OF CASH-BASED INTERVENTIONS

Today, cash-based interventions have become an unavoidable reality in the world of humanitarian and developmental aid. What can be gleaned from the previous section is the importance of assessing the contexts in which these models are implemented and understanding that the same model might not be appropriate elsewhere if certain conditions are not met. For example, judging the ability of markets to respond to an injection of cash is a critical component of assessing whether cash is indeed the appropriate modality to apply. An additional consideration is how to reach people

139 Save the Children, Oxfam and WFP, *Introductory Research on the Feasibility of Cash and Voucher Assistance*.

who do not have mobile phones or the relevant know-how in receiving and utilising digital payments. The potential exclusion of individuals as a result of heavy reliance on technology for targeting and payments may thus be a wasteful and undesirable outcome. Additionally, when using digital technologies to facilitate cash transfers, a key prerequisite is the ability to uphold the data privacy and security of vulnerable and marginalised populations. In short, DCTs are not a panacea for aid delivery as they may not be relevant in every context.

COVID-19 has highlighted the positive role that the internet, ICT, and complementary services like digital banking can play in improving humanitarian assistance. A potentially promising undertaking in preparing for the new normal of simultaneous disasters is for policymakers and other key humanitarian stakeholders to expand the access to such services by building capacity and scaling up digital infrastructure.[140] Digital delivery systems that use electronic and contactless systems to deliver assistance, including registration, transfer, and monitoring systems, should be integrated into existing systems. Such integration can have the twofold benefits of helping to improve monitoring and evaluation processes while also improving the user journey for aid recipients in terms of accessibility and convenience. There is also a need to bolster digital literacy within communities; at the local and national levels, this can be achieved by incorporating digital education into school education or developing programmes for specific vulnerable groups such as the elderly as well as people living in rural areas.[141]

In implementing cash transfer programmes — or any other aid modality — humanitarian actors should adopt a bespoke approach tailored to different settings.[142] Rural models for cash transfers are unlikely to be appropriate in urban contexts, and vice versa. In some locations, depending on the state of the markets, in-kind assistance might need to be brought in, whereas in other situations a combination of cash and in-kind assistance might be used.

140 Ana Canedo, Raissa Fabregas, and Megan Morris, "Emergency Cash Transfers during COVID-19: Implementation Lessons for the Global South", Texas LBJ School, 8 December 2020, https://lbj.utexas.edu/resiliency-toolkit/emergency-cash.

141 ASEAN, *ASEAN Disaster Resilience Outlook: Preparing for a Future Beyond 2025*, ASEAN, 2021. https://asean.org/wp-content/uploads/2021/10/ASEAN-Disaster-Resilience-Outlook-Preparing-for-the-Future-Beyond-2021-FINAL.pdf.

142 Keetie Roelen, Edward Archibald, and Christina Lowe, "Covid-19: Crisis as Opportunity for Urban Cash Transfers?" ODI Working Paper 609, 2021.

To this end, humanitarian organisations and governments should work with local actors such as civil society and grassroots community groups, who have both contextual knowledge and experience of operating effectively in the relevant areas, in designing context-relevant CBIs. Local humanitarian organisations should be allowed and equipped to plan and deliver CVA directly to vulnerable communities, as opposed to simply being implementing partners of larger, international organisations. Moreover, as travel restrictions due to the COVID-19 pandemic have severely hampered the movement of international humanitarian workers,[143] the need to recognise and empower local humanitarian actors becomes even more pressing. In this regard, the onus falls on national and local actors to scale up humanitarian efforts to vulnerable and affected populations.[144]

According to a report conducted by The Cash Learning Partnership in 2020, one of the main challenges to scaling up CVA is managing the perceived risks associated with such programmes.[145] These risks include scaling up at the expense of quality, difficulty in ensuring accountability to affected populations, protection risks for recipients, fraud and corruption, and not achieving sector outcomes.[146] The humanitarian sector should consider these risks and work towards alleviating them. Moreover, by conducting regular feasibility studies and developing strong feedback mechanisms on the ground, humanitarian actors can challenge these assumptions using evidence-based approaches.

COVID-19 has upended the humanitarian sector, but, in the process, it has also provided the impetus to scale up CVA rapidly. The use of cash has the potential to provide many positive outcomes. However, if cash-based assistance programmes are implemented irresponsibly, they may not be effective in providing adequate aid to affected populations. As such, a constant amid the changes in the operating environments should be to ensure that aid modalities are principled, needs-based, and equitable.

143 Christopher Chen and Alistair D. B. Cook, *Humanitarian Assistance in the Asia-Pacific during COVID-19*, NTS Insight, 2020. https://www.rsis.edu.sg/wp-content/uploads/2020/09/NTS-Insight-Humanitarian-Assistance-in-the-Asia-Pacific-during-COVID-19-Aug2020.pdf.

144 Christopher Chen and Alistair D. B. Cook, *Humanitarian Assistance in the Asia-Pacific*.

145 CaLP Network. *The State of the World's Cash 2020*.

146 CaLP Network. *The State of the World's Cash 2020*.

CONCLUSION

Responses to the pandemic have led to a scale-up in the use of cash transfers in humanitarian programming. They have also resulted in a shift towards remote and digital channels for registration, delivery, and monitoring of such programmes.

From an ideological standpoint, this chapter does not posit either a fundamental stance for or against the use of cash-based interventions in humanitarian situations; neither does it presume that cash transfers are incompatible with and diametrically opposed to in-kind assistance. Cash transfer programmes do have the potential to provide many positive outcomes for vulnerable communities, but only if their many unintended or adverse effects, which are evident in other forms of aid modalities as well, are addressed. As such, this chapter argues that it is important to critically analyse cash-based interventions and to identify potential implementation gaps, limitations, and weaknesses.

By assessing the use of CBI during the pandemic, this chapter has raised the critical question of whether cash can and should be used as a standardised intervention model. While the use of cash transfers has become an unavoidable reality in the world of humanitarian and developmental aid, it is important to assess the contexts in which these models are implemented and to understand that simply shoehorning such modalities into situations and localities that are not ready for them is *ethically and socially irresponsible*. CBI may be a model of aid, but it is no silver bullet for addressing human suffering.

COVID-19: The Need for Gender-Sensitive Policies in Building Back Better

S. Nanthini

Ensuring the welfare of vulnerable populations, including women, has long been a challenging component of disaster governance in ASEAN. While the previous chapter focused on the need for bespoke approaches to cash-based solutions, this chapter delves into the disparate contexts faced by women, which call for even more nuanced approaches. It situates the gendered approach to disaster governance within the context of the COVID-19 pandemic, which has gathered significant attention worldwide since it was first discovered in December 2019 in Wuhan, China, and spread to 216 countries, areas or territories globally.[147] Devastating as a public health emergency, COVID-19 has also laid bare the gaps that exist in society, magnifying the inequalities faced by those already vulnerable, with the gendered impacts of the crisis becoming clearer by the day.

From the beginning, women have been at the forefront of the global COVID-19 response, serving in roles ranging from decision-makers to providers of care. However, the effects of COVID-19 are threatening to wipe out decades of fragile progress for women, particularly for those who face multiple forms of discrimination. After all, disaster events do not land in a "socio-economic and political void", but rather in a situation where women may already face restrictions on their agency, autonomy and rights.[148] This is particularly important to keep in mind in the context of Southeast Asia — one of the most disaster-prone areas in the world. As the global crisis created by COVID-19 shows no signs of abating in the short term and natural hazards continue to plague the region, there is, and will continue to be, a need for gender-sensitive policies as part of the region's response

147 World Health Organization (WHO), "WHO Coronavirus Disease (COVID-19) Dashboard", WHO, 2021, https://covid19.who.int.

148 Helle Rystrom and Catarina Kinnvall, "Introduction: Climate Hazards, Disasters and Gender Ramifications", in *Climate Hazards, Disasters, and Gender Ramifications*, eds. Catarina Kinnvall and Helle Rydstrom (Routledge, 2019), 1–28.

and recovery strategy. This need is only likely to intensify as the effects of the pandemic continue to linger.

WOMEN IN ASEAN

As one of the most disaster-prone regions in the world, Southeast Asia has had to develop a strong institutional capacity, with robust disaster management mechanisms. These include the ASEAN Agreement on Disaster Management and Emergency Response (AADMER), which forms the legal basis of disaster management in the ASEAN region; work programmes, including the most recent 2021–2025 AADMER Work Programme; and the establishment of the ASEAN Coordinating Centre for Humanitarian Assistance on Disaster Management (AHA Centre). Moreover, over recent years, ASEAN has been increasingly focused on achieving gender parity as a fundamental part of its vision for the future.

While previous AADMER work programmes have acknowledged the need to focus on gender equality, the recent 2021–2025 edition has specifically included gender and social inclusion as one of its guiding principles, ensuring its consistent integration throughout the priority programmes.[149] Other demonstrations of the regional commitment to gender equality include the ratification of the Convention for the Elimination of all forms of Discrimination against Women (CEDAW) by all 10 ASEAN member states and the adoption in 2017 of the ASEAN Joint Statement on the Women, Peace and Security Agenda.

With significant progress having been achieved in recent decades, Southeast Asia boasts a relatively favourable environment for women. For example, the proportion of females among legislators has increased overall, with women representation in the national parliaments of the Philippines, Lao PDR and Viet Nam hovering between 28 and 27% as of 2020. This figure is above the global average of 25% for that year.[150] Child marriage and the gender gap in education have fallen to among the lowest in the world, with only 16% of girls in the region marrying before they turn 18 and only an

149 ASEAN Secretariat, "ASEAN Agreement on Disaster Management and Emergency Response (AADMER) Work Programme 2021–2025", December 2020, https://asean.org/storage/AADMER-Work-Programme-2021-2025.pdf.

150 UN Women, https://data.unwomen.org/sites/default/files/documents/Publications/ASEAN/ASEAN%20Gender%20Outlook_final.pdf

estimated 4% of women not completing any level of education.[151] Importantly, the rates of gender-based violence in the ASEAN region are among the lowest in the world, with 6–11% of women facing domestic violence in 2020, which is well below the global aggregate of 17.8%. An important caveat, however, is that less than half of these women go on to report their abuse and seek help. This situation probably results from discriminatory societal norms, which can be deep-rooted in communities and internalised by many in those communities.

While ASEAN has made encouraging strides in reducing gender inequalities at the regional scale, these hard-won gains in equality are now being threatened by COVID-19, particularly in terms of gender-based violence, unequal burdens of care as well as unequal economic opportunities. After all, as has been noted time and time again, when disaster events intersect with pre-existing gendered inequalities, they exacerbate women's vulnerability to the short- and long-term effects of these events.

GENDERED IMPACTS OF DISASTERS

Women's vulnerability in the face of disasters is determined in large part by their socially determined roles and responsibilities. Women still face a large share of the burden of care when it comes to children and the elderly, including ensuring their health and well-being. This burden is exacerbated during times of crisis.[152] Women generally undertake responsibilities and tasks tied to providing security for their communities in times of emergencies and disasters such as caring for the young, old and infirm, embodying tradition in times of change. As such, they have long been considered the "shock-absorbers" of communities. However, this does not necessarily mean women are less vulnerable in times of crisis:[153] they have to be content with the existing inequalities in their access to resources and decision-making powers.

Female mortality also tends to be higher during and after disaster situ-

151 UN Women,

152 Des Gaspar and Troung, "Development Ethics through the Lenses of Caring, Gender, and Human Security", ISS Working Papers — General Series 18734, International Institute of Social Studies of Erasmus University Rotterdam, 6.

153 Des Gaspar and Troung, "Development Ethics through the Lenses of Caring, Gender, and Human Security".

ations. For example, during the 2004 tsunami in Banda Aceh in Indonesia, 55–70% of those who died were women, and, in the hardest-hit village of Kuala Cangkoy in the North Aceh district, women made up 80% of the deaths, with similar figures reported in India and Sri Lanka. These proportions demonstrate a serious imbalance of male survivors compared with female survivors.[154] While this imbalance was in part related to gender differences, with more men than women able to swim and climb trees, it is important to note that the gendered impacts of disasters do not manifest themselves solely in the form of higher mortality rates but in other aspects as well.

In particular, the digital gender gap is a factor in limiting women's access to resources. In 2019, 48.3% of men in the Asia-Pacific accessed the internet, compared with 41.3 % of women, with an even starker gap evident between urban and rural households.[155] The consequent inability to gain necessary and sometimes life-saving information diminishes the potential resilience gains offered by technology in mitigating the impacts of, preparing for, responding to, and recovering from, disasters. Women are also more likely to have lower levels of formal education, face higher levels of poverty, and hold less decision-making powers, in turn constraining their agency, representation and visibility in the field.[156]

Another indirect impact of disasters is in how they lead to increased rates of gender-based violence within highly tense, stressful and confined contexts and conditions. For example, during the 2014–2015 Ebola outbreak in West Africa, the rates of sexual violence against women and girls

154 UNIFEM, "UNIFEM responds to the tsunami tragedy one year later: A report card", 2005, https://reliefweb.int/sites/reliefweb.int/files/resources/AEC8595ED6FCCDEC492570DC000FDDB2-unifem-tsunami-19dec.pdf; Oxfam, "The Tsunami's Impact On Women", Oxfam Briefing Note, 2005, https://www.preventionweb.net/files/1502_bn050326tsunamiwomen.pdf.

155 International Telecommunication Union (ITU), "Measuring Digital Development: Facts and Figures 2019", 2020, https://www.itu.int/en/ITU-D/Statistics/Documents/facts/FactsFigures2019.pdf; ITU, "Women, ICT and Emergency Telecommunications: Opportunities and Constraints", 2020, https://www.itu.int/en/ITU-D/Emergency-Telecommunications/Pages/Women-ICT-and-Emergency-Telecommunications.aspx.

156 Oxfam, "Why the Majority of the World's Poor are Women", 2021 https://www.oxfam.org/en/why-majority-worlds-poor-are-women.

increased.[157] Due in part to the public health measures, including quarantines and curfews, which were put in place to slow the spread of the disease, women were forced into close contact with their potential abusers. Similarly, gender-based violence has become particularly prominent during COVID-19, with Phumzile Mlambo-Ngcuka, the former executive director of UN Women, referring to the recent intensification of violence against women and girls as a "shadow pandemic".[158]

Lockdown measures are adding to the tension and strain already created by security, health, and money worries, with a recent report by UN Women on gender-based violence finding that one in four women feels more unsafe at home as household conflicts have increased.[159] The heightened isolation for women with violent partners restricts their access to the people and resources that can best help them. Unfortunately, as rates of gender-based violence increase, women's resources are also being strained as services to support survivors are reduced. This reduction is partly due to operational challenges, with domestic violence shelters facing reduced capacity due to COVID-19 safety measures, as well as to reduced funding for law enforcement agencies and local women's organisations.[160] Gender-based violence rates are unlikely to decrease when the immediate health crisis is over since the economic impact of COVID-19 is likely to linger; this is likely to

157 S. Yasmin, "The Ebola Rape Epidemic No One's Talking About", *Foreign Policy*, 2 February 2016, https://foreignpolicy.com/2016/02/02/the-ebola-rape-epidemic-west-africa-teenage-pregnancy/.

158 Phumzile Mlambo-Ngcuka, "Violence against Women and Girls: The Shadow Pandemic — Statement by Executive Director of UN Women", UN Women, 6 April 2020, https://www.unwomen.org/en/news/stories/2020/4/statement-ed-phumzile-violence-against-women-during-pandemic.

159 Ramya Emandi, et al., "Measuring the Shadow Pandemic: Violence against Women during COVID-19", UN Women, 2021, https://data.unwomen.org/sites/default/files/documents/Publications/Measuring-shadow-pandemic.pdf.

160 Shruti Majumdar and Gemma Wood, "UNTF EVAW Briefing Note on the Impact of COVID-19 on Violence against Women through the Lens of Civil Society and Women's Rights Organizations", UN Trust Fund to End Violence against Women, May 2020, https://www2.unwomen.org/-/media/fieldpercent20office percent20untf/publications/2020/external percent20brief/external percent20brief percent20for percent20publication percent206 percent2019/impact percent20of percent20covid-19_v08_single percent20page-compressed.pdf?la=en&vs=5117; Ramya Emandi et al, "Measuring the Shadow Pandemic".

further stress households, with women taking the brunt of the impact.[161] Consequently, local governments and humanitarian actors should ensure that there is easy and affordable access to medical and psychosocial support and services for survivors of sexual and gender-based violence, particularly in conflict-affected countries — instead of focusing all available resources on an unqualified COVID-19 response.

The economic impacts of disasters also are gendered, with a large proportion of working women concentrated in the informal sector, including domestic work and family businesses, as well as in the agricultural sector — both of which are more vulnerable to disruptions caused by disasters. Women also tend to be mostly employed in industries such as travel, hospitality, textile manufacturing, and retail sales, most of which have been adversely affected by the COVID-19 outbreak.[162] In addition to the gender wage gap and women's lack of advancement opportunities, the over-representation of women in these vulnerable forms of work heightens their vulnerability to poverty.[163] Their lack of formal employment inhibits their access to social and legal protection mechanisms — a situation that is particularly concerning in a crisis the scale of the COVID-19 pandemic, which has practically impacted every part of daily life even for the general population. Moreover, even as paid employment opportunities disappear, women's unpaid care work has significantly increased as a result of the closure of schools as well as childcare and eldercare facilities. Due to these social responsibilities and restrictions, women are often on the whole more vulnerable to disasters than men. Women thus stand to bear a double burden. On one hand, they are likely to bear the heaviest impacts when it comes to disasters. On the other hand, they are also more likely to be overlooked in future policy development owing to the lack of female representation

161 Sara Davies, et al., "Why Gender Matters in the Impact and Recovery from Covid-19", The Lowy Institute, 20 March 2020, https://www.lowyinstitute.org/the-interpreter/why-gender-matters-impact-and-recovery-covid-19.

162 World Bank, "Gender Dimensions of the COVID-19 pandemic", Policy Note, 16 April 2020, http://documents1.worldbank.org/curated/en/618731587147227244/pdf/Gender-Dimensions-of-the-COVID-19-Pandemic.pdf.

163 S. Nanthini and Tamara Nair, "COVID-19 and the Impacts on Women", *NTS Insight*, https://www.rsis.edu.sg/wp-content/uploads/2020/07/NTS-Insight_COVID-19-and-the-Impacts-on-Women-30July2020.pdf.

in decision-making, especially in traditional societies; this prevents them from contributing their perspectives based on experiences on the ground.[164]

BUILDING BACK BETTER?

The COVID-19 pandemic, while disastrous to the most vulnerable populations, has also provided opportunities for building back better. While great strides have been made in Southeast Asia in reducing gender inequalities — from improving women's access to education to increasing their participation in decision-making — gaps remain.[165] At the current rate of improvement in addressing gender inequalities, it has been estimated that it would take about 100 years to close the gender gap globally and 202 years to achieve some form of economic parity between men and women — a timeline that world leaders *must not* be content with.[166] It should instead be a matter of serious concern for countries looking to build more resilient economies and stable societies, particularly amid the COVID-19 pandemic. The failure to bridge the gender gap carries significant costs for women, the economy and society at large: countries around the world stand to lose a potential boost to global employment by 18.9 million workers, with a significant share of these potential gains likely to benefit developing countries in Southeast Asia.[167] Gender-based violence alone is estimated to cost approximately US$1.5 trillion globally, with this number likely to have risen in the wake of COVID-19.[168] As such, narrowing the gender gap must continue to be a key priority area for ASEAN and brought further to the fore of future policy development.

164 Irene Dankelman, Khurshid Alam, Wahida Bashar Ahmed, Yacine Diagne Gueye, Naureen Fatema, and Rose Mensah-Kutin, "Gender, Climate Change and Human Security Lessons from Bangladesh, Ghana and Senegal", Women's Environment and Development Organization (WE DO), May 2008, https://www.wedo.org/wp-content/uploads/hsn-study-final-may-20-2008.pdf.

165 ASEAN Secretariat, "ASEAN Disaster Resilience Outlook: Preparing for a Future Beyond 2025", 2021, https://asean.org/wp-content/uploads/2021/10/ASEAN-Disaster-Resilience-Outlook-Preparing-for-the-Future-Beyond-2021-FINAL.pdf.

166 World Economic Forum, "Global Gender Gap Report 2018", Insight Report, 2018, http://www3.weforum.org/docs/WEF_GGGR_2018.pdf

167 International Labour Organization (ILO), "World Employment Social Outlook", 2017, https://www.ilo.org/wcmsp5/groups/public/---dgreports/---inst/documents/publication/wcms_557245.pdf.

168 Phumzile Mlambo-Ngcuka, "Violence against Women and Girls".

A root cause of women's disproportionate vulnerability during crises is their lack of representation in decision-making processes. Female representation is thus vital at all levels of the decision-making process, from information gathering on the ground to creating policies and implementing them. Rather than simply implementing gender-blind or gender-neutral polices that may lead to biased outcomes due to their over-generalised nature, policies must instead be *gender sensitive*, all the while taking into account the specific vulnerabilities and coping mechanisms of the women within affected populations.[169] The importance of having more gender-nuanced policies has already been well acknowledged at the international level, with several UN agreements, such as the 2005 Hyogo Framework for Action and the 2015 Sendai Framework for Disaster Risk Reduction 2015–2030, having included clauses on integrating a gender perspective. However, these policies are not always implemented on the ground. For example, women are still significantly under-represented in COVID-19 task forces around the world. According to a recent survey by the United Nations Development Programme and UN Women in partnership with the Gender Inequality Research Lab, the overwhelming majority of COVID-19 task forces are composed mostly of men, with gender parity present in only 7% of all task forces and women not represented at all in 10% of the task forces.[170] This situation may in part reflect the relatively smaller percentage of gender-sensitive measures adopted in response to COVID-19, with the majority of such measures being focused on gender-based violence while unpaid care and women's economic security receive far less attention.

Within ASEAN's push towards achieving gender parity, the importance of gender-mainstreaming is clearly reflected in the AADMER Work Programme 2021–2025 and the recently launched ASEAN Regional Framework on Protection, Gender and Inclusion in Disaster Management. The importance of ensuring a gender-sensitive recovery plan for COVID-19

169 Naila Kabeer, "Gender-aware Policy and Planning: A Social Relations Perspective", in *Gender Planning In Development Agencies: Meeting the Challenge*, ed. Mandy Mcdonald, (Oxfam, 1994), 80–97, https://oxfamilibrary.openrepository.com/bitstream/handle/10546/122707/bk-gender-planning- development-agencies-section-ii-010194-en.pdf?sequence=23.

170 UN Women & UNDP, "COVID-19: Global Gender Response Tracker", 11 November 2021, https://data.unwomen.org/sites/default/files/documents/Publications/COVID-19%20Task%20Force%20Fact%20Sheet%20November%202021%20v1.pdf.

to address the disproportionate impacts of the pandemic on women is also demonstrated by the ASEAN Comprehensive Recovery Framework (ACRF). Adopted at the 37th ASEAN Summit in November 2020, this framework, along with its implementation plan, was created to serve as the region's consolidated "exit strategy" from the COVID-19 crisis.[171] It lays out ASEAN's responses to the ongoing pandemic by charting the different stages of recovery across countries. The framework demonstrates awareness of the specific needs of the people most affected by the pandemic — including women and girls — through its identification of particular focused strategies and measures based on their needs and priorities.[172] For example, the ACRF's implementation plan contains specific provisions for ensuring that rural women have equal access and control over "productive resources and services" as well as for enabling an environment where they feel comfortable to take on decision-making and leadership roles. These appear under "Broad Strategy 2" on "Strengthening Human Security".[173] Importantly, in order to maintain the flexibility needed to keep up with the constantly shifting crisis, the implementation plan has been created as a "living document", one that can be constantly updated based on the evolving needs of the region, including those of women and girls.[174]

With the world still caught in the COVID-19 crisis, which shows no signs of abating in the short term, it is of vital importance that world leaders do not dismiss the gendered nature of the pandemic's impacts. The effects on women are clear, with global increases in gender-based violence and increases in the burden of unpaid care work as well as limits on their economic prospects — effects that have been seen time and time again during and after disasters. COVID-19 could reverse the limited progress that has been made on gender equality and women's rights, thus deepening extant inequalities.

171 ASEAN Secretariat, "ASEAN Comprehensive Framework Plan", 2020, https://asean.org/wp-content/uploads/2021/09/ASEAN-Comprehensive-Recovery-Framework_Pub_2020_1.pdf.

172 ASEAN Secretariat, "ASEAN Comprehensive Framework Plan.

173 ASEAN Secretariat, "ASEAN Comprehensive Recovery Framework: Implementation Plan", 2020, https://asean.org/book/asean-comprehensive-recovery-framework-implementation-plan/.

174 ASEAN Secretariat, "ASEAN Comprehensive Recovery Framework: Implementation Plan".

As one of the most disaster-prone regions in the world, ASEAN has had significant experience in managing the impacts of disasters and building resilience — experience that can also be used in the region's COVID-19 response. With the organisation already in the midst of a push to mainstream gender inclusion in its disaster management policies, COVID-19 has provided it with an opportunity to demonstrate its commitment to gender equality by putting it into practice. As UN Secretary-General António Guterres has emphasised, women and girls need to be at the centre of COVID-19 recovery efforts at all levels — local, national, regional and international.[175] While it is true that women are disproportionally vulnerable, policymakers should also keep in mind that women play important roles as active agents of change who have already been significantly contributing to the mitigation of the impacts of COVID-19 — from their roles as medical professionals and scientists to that of policymakers. By integrating the gender perspective into its COVID-19 response, ASEAN would be able to strengthen its pandemic recovery policies and practices, adopting a people-centred approach that leaves no one behind.

175 UN Women, "Put women and girls at the centre of efforts to recover from COVID-19 — Statement by the UN Secretary-General António Guterres", 9 April 2020, https://authoring.prod.unwomen.org/en/news-and-events/stories/2020/04/statement-by-the-un-secretary-general-on-covid19_egypt.

Conclusion

Policy Insights for Preparing for Future Novel Threats

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This monograph has applied non-traditional security (NTS) lenses for understanding the societal impacts of COVID-19 to provide insights for the ASEAN region as it not only continues to face the current crisis, but also prepares for future novel threats and disasters. This chapter provides a cross-sectional analysis and policy recommendations on how society can better prepare for future novel threats, based on the multi-faceted approach rooted in NTS.

UNDERSTANDING KNOCK-ON DISRUPTIONS TO OTHER NTS CHALLENGES

While the overarching impact of COVID-19 is primarily in causing a health crisis, its spillover effects on other NTS challenges cannot be overemphasised.

The first of these knock-on effects has been in the way that COVID-19 has triggered an economic crisis that easily displaces the global financial crisis of 2007–08 as the top disruption to the world economy. Its evolution from a health crisis to an economic crisis came as a result of the virus' unique and rather unprecedented trait of asymptomatic transmission alongside long periods of incubation (two weeks or more). As a result, the common approach of temperature checks, adopted during previous diseases like the sudden acute respiratory syndrome (SARS) and the Middle East respiratory syndrome (MERS), is rendered less useful in the face of COVID-19. To maintain a semblance of control over the rise in infections, countries have had to turn to lockdowns. Such lockdowns have in turn stifled economies, especially in the case of travel- and service-related industries that require physical contact to function. Consequently, there have been heightened levels of job insecurity, unemployment and poverty, unseen since the Great Depression of the 1930s.

Many of the economic impacts of COVID-19 have extended to other

sectors since economic insecurity is defined as a "lack of material supplies to support normal life".[176] In the case of food security, as Chapter 2 showed, unemployment prevents individuals from affording food. Additionally, disruptions in supply chains (i.e., in food production and trade) contribute to increasing the cost of food. In particular, panic-buying resulting from COVID-induced supply-chain disruptions has led consumers to stock up on food, which has further disrupted local food stocks in supermarkets, leading to instances of food price inflation. Further knock-on effects come in the form of country-level restrictions on the exports of rice and other essential foods in response to food stock disruptions.

COVID-induced economic crises in turn have made disaster governance more challenging. The economic impacts matter since, as Chapter 6 showed, individuals with lower income levels are more vulnerable to the impacts of disasters. Moreover, country-wide lockdowns have posed challenges in ensuring sufficient physical access to basic living requirements, especially in the case of rural communities where households are geographically spread out and located far from markets. In these cases, cash-based forms of assistance are less helpful since the problem lies no longer just in the lack of income to afford commodities but also in ensuring that these commodities are within households' physical reach.

The lenses of gender security highlight additional distributional impacts of COVID-induced lockdowns in the form of the uneven stresses suffered by women, as Chapter 7 showed. Women are likely to be employed in sectors that were already vulnerable even prior to the onset of COVID-19. These include informal sectors such as domestic work and family businesses; the agricultural sector; and high-contact sectors such as travel, hospitality, textile manufacturing, and retail sales. In the case of informal sectors, workers have fewer legal protections, while their employers have smaller capital buffers for paying wages amid the state-imposed lockdowns. Within households, especially in traditional/less progressive societies, women also commonly serve as "shock-absorbers" in caring for households amid disruptions, thus bearing a greater burden in terms of both time and resources.

The impact on environmental security, including what is known as

176 Bob S. Hadiwinata. "Poverty and Economic Security", in *An Introduction to Non-traditional Security Studies: A Transnational Approach*, ed. Mely Caballero-Anthony (Sage, 2015).

the "triple planetary crisis", is notable as well. Chapter 3 argued that "the origin and the spread of the virus are widely believed to be a consequence of degraded nature." This degradation builds on the confluence of "growing human populations increasingly disrupting natural ecosystems, globalization … and changing climates"; for instance, the Ebola virus has been seen as occurring alongside the clearing of mature forests in West Africa.[177] The so-called butterfly effects — or significant systemic impacts caused by even the minutest of disruptions — should thus not be overlooked.[178]

THE NEED FOR HOLISTIC PERSPECTIVES IN FACING FUTURE NOVEL THREATS

In spite of the interconnected nature of many NTS issues, a key challenge today is the tendency to treat each issue separately. It is no doubt important for those who govern each sector to maintain accountability for sector outcomes following the principle of subsidiarity.[179] However, given that governments ultimately bear the responsibility for the well-being of their constituents, it is their role to adopt a comprehensive approach to security. This requires maintaining inter-sectoral dialogue and integrated policy planning approaches in order to mount a robust response to COVID-19.

This comprehensive approach is not without challenges, however, given the conflicting priorities, goals and objectives of different sectors. For instance, in promoting environmental security, India pushed for greater bio-ethanol production as a means to reduce reliance on coal and other non-renewable energy sources.[180] Yet, this policy has sparked fears of impending food insecurity since ethanol derived from rice, corn or sugar,

177 Jeffrey A. McNeely, "Nature and COVID-19: The Pandemic, the Environment, and the Way Ahead," *Ambio* 50 (2021): 767–781, https://link.springer.com/article/10.1007/s13280-020-01447-0

178 Edward N. Lorenz, "Deterministic Nonperiodic Flow", *Journal of Atmospheric Sciences* 20, no. 2 (1963): 130–141.

179 Joseph Drew and Bligh Grant, "Subsidiarity: More Than a Principle of Decentralization — A View from Local Government", *Publius: The Journal of Federalism* 47, no. 4 (2017): 522–545.

180 Sambit Mohanty, "India advances gasoline's ethanol blending target in push towards energy transition", S&P Global Commodity Insights, 7 June 2021, https://www.spglobal.com/platts/en/market-insights/latest-news/agriculture/060721-india-advances-gasolines-ethanol-blending-target-in-push-towards-energy-transition.

for instance, diverts these crops away from food use.[181] Likewise, given limited state resources, trade-offs are unavoidable; building on the case of India's bio-ethanol production, this can lead to diversion of funding away from much-needed food subsidies for the country's poorer households. [182]

Therefore, a move towards a comprehensive approach to security will unavoidably lead to more complex negotiations between actors in various sectors, and in different international settings as well, since there is a need to establish priorities. In public policy parlance, the term "wicked problems" is used to describe complex, inter-related problems that require such trade-offs.[183]

Apart from taking a cross-sectoral approach involving decision-makers in government, a comprehensive approach is one that also involves sufficient representation across all impacted stakeholders down to local communities and non-state actors, including civil society representatives.[184] Their insights can be critical in providing policy feedback and possibly even foresight on potential negative cross-sector impacts of policies and future societal risks. Yet, not all actors have equal capability for voicing their concerns. Thus, apart from garnering sufficient representation, it is equally important to develop the capabilities of civil society representatives and other non-state actors so that they too can feed into the policy-making process. The end goal should be to identify the set of policy solutions that can best uphold what is societally valued.[185]

PONDERING THE IMPROBABLE

Just a few months before the onset of COVID-19, the Economist Intelligence Unit's Global Health Security Index (GHSI) report indicated that "not a single country in the world is fully prepared to handle an epidemic

181 Bloomberg. "Why India's ambitious ethanol plan is spurring food security fears", *The Indian Express*, 7 October 2021. https://indianexpress.com/article/business/economy/why-indias-ambitious-ethanol-plan-is-spurring-food-security-fears-7557589/.

182 Bloomberg, "Why India's ambitious ethanol plan is spurring food security fears".

183 Brian W. Head and John Alford, "Wicked Problems: Implications for Public Policy and Management", *Administration & society* 47, no. 6 (2015): 712.

184 Mely Caballero-Anthony, *Negotiating Governance on Non-traditional Security in Southeast Asia and Beyond* (Columbia University Press, 2019), 226–227.

185 John C. Camillus, "Strategy as a Wicked Problem", *Harvard Business Review* 86, no. 5 (2008): 98.

or pandemic."[186] The report reflected the global average GHSI score as being 40 out of 100; even among the richest, high-income countries, the average score was only 51.9.[187] Had COVID-19 not occurred, such calls for greater investment in health security would probably have fallen on deaf ears.

The key challenge that has prevented states and societies from being prepared for novel threats such as COVID-19 is that policymakers have suffered from what is known as the "saliency" or "availability" cognitive bias. This refers to the psychological tendency to give too much focus to issues that come to mind readily or have manifested greater impacts historically (e.g., developmental matters such as poverty reduction), as their decision-making is based on available information.[188] For instance, of the total development financing of US$3.03 trillion between 1990 and 2010, only US$106.7 billion or 0.4% was allocated for natural disaster response, reconstruction, relief and rehabilitation (DRRR).[189] Lassa et al. have attributed the underfunding of DRRR to greater prioritisation by legislators to "other competing developmental agenda", including poverty alleviation, health, education, and others that are apparently more urgent.[190]

The lack of funds to prepare for a future of novel types of disasters comes as no surprise in light of the failure of states to recognise the importance of events that have a lower probability of occurring or that have had fewer precedents. This challenge is worsened by the problem of "temporal

186 Bloomberg School of Public Health, Johns Hopkins University, "Global Health Security Index finds gaps in preparedness for epidemics and pandemics", *Science Daily*, 24 October 2019, https://www.sciencedaily.com/releases/2019/10/191024115022.htm.

187 Jose Ma. Luis Montesclaros, "Beyond COVID-19: Global Priorities against Future Contagion", *RSIS Commentaries*, 20 February 2020, https://www.rsis.edu.sg/rsis-publication/nts/beyond-covid-19-global-priorities-against-future-contagion/#.Yd-_ktFBzMY.

188 Daniel Kahneman. *Thinking Fast and Slow* (Macmillan, 2011).

189 Jan Kellet and Alice Caravani, *Financing Disaster Risk Reduction: A 20 Year Story of International Aid*, ODI and GFDRR, 2013, 6.

190 Jonatan A. Lassa, Akhilesh Surjan, Mely Caballero-Anthony, and Rohan Fisher, "Measuring Political Will: An Index of Commitment to Disaster Risk Reduction", *International Journal of Disaster Risk Reduction* 34 (2019): 65.

discounting",[191] whereby in the face of multiple uncertain events, states ascribe less importance to uncertain events that are perceived to occur later in the future, relative to issues that are already at hand. A pertinent example is the underfunding for health-disaster preparedness (HDP) relative to natural-disaster preparedness (NDP), as observed in Chapter 5. This is because public health emergencies have occurred with less frequency than natural disasters.

A further challenge is that states can fall into complacency in thinking that they have a greater sense of control over disasters than they actually have and thus of their ability to forecast future threats, a problem known as "hindsight bias".[192] A case in point relates to the "victories" achieved through approaches like temperature checks in fighting the SARS and MERS pandemics. These may have led policymakers into thinking that the same approaches would work in future novel threats. This false sense of complacency became apparent when approaches like temperature checks proved ineffective in the face of COVID-19's traits of asymptomatic transmission and long gestation periods.

The COVID-19 pandemic therefore provides a push for states to be cognisant of their potential cognitive biases and "tame" their risk perceptions as they "ponder the improbable". A potential approach moving forward is for states to develop cross-agency horizon-scanning offices dedicated to foreseeing emergent risks. Doing so will also require greater engagement with academia and other knowledge specialists who can provide specialised knowledge on the dynamics of particular risks of interest, or alternatively provide insights into risks that may have yet to be uncovered.

EMBRACING TECHNOLOGICAL INNOVATION IN A BESPOKE MANNER

A third perspective focuses on the importance of technologies in addressing the growing complexity of problems. Multiple industrial revolutions have

191 Milica Vasiljevic, Mario Weick, Peter Taylor-Gooby, Dominic Abrams, and Tim Hopthrow, *Reasoning about Extreme Events: A Review of Behavioural Biases in Relation to Catastrophe Risks*, Lighthill Risk Network, 2013, https://www.repository.cam.ac.uk/bitstream/handle/1810/270633/Vasiljevic_et_al_2013_Behavioural_Biases_Cat_Risks.pdf?sequence=1.

192 Milica Vasiljevic, Mario Weick, Peter Taylor-Gooby, Dominic Abrams, and Tim Hopthrow, *Reasoning about Extreme Events*.

taken place over the past decades,[193] which have led to the development of technological innovations that can be used in countering future novel threats. For instance, Chapter 6 cited the importance of digital payments to make the delivery of cash "increasingly affordable, secure and transparent" in Malaysia and the Philippines; Chapter 2 mentioned the adoption of e-commerce to allow consumers to order food directly from farmers, as is being done in India,[194] as well as the application of digital mechanisms in providing social safety nets, as seen through India's "digital ration cards" system.[195] Chapter 4 discussed the potential to leverage nuclear technologies in improving the health sector's ability to detect diseases and in tracing the patterns and sources of toxic contamination in relation to marine plastic environmental debris or across food supply chains.[196]

However, a practical challenge lies in creating the space for the adoption and growth of such innovations in addressing future novel threats. Such solutions are not readily transferrable from country to country, nor from a country's capital to its outskirts. Rather, their viability requires integrating such systems within pre-existing modes of government or market operation. This point was highlighted in Chapter 6, which noted that cash-based interventions may be irrelevant in cases where basic necessities themselves are in short supply. A deeper challenge is when the novel technologies themselves are socially contentious, such as nuclear technologies. Chapter 4 noted that the adoption of nuclear technologies is hampered by myopic perspectives and the failure to cognitively disentangle old concerns relating to weapons proliferation or nuclear accidents from the new opportunities for their application. This is not unique to the energy sector, as even within food and agriculture, the adoption of biotechnologies for novel products that can help crops to better adapt to changing climatic conditions has been

193 Klaus Schwab, *The Fourth Industrial Revolution* (Crown Business, 2017).

194 Apichaya Lilavanichakul, "Development of Agricultural E-commerce in Thailand", The *FFTC Journal of Agricultural Policy* 1 (2021): 7–16.

195 The Economic Times, "Digital ration cards on anvil, pan-India services by March 2021", ET Government.com, 2 June 2020, https://government.economictimes.indiatimes.com/news/digital-india/digital-ration-cards-on-anvil-pan-india-services-by-march-2021/76155310.

196 IAEA, "A Nuclear Solution to Plastic Pollution", accessed 14 Dec 2021, https://www.iaea.org/services/key-programmes/nutec-plastics.

stifled by both regulatory restrictions and societal pushback.[197]

Technology has long been recognised as having "double effects", or both positive and negative potential societal implications. The prescription from the policy standpoint is for higher-level discussions to decide on the moral and societal criteria for allowing various technologies to be applied. For instance, a utilitarian approach is used in some fields where technologies are adopted if their potential benefits outweigh or are disproportional to the risks they carry, as is the case in medical ethics.[198] Such an approach should be nuanced, considering the different levels of risk tolerance within society. For instance, whereas some societal groups find comfort in the utilitarian approach of minimising risk, other groups may opt for a "zero risk" approach in cases where technologies can potentially cause harm to human life.

A bespoke approach is therefore needed to ensure that the technologies adopted have a strategic fit with the city, region or country where they are applied. Equally important is the need for a participatory approach in programme development that leverages multiple levels of networks and associations at the international, regional, subregional, national and subnational levels.[199] At the country level, any approach adopted should be harmonised with prevailing government laws and policies and aligned with longer-term development plans.[200]

CONCLUSION

As a first step in "pondering the improbable" and preparing for future novel types of threats, there is a need for greater openness at all levels so as to minimise undesirable societal implications. As far as NTS issues are concerned, the "whole is more than just the sum of its parts", given the cross-cutting nature of the issues. COVID-19 constitutes an important inflection point, throwing up a networked or interrelated disruption. The challenge lies in overcoming these complexities to achieve sustainable security.

This calls for more comprehensive and rationalised approaches to policy

197 Stuart J. Smyth, "Genetically Modified Crops, Regulatory Delays, and International Trade", *Food and Energy Security* 6, no. 2 (2017): 78–86.
198 Nicholas J. Kockler, "The Principle of Double Effect and Proportionate Reason", *AMA Journal of Ethics* 9, no. 5 (2007): 369–374.
199 Nicholas J. Kockler, "The Principle of Double Effect".
200 Nicholas J. Kockler, "The Principle of Double Effect".

development that leverage information networks from the broader sphere of stakeholders at multiple levels (international, regional, subregional, national, subnational), across both state- and non-state-actors (the latter including the private sector, civil society, academia and the scientific community). Beyond understanding these emerging challenges, it is equally important for society to open up to novel applications of technological developments, while at the same time putting technology in its place as only a means rather than an end in itself. Amid the constant transition from "old" to "new" and further "newer normals", what remains unchanged is the need to focus on the individual, as opposed to the state or other wider actors, for from the NTS perspective the individual is the true "referent object" (or stakeholder) whose security and well-being are paramount.[201]

201 Barry Buzan, Ole Wæver, and Jaap De Wilde, *Security: A New Framework for Analysis* (Lynne Rienner Publishers, 1998).

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What is the "new normal", and how can Southeast Asia better prepare for and cope with it? This monograph discusses this overarching question, with a focus on non-traditional security (NTS) issues. Part 1 focuses on Sustainable Security concerns to discuss the multifaceted impacts of COVID-19 on food security and climate security, and potential solutions in nuclear technologies. Part 2, discusses Humanitarian Assistance and Disaster Relief issues, analysing COVID-19 as both a health disaster and a "simultaneous disaster", existing concurrently with natural disasters. It concludes with insights on how society can better "ponder the improbable" in preparing for future novel threats.

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