

# LIVING WITH UNCERTAINTY

## A WHOLE-OF-SOCIETY APPROACH TO PANDEMICS

Policy Report

July 2020

Tan Ming Hui

**RSiS**

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## Executive Summary

The ongoing Coronavirus Disease 2019 (COVID-19) pandemic has caused serious disruptions globally. The increase in frequency and diversity of outbreak-causing diseases and viruses remains a serious threat in the future. Singapore relies on foresight and horizon scanning to navigate emerging risks. Nevertheless, a pandemic highlights the need for such capabilities beyond the government sector and our national borders. Strategic structural changes may be necessary to foster more robust, shock-resilient, or even “antifragile” systems. Effective global or regional coordination is also necessary to contain such transnational threats. This report offers policy recommendations for a whole-of-society approach to manage crises like COVID-19.

# The Ongoing COVID-19 Pandemic<sup>1</sup>

As of July 2020, more than 11.7 million cases of COVID-19 have been confirmed, resulting in more than 540,000 deaths worldwide.<sup>2</sup> In Singapore, COVID-19 cases have risen to more than 45,000 with the majority consisting of migrant workers living in dormitories.<sup>3</sup>

This crisis poses serious economic and social disruptions. The International Monetary Fund (IMF) estimated an optimistic three per cent contraction of the global economy.<sup>4</sup> In the wake of travel restrictions, quarantines, and other social distancing measures, the aviation and tourism industries are among the hardest hit. The pandemic has also exposed the vulnerability of countries' healthcare systems and social infrastructure.

## Harbinger of more pandemics to come?

Pandemics are actually predictable and a known mass-killer in human history. Previous deadly pandemics include the sixth-century Plague of Justinian, the 14th century Black Death, and the 1918 Spanish flu, while outbreaks in recent decades include Ebola, Severe Acute Respiratory Syndrome (SARS), H1N1, and Middle East Respiratory Syndrome (MERS). The World Health Organization (WHO) tracked 1,438 epidemic events in 172 countries between 2011 and 2018.<sup>5</sup> The frequency and diversity of outbreaks have also increased steadily for the past 30 years.<sup>6</sup>

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<sup>1</sup> This report expands on the author's earlier commentary: Tan Ming Hui, "Thriving on Uncertainty: The Rise of Antifragile Societies?" *RSIS Commentary*, 14 May 2020.

<sup>2</sup> "How coronavirus is spreading across the world," *The Straits Times*, 7 July 2020, <https://www.straitstimes.com/multimedia/graphics/2020/02/wuhan-virus-numbers/index.html?shell>.

<sup>3</sup> *Ibid.*

<sup>4</sup> Faisal Islam, "IMF head: Dire economic forecasts may be too optimistic," *BBC News*, 17 April 2020, <https://www.bbc.com/news/business-52326853>.

<sup>5</sup> "A World at Risk: Annual Report on Global Preparedness for Health Emergencies," Global Preparedness Monitoring Board, accessed 10 May 2020, [https://apps.who.int/gpmb/assets/annual\\_report/GPMB\\_annualreport\\_2019.pdf](https://apps.who.int/gpmb/assets/annual_report/GPMB_annualreport_2019.pdf).

<sup>6</sup> "Outbreak Readiness and Business Impact: Protecting Lives and Livelihoods across the Global Economy," World Economic Forum, accessed 10 May 2020, [http://www3.weforum.org/docs/WEF%20HGI\\_Outbreak\\_Readiness\\_Business\\_Impact.pdf](http://www3.weforum.org/docs/WEF%20HGI_Outbreak_Readiness_Business_Impact.pdf).

Highlighting the lack of global preparedness, the WHO, other prominent organisations, and individuals have been warning of a next pandemic. Given the above, COVID-19 is not an unpredictable “black swan”, but a “known unknown”<sup>8</sup> or a “black elephant”, that is “actually visible to everyone...but no one wants to deal with it so they pretend it is not there”<sup>9</sup>.

After COVID-19, the world can expect more pandemics in the future. This century poses more risk for pandemics than ever before; the first reason being the exponentially growing world population, which has increased from 1.8 billion in 1918 to 7.8 billion in 2020. The second is rapid urbanisation—around 55 per cent of global population currently resides in urban areas and this is expected to increase to 68 per cent by 2050.<sup>10</sup> A huge world population living in high-density areas and often unhygienic conditions can increase opportunities for diseases to originate and for human transmissions. Third, growth in connectivity, travel, and trade along with the accessibility to rapid long-distance transportation increase the speed and chances of infections. Fourth, modern farming practices have resulted in large varieties of animals densely packed together within close proximity to humans, facilitating host-to-host transmissions.<sup>11</sup> In fact, many major diseases originate in animals before crossing over to humans.<sup>12</sup> Finally, research have also linked outbreaks to increased deforestation and climate change.<sup>13</sup>

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<sup>7</sup> Nassim Nicholas Taleb, *The Black Swan: The Impact of the Highly Improbable* (New York: Random House, 2007).

<sup>8</sup> Coined by Donald Rumfeld to describe the things we do not know.

<sup>9</sup> Peter Ho, “Strategic studies in practice: A South-East Asian perspective,” in *New Directions in Strategic Thinking 2.0*, ed. Russell W. Glenn (Canberra: ANU Press, 2018), 122.

<sup>10</sup> World Economic Forum, “A World at Risk,” 7.

<sup>11</sup> Laura Spinney, “We Need to Rethink Our Food System to Prevent the Next Pandemic,” *Time*, 12 April 2020, <https://time.com/5819801/rethink-industrialized-farming-next-pandemic/>.

<sup>12</sup> Toby Ord, *The Precipice: Existential Risk and the Future of Humanity* (New York: Hachette Books, 2020)

<sup>13</sup> World Economic Forum, “A World at Risk,” 7.

## Foresight and Horizon Scanning

In a fast-changing world, governments need to be forward looking and prepared. Oftentimes during a crisis, decision makers have to respond quickly despite having imperfect information. To anticipate emerging risks, policymakers often rely on strategic foresight and horizon scanning. Foresight is “a systematic, participatory, future-intelligence-gathering and medium-to-long-term vision-building process aimed at enabling present-day decisions and mobilizing joint action”.<sup>14</sup> It can include innovation, planning, policy formulation, and solution design methods based on alternative futures.<sup>15</sup> Horizon scanning is a “systematic outlook to detect early signs of potentially important developments. These can be weak (or early) signals, trends, wild cards...persistent problems, risks and threats, including matters at the margins of current thinking that challenge past assumptions”.<sup>16</sup> In Singapore, horizon scanning is a foresight tool that complements the existing scenario planning process. Singapore also adopts a whole-of-government approach, pooling people from different organisations and acknowledging that the capabilities of the many can overcome the limitations of the few.<sup>17</sup>

Despite being anticipatory, horizon scanning can help governments discover some but not all “black swans”. Instead, these tools can prepare institutions for disruptions, improve decision-making and planning, re-evaluate resources and capacity, and minimise system weaknesses. Through continuous intellectual and creative exercises, policymakers can become empowered and better equipped to deal with different future scenarios and shocks.

While Singapore’s foresight strategy has been relatively successful, two issues remain. First, such capabilities are not widespread enough outside of government bodies. The COVID-19 crisis has underscored the need for whole-of-society readiness. Second, foresight capabilities are needed among countries outside Singapore as well, since outbreaks do not recognise national boundaries. Containment of outbreaks requires regional or global coordinated actions—we are only as strong as our weakest link.

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<sup>14</sup> Ian Miles, Ozcan Saritas, and Alexander Solokov, *Foresight for Science, Technology and Innovation* (Switzerland: Springer International Publishing, 2016).

<sup>15</sup> Deon V. Canyon, Jonathan Cham, and Jim Potenza, “Complex Security Environments, Strategic Foresight and Transnational Security Cooperation Games,” *Daniel K. Inouye Asia-Pacific Center for Security Studies*, Occasional Paper (September 2018).

<sup>16</sup> Kerstin Cuhls, Annelieke van der Giessen, and Hannes Toivanen, “Models of Horizon Scanning - How to integrate Horizon Scanning into European Research and Innovation Policies,” accessed 10 May 2020, <https://www.isi.fraunhofer.de/content/dam/isi/dokumente/ccv/2015/Models-of-Horizon-Scanning.pdf>.

<sup>17</sup> Peter Ho and Adrian W. J. Kuah, “Governing for the Future: What Governments Can Do,” *Prism* 5, no.1 (2014.): 8-21.pdf.

# Policy Recommendations

On top of developing capabilities to mitigate future shocks, it is important for societies to learn how to function with uncertainty as the norm, mastering crisis management rather than pursuing risk avoidance. This report proposes the following recommendations for coping with crises like COVID-19.

## National Level

### **1. Learn from positive and negative lessons**

- Draw useful lessons locally and conduct case studies to learn from other countries' experiences.
- Promote whole-of-society involvement: Feedback could be collected from the ground up based on design thinking methodology, which takes the end-user's experience as the starting point in developing a solution to a problem.<sup>18</sup>

### **2. Invest in scientific research and the healthcare system**

- Invest heavily in science-based research to advance our understanding of diseases, while allocating sufficient resources dedicated to testing, treatment, and vaccination. Testing capacity should be expanded quickly since reliable treatment and vaccination take time to develop. To avoid overlapping efforts, there should be a centralised national strategy.
- Expand the healthcare infrastructure by increasing manpower capacity and stockpiling of medical and personal protective equipment. Ramping up capacity even in peacetime allows the sector to respond quickly to new viruses at any given time.
- Expand telemedicine capabilities: Remote healthcare can reduce medical professionals and other patients' risk of exposure. Telemedicine has been around for decades and is supported by new technologies, such as smartwatches and smartphones, but has not yet become mainstream.<sup>19</sup>

### **3. Develop whole-of-society and business resilience**

- Encourage businesses to conduct vulnerability reviews and strengthen their business continuity plans. Industries should diversify and remove dependency on any single source suppliers for vital components.

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<sup>18</sup> "Foresight: A Glossary," Centre for Strategic Futures and Civil Service College, Singapore, accessed 10 May 2020, <https://www.csf.gov.sg/media-centre/publications/foresight-glossary>.

<sup>19</sup> Eric Topol, "Telemedicine is essential amid the covid-19 crisis and after it," *The Economist*, 31 March 2020, <https://www.economist.com/open-future/2020/03/31/telemedicine-is-essential-amid-the-covid-19-crisis-and-after-it>.

- Empower businesses to develop their own foresight capabilities where possible. Both employers and employees should ideally be able to adapt to emergency measures immediately, rather than requiring a transitional period.
- Update training for the workforce, particularly for the frontline and essential service workers. They are usually the first crisis responders and should be trained to spot and surface any signals quickly. Training could emphasise crisis management skills, workplace safety and hygiene, technological competencies, innovation and creativity, adaptability and complex problem solving, as well as mental health support.<sup>20</sup>

#### **4. Embrace multiple “normalities”**

- Adapt to living in uncertainty, continue with social distancing measures, and be ready to switch from one normality to another. The virus could return in seasonal cycles<sup>21</sup> and there is currently “no evidence that people who have recovered...are protected from a second infection”.<sup>22</sup> The COVID-19 pandemic is a human security crisis that threatens each individual’s freedom and quality of life.<sup>23</sup>
- Take businesses online and telework whenever job scopes allow. Many day-to-day activities can be done virtually, given widespread internet use combined with virtual communication tools and other remote access technologies. Workers should be provided with adequate resources to deal with cyber security issues. A long-term teleworking culture can also increase productivity levels<sup>24</sup>, reap environmental benefits, and alleviate burdens on our transportation infrastructure. Some companies have already adjusted to having permanent teleworking options.<sup>25</sup> This model prepares the companies for major crises, since their workers would be already accustomed to teleworking on a rotational basis.

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<sup>20</sup> Janet Tai, “Mental health fallout: How Covid-19 has affected those in Singapore,” *The Straits Times*, 6 May 2020, <https://www.straitstimes.com/singapore/health/mental-health-fallout>.

<sup>21</sup> “Coronavirus could become seasonal: Top US scientist Dr Anthony Fauci,” *The Straits Times*, 26 March 2020, <https://www.straitstimes.com/world/united-states/coronavirus-could-become-seasonal-top-us-scientist-dr-anthony-fauci>.

<sup>22</sup> “Immunity passports” in the context of COVID-19,” World Health Organization, accessed 10 May 2020, <https://www.who.int/news-room/commentaries/detail/immunity-passports-in-the-context-of-covid-19>.

<sup>23</sup> Akiko Fukushima, “COVID-19 is a human security crisis,” *East Asia Forum*, 16 April 2020, <https://www.eastasiaforum.org/2020/04/16/covid-19-is-a-human-security-crisis/>.

<sup>24</sup> Andrea Loubier, “Benefits Of Telecommuting For The Future Of Work,” *Forbes*, 20 July 2017, <https://www.forbes.com/sites/andrealoubier/2017/07/20/benefits-of-telecommuting-for-the-future-of-work/#523e17c716c6>.

<sup>25</sup> Dylan Byers, “Following Twitter, Square to also let employees work from home going forward,” *NBC News*, 19 May 2020, <https://www.nbcnews.com/tech/tech-news/following-twitter-square-also-let-employees-work-home-going-forward-n1209611>.

## 5. Build robust and “antifragile” systems

- Strive for robustness or even antifragility—where one can “thrive...when exposed to volatility, randomness, disorder, and stressors”<sup>26</sup>. Instead of maximising efficiency, antifragile systems are generally decentralised, distributed, and bottom-up, with built-in layers of redundancies (extra capacity and spare parts). This suggest an ecosystem of small and self-sufficient entities that encourages a distribution of power, diversified knowledge-gathering and decision-making, and toleration of small mistakes and inefficiency in favour of preventing a larger collapse.
- Review shared urban areas in Singapore for antifragility: Urban planning should account for potential disruptions and avoid cost-cutting, with infrastructure and buildings designed to withstand crises. One way is to ensure public spaces can perform more than a single function and can be repurposed immediately.<sup>27</sup> Collaborative efforts from multiple knowledge providers should be promoted, involving urban planners, crisis specialists, and security experts.
- Bail out individuals and employees instead of large corporations to prevent the latter from becoming complacent and “fragile”. Policymakers could explore the implementation of a universal basic income (UBI) to meet citizens’ basic needs, which could aid recovery.<sup>28</sup> A UBI system designed to provide modest individual sustainability could mitigate the likelihood of social unrest, conflicts, and extremism associated with economic and social disruptions. UBI may even encourage entrepreneurship to thrive, as it reduces the fears and consequences of failures.

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<sup>26</sup> Nassim Nicholas Taleb, *Antifragile: Things that Gain from Disorder* (New York: Random House, 2012).

<sup>27</sup> Patricia Viel, “Post-Pandemic Cities,” *Project Syndicate*, 16 April 2020, <https://www.project-syndicate.org/commentary/urban-design-must-emphasize-security-and-resilience-by-patricia-viel-2020-04>

<sup>28</sup> Guy Standing, *Basic Income: And How We Can Make It Happen* (London: Pelican, 2017).

<sup>29</sup> Centre for Strategic Futures and Civil Service College, Singapore, “Foresight: A Glossary”.

<sup>30</sup> James Surowiecki, *The Wisdom of Crowds* (New York: Anchor Books, 2005); Shashi Jayakumar and Adrian W. J. Kuah, “Time for Singapore’s strategic planners to better tap the wisdom of the crowds,” *Today*, 21 May 2020, <https://www.todayonline.com/commentary/covid-19-time-singapores-strategic-planners-better-tap-wisdom-crowds>.

## **6. Crowdsource ideas from whole-of-society and encourage co-creation**

- Assemble small foresight and crisis management teams while ensuring participation from diverse groups across the ecosystem. Crowdsourcing draws “views and ideas across a broad spectrum of people, drawing upon the idea of cognitive diversity” which can “help to overcome the cognitive biases and blind spots”.<sup>29</sup> A diverse group of individuals—a “wise” crowd—can make more accurate collective judgements and predictions than experts.<sup>30</sup>
- Encourage ground-up participation, including non-governmental groups and individuals such as industries, academics, and civil societies. One approach is to organise public hackathons and foresight games, which not only help gather fresh insights, but also develop crisis management skills within the society. Citizen participation and transparent communications could also address the issue of eroding trust in government and institutions.
- Promote co-creation and interdisciplinary studies: For example, a “one health approach” could be adopted for future pandemics by involving food industries, agriculture sectors, veterinarians, environmental groups, logistics experts, religious groups, and policy analysts along with the medical and science community.<sup>31</sup> Communication lines to share signals and warnings could also be established across multiple sectors.

## **7. Promote public education and pro-social habits**

- Review education models, emphasising a basic understanding of science and the potential risk of diseases outbreaks. Pro-social habits such as personal hygiene and safety compliance should be cultivated. There should be an awareness of global emerging trends and a mindset of crisis readiness to minimise social panic.
- Revamp work culture by discouraging the social norm of going to work despite being sick.<sup>32</sup> While most people in Singapore are adhering to social distancing practices, there have also been incidents of regulation flouting. Clusters have been linked to infected and ill people going to work. One approach is for employers to evaluate employee performances based on result-driven, rather than hours-driven, output.

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<sup>31</sup> “One Health,” World Health Organization, accessed 17 June 2020, <https://www.who.int/news-room/q-a-detail/one-health>.

<sup>32</sup> Mandy Lee, “Going to work sick a ‘social norm’ in Singapore which needs to be discouraged: Experts,” *Today*, 12 March 2020, <https://www.todayonline.com/singapore/going-to-work-sick-social-norm-in-singapore-needs-to-be-discouraged-experts>.

## **8. Harness technology strategically**

- Adopt technology-supported measures where necessary. Tracing infection clusters and performing trend analysis could be complemented by an information-disseminating system. For instance, South Koreans use apps to view the routes taken by infected people to make informed choices while travelling.<sup>33</sup> In Taiwan, apps and websites also publish maps that share the locations of supplies like masks.<sup>34</sup> Besides artificial intelligence and big data analytics, blockchain technology is also well suited to verify, secure, and share data.<sup>35</sup>

## **Regional and International Level**

### **9. Enhance global coordination, beginning with neighbours and likeminded partners**

- Pursue bilateral and multilateral engagements actively with other likeminded partners. Communication lines should remain open to exchange data and relay early warning signals. A comprehensive review involving multiple countries could be conducted to identify issues and solutions. Singapore could strengthen coordination within ASEAN and expand the capacity of existing emergency response network mechanisms.<sup>36</sup>
- Support urgent global coordination necessitated by a pandemic of this size and speed. The hundreds of ongoing drug trials would benefit from a trusted platform to share data and research as well as eliminate overlaps. Ideally, an organisation like the WHO would provide leadership, coordination, and mobilise resources quickly. In the long term, the WHO could be strengthened by ensuring predictable funding and increasing its research & development (R&D) capacity.<sup>37</sup>

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<sup>33</sup> Kelly Kasulis, "S Korea's smartphone apps tracking coronavirus won't stop buzzing," *Aljazeera*, 9 April 2020, <https://www.aljazeera.com/news/2020/04/korea-smartphone-apps-tracking-coronavirus-won-stop-buzzing-200408074008185.html>.

<sup>34</sup> Chang-Ching Tu, "Lessons from Taiwan's Experience with COVID-19," *Atlantic Council*, 7 April 2020, <https://www.atlanticcouncil.org/blogs/new-atlanticist/lessons-from-taiwans-experience-with-covid-19/>.

<sup>35</sup> Lotte Schou-Zibell and Nigel Phair, "How secure is blockchain?" *World Economic Forum*, 18 April 2018, <https://www.weforum.org/agenda/2018/04/how-secure-is-blockchain/>.

<sup>36</sup> Henrick Z. Tsjeng and Shawn Ho, "The ASEAN-Led Multilateral Order: Unravelling?" *RSIS Commentary*, 11 May 2020, <https://www.rsis.edu.sg/rsis-publication/rsis/global-health-security-covid-19-and-its-impacts-the-asean-led-multilateral-order-unravelling/>.

<sup>37</sup> Global Preparedness Monitoring Board, "A World at Risk".

## **10. Share know-how and capabilities**

- Participate in multilateral efforts bringing higher income countries together to assist lower income countries and share best practices. Southeast Asia is a potential hotbed for new viruses, due to increase in deforestation and farming activities, as well as a lack of accessible healthcare especially in rural areas.<sup>38</sup> Measures to promote universal health coverage, improve general sanitation and hygiene, increase scientific understanding of infections and diseases, and develop effective diagnosis and medicine in the region should be considered.
- Increase capacity-sharing mechanisms and develop coordination tools, such as increasing investment in joint databases, R&D projects, and medical stockpiles, as well as setting up crisis protocols and hotlines.<sup>39</sup> Stress tests should be conducted regularly to identify weaknesses in healthcare systems.
- Conduct regular workshops and security cooperation “games”, collaborating with multinational think-tanks and experts on foresight and crisis management. Regional or international teams of crisis specialists, similar to the likes of the ASEAN Emergency Response and Assessment Team, trained in quarantine and evacuation could be established.<sup>40</sup>

## **11. Engage international business communities and other non-state actors**

- Partner with the international business community who may have large amount of resources at their disposal. Big companies may also be able to positively influence foreign leaders who lack political will.<sup>41</sup>
- Explore engagement at the prefectural or provincial level, as actors within larger nations may take time to reach a national consensus.

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<sup>38</sup> Katerina Zimmer, “Deforestation is leading to more infectious diseases in humans,” *National Geographic*, 22 November 2019, <https://www.nationalgeographic.com/science/2019/11/deforestation-leading-to-more-infectious-diseases-in-humans/>.

<sup>39</sup> Lina Gong, “Is the Humanitarian Sector Prepared?” *RSIS Commentary*, 11 March 2020, <https://www.rsis.edu.sg/rsis-publication/nts/global-health-security-covid-19-is-the-humanitarian-sector-prepared/>.

<sup>40</sup> *Ibid.*

<sup>41</sup> Franklin Foer, “What Big Tech Wants Out of the Pandemic,” *The Atlantic*, July/August 2020, <https://www.theatlantic.com/magazine/archive/2020/07/big-tech-pandemic-power-grab/612238/>.

## **Conclusion**

We are living in a rapidly changing world and uncertainty has become the norm. While Singapore has done relatively well in preparing for and managing crises such as COVID-19, structural reviews and reforms should continue. There also needs to be enhanced international coordination to tackle such transnational problems. By building robustness and antifragility into our systems, the society could potentially thrive even in times of chaos.

## About the Author

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## About the S. Rajaratnam School of International Studies

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The **S. Rajaratnam School of International Studies (RSIS)** is a think tank and professional graduate school of international affairs at the Nanyang Technological University, Singapore. An autonomous school, RSIS' mission is to be a leading research and graduate teaching institution in strategic and international affairs in the Asia Pacific. With the core functions of research, graduate education and networking, it produces research on Asia Pacific Security, Multilateralism and Regionalism, Conflict Studies, Non-traditional Security, Cybersecurity, Maritime Security and Terrorism Studies.



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