

FRAMEWORK OF MEASURES FOR COVID-19 PANDEMIC IN MALAYSIA: THREATS, INITIATIVES AND OPPORTUNITIES

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Abstract: Globally, COVID-19 has infected over millions of people worldwide. The first COVID-19 case in Malaysia was imported from Singapore on 24th January 2020. Since then, many more local cases had been reported with the basic reproduction value reaching 3.5. The government has thus implemented the Movement Control Order (MCO) from 18th March to 12th May, and Conditional MCO from 13th May to 9th June, as preventive measures to lower the R-nought (R_0) value to about 1. In hindsight, this pandemic has exposed our limitations, unpreparedness and imprudent resource allocations in coping with the consequences, besides posing a monumental challenge to recovery. This article describes the COVID-19 scenario in Malaysia and explores its preemptive framework for socio-economic mitigation measures to maintain economic health and recovery, as well as strengthening the nation's healthcare system. Several opportunities (research grants for COVID-19 and the Internet of Things) and issues (prediction of COVID-19 cases without MCO and global superpower shifts) that emerged due to the crisis that may directly or indirectly affect the country are also highlighted.

Keywords: Framework, preemptive, zoonotic, COVID-19, Movement Control Order, zoonanthroposis, Malaysia.

Introduction

During the last five decades, viruses that cause zoonotic disease outbreaks like Ebola, avian influenza (H5N1), Severe Acute Respiratory Syndrome (SARS) and the Middle East Respiratory Syndrome (MERS) have frequently emerged in human populations (Table 1). The latest to strike is the SARS-CoV-2 coronavirus, which causes the deadly Coronavirus Disease 2019 (COVID-19) pandemic. Studies suggested that the insectivorous horseshoe bat (*Rhinolophus* spp) is the highly probable source of the coronavirus (Shi *et al.*, 2020), while the critically endangered Malayan pangolins (*Manis javanica*) are the most prospective intermediary host (Xiao *et al.*, 2020).

COVID-19 was initially declared a “public health emergency of international concern” by the World Health Organisation on 31st January 2020, and subsequently a pandemic on 11th March (WHO, 2020a). This was after the first cases reported in Wuhan, the capital of Hubei Province in China in December 2019, began appearing in Japan, South Korea, Asean nations and the world over. While China has managed to “flatten the curve” of infection that month, cases in other countries started to spike by late March to October that year. Globally, as of 24th October 2020, the disease had claimed the lives of 1.15 million people after infecting 42.5 million, with 28.7 million making a recovery (WHO, 2020b; Worldometers.info, 2020). The disease has spread to 215 countries, with the

United States, Italy, Brazil, India, Russia, Iran, Colombia, Argentina and Spain bearing the brunt of casualties.

Here, we provide the COVID-19 scenario in Malaysia, followed by a commentary on initiatives taken to mitigate its effects (economic stimulus plan and investments on strategic preparedness plans). Besides, the preemptive framework to restore socio-economic activities and strengthen the healthcare system is also explored. Several opportunities (research grants for COVID-19 and the Internet of Things) and issues (prediction of COVID-19 cases without MCO and global superpower shifts) that emerged due to the COVID-19 crisis that may directly or indirectly affect the country are also highlighted.

COVID-19 in Malaysia

The first few COVID-19 cases in Malaysia were detected in Chinese tourists entering the country from Singapore on 24th January 2020 (WHO, 2020c). Initially, the number of daily cases were reported in single digits, but by 26th March, it had climbed to 235 (KKM, 2020b). When the nation’s mass testing became widespread and organised, the figure shot up to a peak of 5,728 in 30th January 2021. The number continued to rise exponentially, hitting around 20,000 when this article was finalised for publication in August 2021.

As part of the disease containment strategies, then prime minister Tan Sri Muhyiddin Yassin had announced the implementation of the Movement Control Order (MCO) from 18th March to 12th May 2020, Conditional MCO (CMCO) from 13th May to 9th June, and Recovery MCO (RMCO) from 9th June to 31st December. During those periods, travelling and socio-economic activities were restricted nationwide to keep new infections at bay and avoid overloading the country’s healthcare system. Transport hubs, government and private offices, and education institutions were closed. Interstate travelling was banned and gatherings for religious and cultural occasions were not allowed, with fines of up to RM10,000 for violators.

Similar to China, COVID-19 cases in Malaysia had increased significantly a few days before the first MCO phase (Figure 1). The effectiveness in containing disease transmission could be seen during the second phase that started from 1st April to 14th April. A total of five MCO phases and one CMCO were implemented, which managed to bring down daily new cases to 48 on 23rd May, with an R_0 (R-nought) value of 0.3 (Figure 2) (KKM, 2020a). The R_0 represents the probability of an infected person transmitting the disease to another person. The R_0 for various outbreaks caused by viruses are shown in Table 1.

Table 1: Estimated mean values of reproduction numbers (R_0) for various viral diseases

Year	Disease	Origin	R_0
1918	Spanish flu	Geneva	3.8
1955-60	Poliomyelitis	Europe	6.0
1957	H2N2	USA	1.68
1960-68	Measles	Ghana	14.5
1968-97	Smallpox	India	4.5
2002-03	SARS	China	3.5
2009	H1N1	South Africa	1.33
2014	Ebola	Guinea	1.5
2015-16	Zika	South America	2.0
2020	COVID-19	China	2-3*

Source: van den Driessche (2017)
 NB: * - estimates. Liu *et al.* (2020) estimates

In this context, the R_0 number in Malaysia may be considered low and reflects the success of mitigation strategies taken by the health authorities. Nonetheless, a spike in COVID-19 cases were reported between 24th May and 4th June, which were largely attributed to clusters at immigration depots in Sepang, Semenyih and Bukit Jalil (Figure 1). The COVID-19 cases continued to remain under control from 8th June to 6th September, with lowest daily case

of one reported on 1st July. However, the cases suddenly rose again from 8th September to 23rd October, largely contributed by clusters in the state of Sabah (Figure 1).

The Initiatives

Economic Stimulus

The most effective way to control the pandemic is by practicing physical distancing, restricting

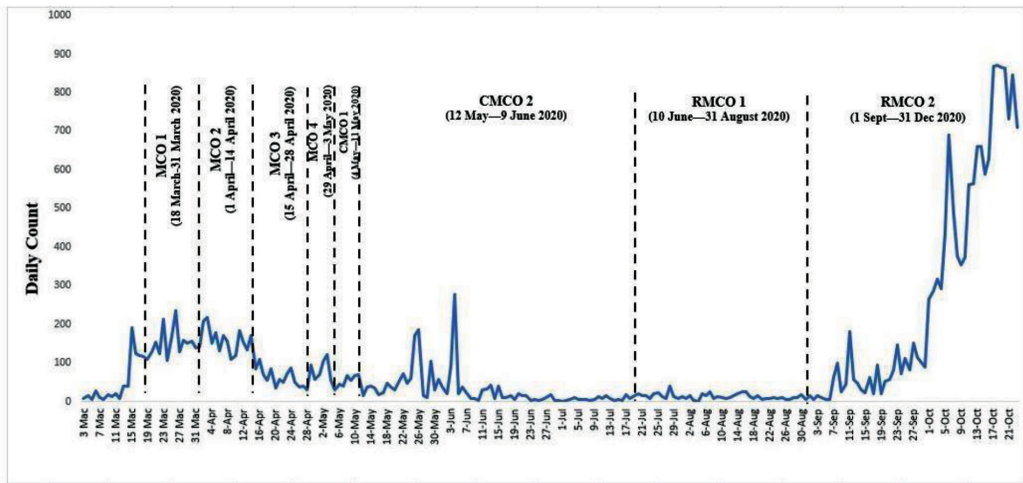


Figure 1: Malaysia COVID-19 daily cases from 25th January to 23rd October 2020

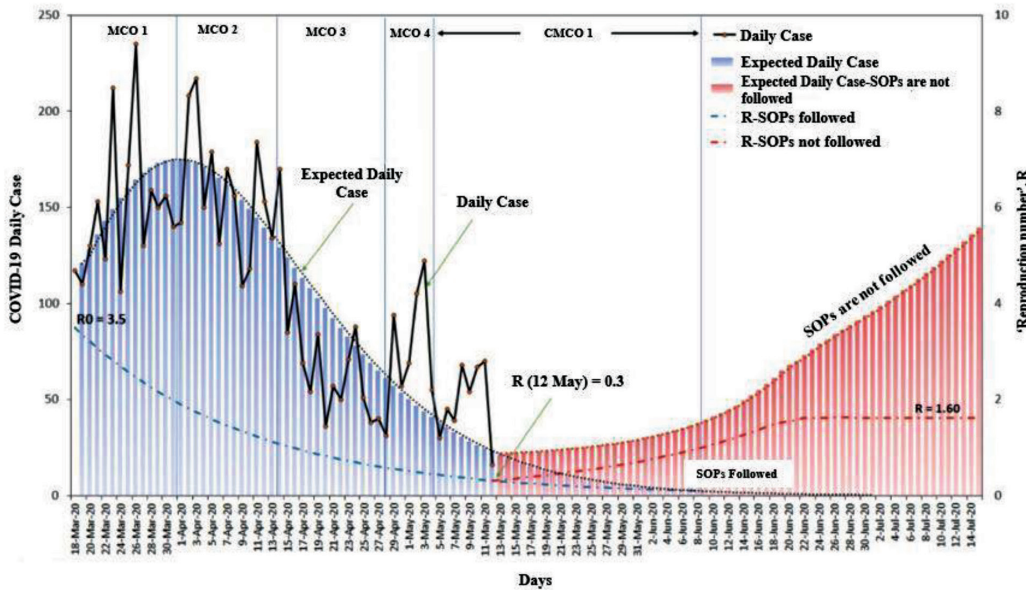


Figure 2: Malaysia COVID-19 current scenario and forecasting. Source: KKM (2020a)

movement and good personal hygiene. In 2020 and 2021, more than half of the world’s population have faced some form of restriction as governments scrambled to close their borders and limit direct human contact. Besides the various phases of MCO in Malaysia (PMO Malaysia, 2020a, 2020b), there is the “circuit breaker” in Singapore (PMO Singapore, 2020) and the shutting down of cities in China (Wang, 2020)—all aiming to break the chain of infection. The unprecedented movement restrictions have caused significant economic impact worldwide. The global economy, which was already facing a slowdown before COVID-19, was dealt a further blow of an 80% predictive chance of global recession (Alpert, 2020). Asean countries

had been greatly affected by this pandemic. Travel and tourism are key economic generators in those countries, and many businesses had to close as tourist arrivals dropped overnight. Many manufacturing companies in major industrial hubs also had to slow down or even shut their operations due to shortage of supplies and manpower: e.g. the Hubei industrial hub, which ceased operations due to a lockdown that lasted for months.

Various economic stimulus packages were introduced to buffer the socio-economic impact of the pandemic. Table 2 shows the stimulus programmes carried out in Asean countries, China and the United States (US).

Table 2: The economic stimulus packages in the United States, China and Asean countries

Country	2020 Budget	References	Stimulus for COVID-19	References
Malaysia	RM297 billion	MOF (2019)	1st — RM20 billion 2nd — US\$58 billion (RM250 billion) 3rd — RM10 billion	New Straits Times (2020b) MOF Malaysia (2020) PMO Malaysia (2020c)
China	US\$178.2 billion	Liu (2020)	NA	Koty (2020)
USA	US\$207.1 billion	The White House (2019)	1st — US\$2 trillion 2nd — US\$484 billion	BBC (2020)
Japan	US\$939 billion	Ministry of Finance Japan (2019)	1st — US\$2.5 billion (270 billion yen) 2nd — US\$1 trillion (108 trillion yen)	KPMG (2020)
Thailand	US\$105.9 billion	Thepgumpanat and Sriring (2020)	1st — US\$3.2 billion (100 billion baht) 2nd — US\$3.56 billion (117 billion baht) 3rd — US\$58 billion (1.9 trillion baht)	Medina (2020a)
Vietnam	US\$64.75 billion (revenue)	MOF Vietnam (2020)	US\$10.8 billion	Do (2020)
Singapore	US\$112 billion (S\$160 billion)	MOF Singapore (2020)	1st — US\$4.4 billion (S\$6.4 billion) 2nd — US\$33.7 billion (S\$48 billion) 3rd — US\$3.6 billion (S\$5.1 billion) 4th — US\$23 billion (S\$33 billion)	Medina (2020d) Medina (2020c) Medina (2020b)
Indonesia	US\$177.56 billion	MOF Indonesia (2020)	US\$43 billion	Medina (2020e)

Notes: NA – Not available

Basically, amid the various names co-opted for the economic packages, they mainly revolved around three main agendas; (1) to provide assistance on basic necessities; (2) to cushion the impact of meltdown on businesses and keeping the supply chain intact and (3) to help frontline workers in fighting the disease (MOF Malaysia, 2020; MOF Singapore, 2020; Sirivunnaboond, 2020).

On 27th March 2020, the Malaysian government announced a RM250 billion (US\$58 billion) economic stimulus package, which included an earlier RM25 billion (US\$5.8 billion) fiscal injection (MOF Malaysia, 2020). The economic stimulus, which was known as the PRIHATIN package, included an automatic moratorium on bank loans, cash assistance to the low and middle-income group, credit facilities for businesses and various rebates. Additional allocations were provided to the Health Ministry to buy equipment and pay allowance to its personnel. In addition, an RM10 billion (US\$2.3 billion) allocation was announced on 6th April to help small- and medium-sized enterprises (SMEs) stay afloat and keep the majority of the country's workforce employed (PMO Malaysia, 2020c).

Many governments are doing their best in sustaining the three agendas. However, once people begin to adapt and live with COVID-19, the post-recovery economic plans have to begin almost immediately. Some measures may need amendment, such as tax exemptions, interest rate adjustments, and new fiscal policies and stimulus packages. Difficult and valiant decisions have to be made in the recovery phase, which may take a long time for the world economy to recover.

Investment in Healthcare System

The unforeseen COVID-19 pandemic has shifted the financial focus of almost all countries to fight the pandemic. Currently, Malaysia is one of the countries with the most satisfying level of preparedness to fight COVID-19 in terms of its healthcare facilities and strategies (Athira, 2020; Bernama, 2020). In addition, government-linked companies (GLCs) and government-

linked investment companies (GLIC), along with the private sector, have contributed RM51.5 million to provide financial relief in terms of medical supplies to the Health Ministry through the GLC/GLIC Disaster Response Network (GDRN) (Aman, 2020). Malaysia has been actively participating in and supporting the COVID-19 Asean Response Fund (The Star, 2020). This is to ensure that resources, especially medical supplies and other facilities, are continuously available among member countries. This fund has also been earmarked for preparations in facing the impact of COVID-19 (The Star, 2020). On the global stage, the World Bank has extended its emergency health support operations for developing countries under its Fast Track Facility, a project to provide emergency funds to cope with acute impact of pandemics and prevent the spread of diseases (World Bank, 2010). The project was initially carried out in 25 countries, with a US\$1.9 billion allocation, and will soon be expanded to more than 40 countries (World Bank, 2010).

Achieving herd immunity is one way to prevent the spread of COVID-19. In Malaysia, a minimum infected proportion of 42.5% in the total population is required to achieve herd immunity (Kwok *et al.*, 2020). This is not practical as Covid-19 is a disease with high mortality rate. Therefore, herd immunity against COVID-19 may only be achieved if a vaccine is successfully developed. In light of vaccine developments, the World Bank, in collaboration with the Coalition for Epidemic Preparedness Innovations (CEPI), has allocated around US\$2 billion for the development and distribution of vaccines worldwide (Yamey *et al.*, 2020). Apart from that, financial assistance from the International Finance Facility for Immunisation (IFFIm) is also available for vaccine development efforts (Krech *et al.*, 2018). In the past, contemporary financial systems and methods have helped vaccine development, and the same ways can be applied to the current situation in securing sufficient funds to fight the pandemic (Gavi, 2016). It is also important to create a global financing system that supports preparedness and compensate the losses that

would be incurred by all investing parties should the pandemic ends before a vaccine is developed (Lurie *et al.*, 2020). Hence, higher financial preparedness is definitely needed for all countries working on vaccine development.

The Opportunities

“Never let a good crisis go to waste” - Rahm Emanuel, former White House chief of staff and Chicago mayor (O’Donnell, 2020)

Animals and humans face an equal amount of health risk once there are changes in the environment because all three (human, animal and environmental health) are closely related in an ecosystem (Rabinowitz & Conti, 2013). The emergence of COVID-19 is the end-product of an unhealthy animal-environment relationship (Goodall, 2020). Instead of being oblivious or close-minded, we need to embrace and explore the following opportunities and lessons brought on by the pandemic.

New Research Grants for COVID-19

COVID-19 may be transmitted from human to human (anthroponosis) (WHO, 2020a). At the same time, it is also a zooanthroponotic disease, where it may be transmitted from humans to wild, domestic and companion animals (Abdullah *et al.*, 2020a; McGreevy, 2020). And this has been observed when one of the four Malayan tigers kept in New York’s Bronx Zoo in the US was reportedly tested positive for COVID-19 in April 2020 (Daly, 2020; McGreevy, 2020; Shi *et al.*, 2020; Sit *et al.*, 2020). It is strongly believed that the tiger was infected by streams of visitors to the zoo while the pandemic was raging in the country.

New research grants are the utmost aid needed by the research community to fund ongoing and future researches and surveillance work relating to zoonotic diseases. Due to the grave threat posed by the pandemic, funding opportunities to fight COVID-19 has become available worldwide (Frontiers, 2020). Currently, in Malaysia, the Higher Education Ministry is offering research grants that cover 20 primary areas, including health, security,

tourism, food security and trade (New Straits Times, 2020a). However, some lesser-known areas are equally important and should be considered by the funding agencies. They include wildlife immunogenetics and zoonotic surveillance.

Investment in IR4.0 and IoT Automation for Industry and Businesses

Technological advancement and revolution (Industrial Revolution 4.0) is underpinned by the development of the Internet of Things (IoT). The IoT includes big data analytics, cloud computing, artificial intelligence, machine learning and robotics (Herweijer *et al.*, 2018).

Such technology has offered its advantages during the MCO period. Businesses (shopping, banking, delivery and professional services) that embraced digital technology have experienced a surge in profits as delivery orders increased when people were forced to stay at home. The IoT has helped those platforms in real-time monitoring of online transaction visibility and control management. The possibility of artificial intelligence is also endless; new kinds of antibiotics have been discovered using the machine-learning approach (Marchant, 2020). Unless there is a cure for COVID-19, physical distancing will become necessary for the long term based on the SARS-CoV-2 transmission dynamics projection by Kissler *et al.* (2020). The world has changed with the advent of the new normal, where people have to learn to adapt to the virus to continue with their daily lives. Thus, the evolution of traditional learning approaches to e-learning by utilising the IoT is an excellent platform for continuous acquisition and dissemination of new knowledge, and recruitment of next-generation researchers (Abdullah *et al.*, 2020b).

Additional Measures

The Prediction of COVID-19 without MCO

Will COVID-19 end in 2020, or even in the next few years? Nobody can really be certain. Similar to recent pandemics like SARS, MERS and

avian flu, a good forecasting model will require ample reliable data and accurate parameters to be tested. In the early stages, that information is normally limited. Here, we adopted a simple time series exponential smoothing forecast to compare the progress of the pandemic in Malaysia with and without preventive measures. Using the cumulative daily confirmed cases in Malaysia, forecasting was done from January 2020 until May 2020 as shown in Figure 3. Our results revealed that without any measures being taken (e.g. MCO), the cumulative number of cases in Malaysia could rise until 59,846 compared with only 7,629 cases when MCO was implemented. Therefore, the declaration of health emergency and enactment of new laws are definitely needed to allow the government to focus on curbing the spread of COVID-19.

Global Superpower Shift from the US to China

A superpower has the ability to exert influence and project itself as a dominating nation anywhere. It may have military and economic strength, wide diplomatic and cultural influence, and deep technological knowledge (Zhou, 2019). There are arguments that China is unlikely to overtake the US as a world superpower (Beckley, 2018). However, in recent

developments, China has managed to take the lead in fighting the pandemic — in terms of knowledge and containment measures (Larsen & Gramer, 2020). There are reports mentioning that out of the initial 54 articles on SARS-CoV-2 published in international journals on 30th January, 2020 (Stoye, 2020), most of them were written by researchers from China (Xiang et al., 2020). China certainly has put in effort and demonstrated its influence in medical science in fighting this global disease. However, regardless of who the superpower is, the most important agenda is for all countries to cooperate and fight the pandemic so that it ends as soon as possible.

Rapid Information Dissemination

Edinur and Abdullah (2020) has suggested for rapid dissemination of COVID-19 information that is necessary to educate and update people on any new knowledge about the disease in Malaysia. Globally, there are 6,831 indexed articles published on COVID-19 (Kambhampati et al., 2020) since the first infection in China. Locally, academic discourses in indexed manuscripts are very poor and the Journal of Sustainability Science and Management should seize the opportunity to lead in COVID-19 publications, at least until 2022.

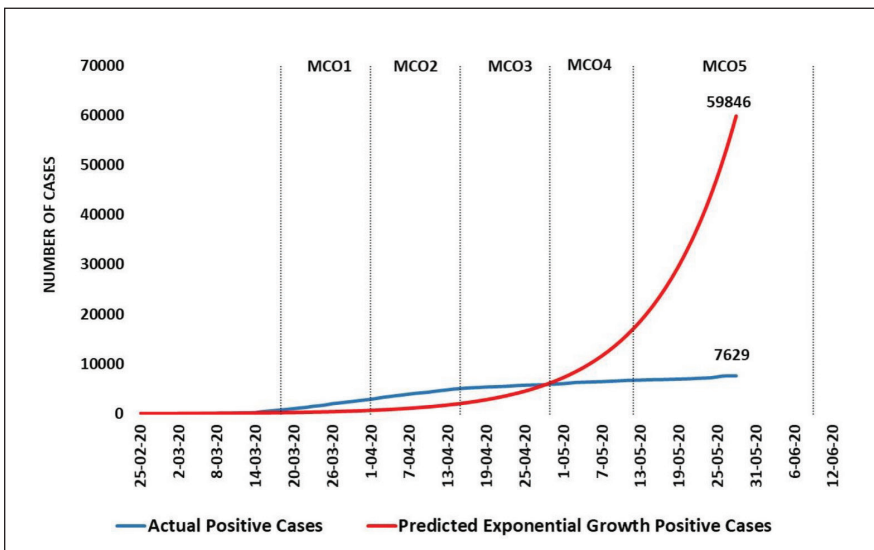


Figure 3: The prediction of COVID-19 pandemic progress in Malaysia with and without MCO using a simple time series exponential smoothing forecast

Conclusion

The emergence of COVID-19 has perhaps opened a new era in anthroponosis and zoonthroponosis research, coupled with disruptive socio-economic implications. Malaysia has taken steps in to restore its economy and strengthen the country's healthcare system. The people must swiftly learn to live with the virus by embracing the new norm and observing standard operating protocols to avoid spreading the disease. This will allow the nation to move forward as the people are encouraged to make use of existing opportunities and develop new options to recovery.

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