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### COVID-19: In Search of Solutions for Maritime Supply Chains

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*The outbreak of the COVID-19 pandemic has had a remarkable impact on maritime supply chains. Since its first case in the capital of China's Hubei province, Wuhan, Chinese seaborne trading activities were greatly affected – reports of weakening manufacturing confidence, decreasing demand for non-essential goods worldwide, and reduced workforce has surfaced since the massive transmission of COVID-19 in January 2020. Many European and Asian countries, including the United States, have responded to the pandemic in March 2020 by imposing strict containment measures. The implementation of national lockdowns or movement restrictions in pandemic-affected countries has led to rapid contractions in maritime supply chains. The wide-ranging impacts of COVID-19 on*

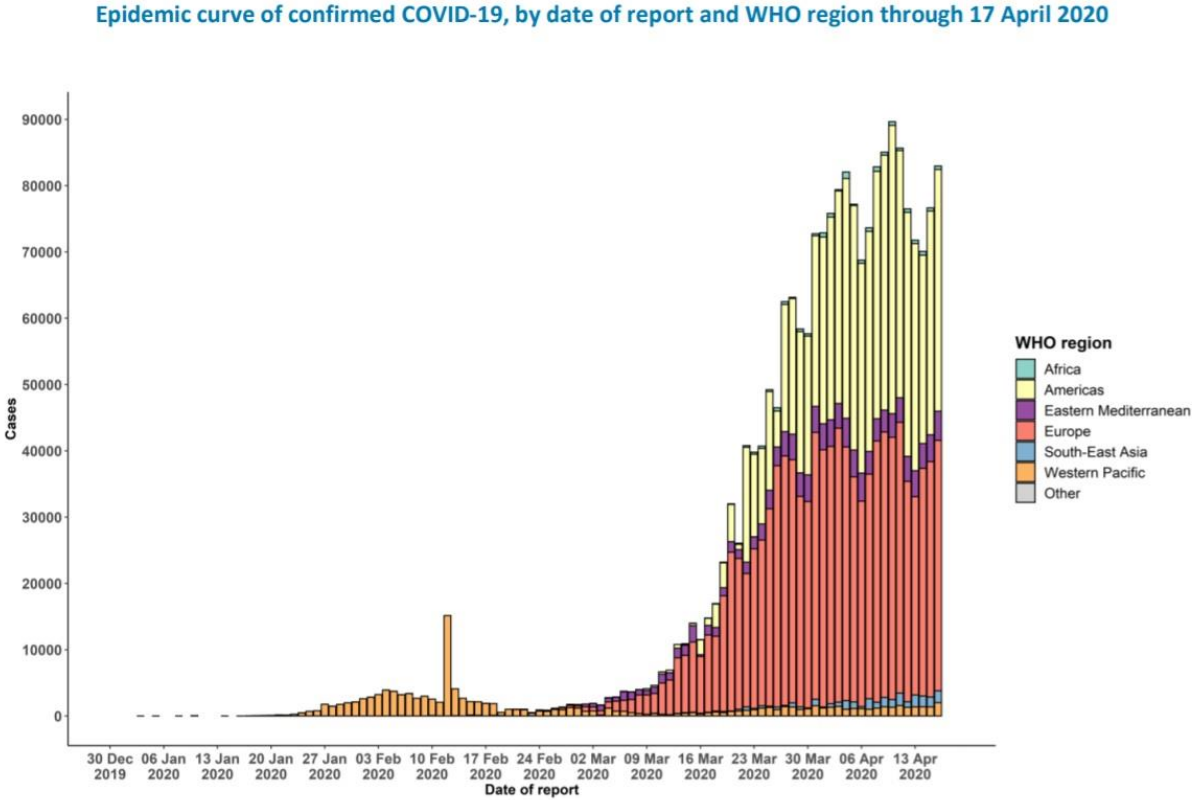
*manufacturing and trading demands have created the need for different importing speeds based on essentiality, thus deteriorating the maritime supply chains. Governments and relevant authorities, as well as private entities, should take initiatives to ensure that maritime supply chains remain fully functional for national and commercial interests as the COVID-19 pandemic progresses. It could be ideal to adopt digitalisation and blockchains as these digital processes are easy to access and control in optimising the efficiency of maritime supply chains amidst the unprecedented COVID-19 pandemic.*

## **COVID-19**

The World Health Organization (WHO) defines COVID-19 as an infectious respiratory disease caused by a newly discovered coronavirus, specifically known as the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). It is transmitted primarily through droplets of saliva or discharge from the nose when an infected person coughs or sneezes. The coronavirus affects different people in different ways. From infection to development of symptoms, the duration ranges from 2 to 14 days. Most people infected with the coronavirus will develop mild to moderate symptoms such as fever, sore throat, dry cough, shortness of breath, and tiredness. However, people suffering from medical problems such as chronic respiratory diseases, cardiovascular diseases, diabetes, cancer, as well as elderly aged 60 years and above, will have a relatively higher risk of developing serious illnesses, including pneumonia and death.

The first case of COVID-19 was identified in December 2019 in the capital of China's Hubei province, Wuhan. Since then, the disease has been transmitted globally with more than 2.24 million cases and 153,000 deaths reported in 213 countries and

territories (across 6 WHO regions) as of 17 April 2020 (see Figure 1). There are no specific vaccines or antiviral treatments for COVID-19 at this time. Currently, the management of COVID-19 involves intensive treatment of symptoms, besides conducting ongoing trials to evaluate potential vaccines or antiviral treatments. The WHO had officially declared the COVID-19 outbreak as a Public Health Emergency of International Concern (PHEIC) and classified it as a pandemic on 30 January 2020 and 11 March 2020, respectively.



**Figure 1:** Epidemic curve of confirmed COVID-19, by date of report and WHO region through 17 April 2020

## **The Impact of COVID-19 on Maritime Supply Chains**

The impact of the COVID-19 outbreak extends well beyond the threat to human lives, as there is ample evidence to prove that it has significantly affected maritime supply chains. When a massive transmission of the coronavirus began in January 2020, manufacturers in China halted operations as part of containment efforts. The substantial reduction in Chinese outputs has restricted the global manufacturing supply chains, thus directly increasing bottlenecks in the international maritime supply chains. The sharp drop in container demand has led to the cancellation of numerous sailings. The number of blank sailings announced by major container carriers in February 2020 saw a total demand shortfall of 1.7 million twenty-foot equivalent units (TEU). The manipulation of blank sailings is considered as an immediate and effective measure for major container carriers to reduce their risk for bankruptcy. However, small and medium-sized container carriers are incapable of blank sailings and are highly vulnerable to COVID-19 induced crises.

Besides being the largest manufacturer, China is also the largest seaborne trader globally – it owns 7 out of the 10 busiest seaports, and a major container shipping line that collectively fulfils more than 40% of international seaborne trade. The uncertainty of sea freight transportation has heightened from weakened confidence in manufacturing and decreasing demand for non-essential goods worldwide. Despite how seaborne trading activities are allowed to continue without mandatory restrictions from the International Maritime Organisation (IMO) amid the outbreak of COVID-19, major container lines including Maersk and CMA CGM had reduced their calls to seaports in China.

Consequently, there were unfavourable delays of cargoes far beyond the anticipated date of arrival.

Seaborne trading activities in China were also greatly hit by a largely reduced workforce, resulting from the nationwide ban on all non-essential travels. According to the Shanghai International Shipping Institute, container processing volumes and exports in China had declined drastically by 10.6% and 17.2% respectively in January and February 2020, compared to the year before. The backlog of delayed orders, port calls, and blank sailings will increase indefinite volume pressures on maritime supply chains. The international maritime supply chains subsequently experienced significant impacts, as the Chinese economy is highly integrated into the global economy.

The outbreak of COVID-19 has escalated to an unprecedented level by March 2020. After the WHO had declared that outbreak as a pandemic, many European and Asian countries, including the United States, have responded to the crisis by imposing strict containment measures such as lockdowns or restriction of non-essential movement. The Federal Government of Malaysia implemented a Movement Control Order (MCO) from 18 March 2020 to 3 May 2020 to contain the pandemic. Next, a Conditional MCO was implemented from 4 May 2020 to 9 June 2020, which made specific exceptions to major economic sectors in the country.

International seaborne trading activities are greatly affected by workforce shortage since the lockdowns or movement restrictions in the pandemic-affected countries. The border

closures along with workforce shortage at seaports and terminal hubs have hindered cross-border seaborne trading activities. Both manufacturers and traders in pandemic-affected countries are unable to collect their cargoes from the seaports, which directly exacerbates seaport congestion. As a result, the maritime supply chains comprising the movement of essential goods (such as staple food) through the seaports were disrupted. The lockdowns or movement restrictions imposed in pandemic-affected countries have triggered an unexpected rise in demand for staple food due to panic-purchase behaviour, thus further constraining the supply chains of consumer goods.

The COVID-19 pandemic has also exposed the fragility of the maritime supply chains, especially in the case of the shortage of critical medical supplies needed in order to contain the coronavirus. The demand for these critical medical supplies including Personal Protective Equipments (PPE), ventilators, surgical masks, pharmaceutical drugs, and test kits is expected to increase among hospitals and healthcare institutions, proportional to the increased infection rate of the coronavirus. However, these supplies have been negatively affected by the lockdowns or movement restrictions in the manufacturing and trading countries. Furthermore, the wide-ranging impacts of the pandemic on manufacturing and trading demands have created different importing speeds based on essentiality. For instance, apparel manufacturers and traders have delayed reception of non-essential goods for their production lines and retail stores. The dramatic contraction in maritime supply chains has led to rapid deterioration in cross-border investment flows. The negative trend is forecasted to continue as a result of uncertain mitigation measures to address the supply and demand imbalance.

## **Solutions for Maritime Supply Chains amid the COVID-19 Pandemic**

### **i. Government Initiatives**

The complete functionality of maritime supply chains is extremely vital in dealing with the COVID-19 pandemic. Governments and relevant authorities are strongly advised to ensure that shipping, seaports, and hinterland transportation remain fully operational for cargo-related business in order to support the functionality of maritime supply chains. In March 2020, the IMO officially released a preliminary list of recommendations for Governments and relevant authorities on the facilitation of maritime trade during the COVID-19 pandemic. These recommendations were collectively initiated and coordinated by the International Chamber of Shipping (ICS) with the participation of relevant international associations involved in the maritime supply chains. The general objective is to ensure that all entities involved in the maritime supply chains are functional 24/7 while securing a safe operational environment during the pandemic.

The official document released by the IMO has required Governments and relevant authorities to ensure that seaports are open for all cargo-related business and for all visiting commercial ships and hinterland transports to continue to have seamless access to port facilities. Besides that, Governments and relevant authorities should designate professional seafarers, seaport workers, ship suppliers, and other ancillary personnel such as pilots, mooring, tug and dredger workers as well as hinterland transport workers as 'key workers' that are responsible to provide essential services amid the pandemic. The use of electronic solutions is also highly recommended for administrative and

commercial interactions between all entities involved in shipping, seaports, and hinterland transportation to reduce the risks posed by the manual exchange of documents.

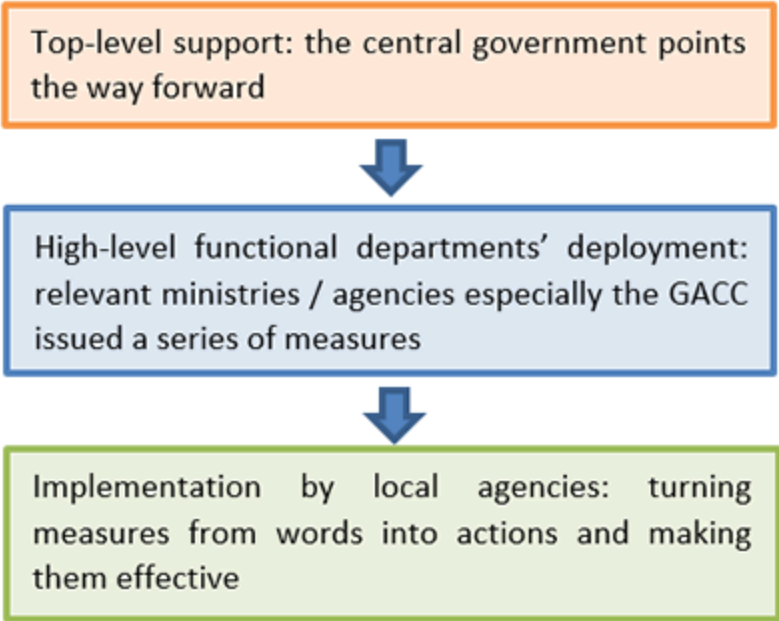
China as the epicentre of the COVID-19 outbreak has implemented wide-ranging response measures to prevent the disruption of maritime supply chains since January 2020. The Chinese Government and relevant national agencies have initiated efforts in the facilitation of maritime trade during the pandemic. The General Administration of Customs of China (GACC) has released a simplified customs procedure to contain the coronavirus while ensuring the complete functionality of maritime supply chains. The customs procedure highlights a series of measures, as follows:

- a) Ten facilitative measures as foreign-trade business begin to resume operation
- b) Ten supportive measures for the China Railway (CR) Express
- c) List of coordinative measures to contain the coronavirus at seaports, and facilitation of customs clearance

Local customs authorities have adopted the GACC's general measures by taking local conditions into account, in line with the response measures to the COVID-19 outbreak in China since January 2020 (see Figure 2). The Chinese Government also enhanced the use of electronic solutions such as 'Single Window' for effective customs clearance of essential goods like staple food and medical supplies. Furthermore, a multimodal hinterland transportation system is practiced in China to facilitate domestic transit of essential goods during the pandemic. These essential goods are transferred directly from seaports via railway transports, (e.g. CR Express) to end-consumers in multiple destinations. In this case, non-intrusive inspection using the application of artificial



intelligence software to achieve image recognition is carried out to increase the efficiency and transparency of each transit.



**Figure 2:** Response measures to the COVID-19 outbreak in China since January 2020.

In response to the COVID-19 pandemic, in March 2020, the Federal Government of Malaysia gave special exemptions to clear non-essential goods from seaports – namely Port Klang, Port of Penang, and Johor Port – in order to allow continuing seaborne trading activities, thus facilitating the movement of essential goods for Malaysians during the MCO period. The transportation sector was identified as one of the essential services during the MCO period, as it is crucial in supporting maritime supply chains that ultimately secure national access to essential goods.

## **ii. Private Initiatives**

It is of utmost importance for all entities to have equal efficiency and visibility across maritime supply chains as the COVID-19 pandemic progresses. Technology, accompanied by enabling policy, is expected to play a vital role in rebuilding the supply chains to become resilient amid the pandemic. Digitalisation is the ideal technology to ensure that all entities involved in the maritime supply chains could deal with the disruption effectively. For instance, shipping companies should digitalise their supply chain processes from paper-based to digital-based, which may include e-transactions and e-signatures to minimise physical interactions. Digital interactions across the supply chains could be carried out via Electronic Data Interchange (EDI). These digital processes are easily accessible and controllable in the ecosystem, thus optimising the efficiency of the maritime supply chains.

Visibility is considered a key factor in optimising the efficiency of maritime supply chains during this unprecedented pandemic. It becomes important to understand the disruptive impact of the pandemic on the entire maritime supply chain, which directly enables all entities involved to plan and respond accordingly to the crisis. A blockchain with either private or public permissions could help with the visibility of maritime supply chains. In this case, traders could customise their data-sharing permissions on their own blockchain nodes. The digital sharing of commercial data would be secured in the blockchain network without any point-to-point integration.

The consequences of the pandemic are defined by choices based on courage and cooperation. Most private entities involved in the maritime supply chains have yet to adopt digitalisation and blockchain due to cost and technical constraints. These private entities are recommended to take advantage of the aforementioned constructive technology as a solution in the wake of disruption resulting from the coronavirus. It is crucial that these private entities look into the opportunities that new technology can bring in fostering maritime supply chains that can better respond to national and commercial interests during the pandemic.

## **Conclusion**

Maritime supply chains are disrupted by lockdowns or movement restrictions imposed in COVID-19 pandemic-affected countries. Governments and relevant authorities should take necessary mitigation measures to ensure that maritime and hinterland transportation remain fully operational in fostering the functionality of maritime supply chains. Likewise, private entities involved in maritime supply chains should take key initiatives, such as the adoption of digitalisation and blockchain technology to tackle the challenges resulted from the coronavirus.

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