

# Covid-19 Impact to the Indonesian Cargo Industry

Wynd Rizaldy<sup>1</sup>, Prasadja Ricardianto<sup>2</sup>, Erni Pratiwi Perwitasari<sup>3</sup>, Lis Lesmini<sup>4</sup>

<sup>1,2,3,4</sup>Faculty of Management and Business in Trisakti Institute of Transportation and Logistics, Jakarta, Indonesia

**Abstract:-**The paper objective is to plan, design and maintain safety related to the logistic supply chain in one large territory during Covid-19 Pandemic. This Paper review the logistic aspect affect by this Pandemic, also analyse the common and best practice of Other country concerning handling the Transportation in carrying, especially related to Item or article carried by Aircraft, Vessel and Truck (multimode transport). This paper method is descriptive-explorative using a quantitative qualitative data source from the International and national regulation as well as literature references. The results of this paper to encourage party who release the policy and apply it accordingly.

**Keywords:-** Cargo Industry, Covid-19, Logistics aspect affect, Logistics supply chain, Multimode Transport design.

## I. INTRODUCTION

Currently Indonesia as one of the country in the world which is stated as Pandemic country. In late December 2019, an outbreak of a mysterious pneumonia characterized by fever, dry cough, and fatigue, and occasional gastrointestinal symptoms happened in a seafood wholesale wet market, the Huanan Seafood Wholesale Market, in Wuhan, Hubei, China. The initial outbreak was reported in the market in December 2019 [1]. Furthermore, the disease traveled to other countries, such as Thailand, Japan, Republic of Korea, Vietnam, Germany, United States, and Singapore, finally enter Indonesia. In the digital and globalized world of today, new data and information on the novel coronavirus and the evolution of the outbreak become available at an unprecedented pace [2]. The Pandemic has a long history, but the term itself is yet to be defined by many medical texts. There have been a number of significant pandemics recorded in human history where pandemic related crises have caused enormous negative impacts on health, economies, and even national security globally [3].

The key public health strategies and the effort at the national level that were critical to succeed at the time remain at the core of everything we must do to combat Covid-19. These include but are not limited to: surveillance, case-finding, contact-tracing, isolation and quarantine where appropriate, building a sense of community ownership, and concerted and accelerated global research and development into vaccines, diagnostics, therapeutics and diagnostics to supplement public health and social measures, and life-saving clinical practices [4]. Epidemic outbreaks are a special case of supply chain (SC)

risks which is distinctively characterized by a long-term disruption existence, disruption propagations (i.e., the ripple effect), and high uncertainty [5].

The lockdown of large parts of society and economic life has come as an exogenous shock to many economic actors, not least innovative startups. This rapid response research combines a qualitative research design informed by entrepreneurial ecosystem actors with an analysis of policy measures called for, announced, and reportedly implemented in the international press [6]. The spread of the Corona Virus Disease 2019 (Covid-19 / with the number of cases and / or number of deaths has increased and expanded across regions and across countries and increased based on political, economic, social, cultural, defense and security aspects, and the welfare of the people in Indonesia.

The impact of the spread of Corona Virus Disease 2019 (Covid-19) has occurred due to certain consequences so that countermeasures are needed, one of which is by large-scale social action in the framework of accelerating the management of Corona Virus 2019 (Covid-19); or the follow-up to Article 5 paragraph 12 The 1945 Constitution of the Republic of Indonesia. Law Number 4 of 1984 concerning Infectious Diseases (Statute Book of the Republic of Indonesia of 1984 Number 20, Supplement to the Statute Book of the Republic of Indonesia Number 3273); Law Number 24 of 2007 concerning Disaster Management (Statute Book Republic of Indonesia Year 2002 Number 66, Additional State Gazette of the Republic of Indonesia Number 4723); Law Number 6 Year 2018 concerning Health Qanternity (State Gazette of the Republic of Indonesia 2018 Number 128, Supplement to the State Gazette of the Republic of Indonesia Number 6236).

So with the implementation of the PSBB (large-scale social action), it is necessary to look at aspects that may have a major impact on the flow of domestic supply chain logistics for community needs that must be met including the economic impact of international supply chain logistics to continue to be able to supply the goods needed in handling Covid-19 such as drugs medicines and also staples that are counted as imported goods that cannot be stopped. While During Transport of Logistic, if the driver got the symptoms of the disease, the action plan to recover this as follows: HCWs who handle, the transport of Covid-19 patients must consider the following principles: firstly, early recognition of the deteriorating patient; secondly, HCW safety; thirdly, bystander safety; fourthly, contingency plans for medical designated zones for

transport, sufficient supplies of PPE, staff training and support personnel like security officers and cleaning crews. Powered air-purifying respirators add a layer of safety on top of N95 respirators and should be used if possible for high-risk cases, such as those requiring ambulance transport to ECMO centres [7] where this action has been regulated on Indonesia refer to PM 18 tahun 2020 (Covid-19) [8].

Regardless of what one's beliefs are, we believe that forecasts and their associated uncertainty can and should be an integral part of the decision-making process, especially in high-risk cases. Apart from the significant public health concerns, the dangers imposed on global supply chains and the economy as a whole are also considerable [9] risk mitigation inventories, subcontracting capacities, backup supply and transportation infrastructures, omnichannel distribution systems, flexible production technologies, and data-driven, real-time monitoring and visibility systems helped the companies to survive and recover through the pandemic times [10] and beside the Logistic fulfilled in Indonesia territory, the effect of the logistic must be concerned such as the waste management, In order to control the spread of an epidemic, the effective management of rapidly increased medical waste through establishing a temporary reverse logistics system is of vital importance.

However, no research has been conducted with the focus on the design of an epidemic reverse logistics network for dealing with medical waste during epidemic outbreaks, which, if improperly treated, may accelerate disease spread and pose a significant risk for both medical staffs and patients [11], and Much of the organizational thinking about disease outbreaks, and about crisis management in general, has focused on preparation. With the sudden emergence of a deadly new coronavirus, organizational preparedness is key [12].

Based on the data from Alexandre de Juniac, head of the International Air Transportation Association (IATA), that more than 185,000 passenger flights have been canceled since the end of January in response to government travel restrictions [13]. Most passenger air flights are stopped, significantly losing cargo capacity on most major lines. According to the CAPA Center for Aviation consultant, most airlines will go bankrupt by the end of May 2020 [14]. [15] also informed, IATA released preliminary data in February which showed that total cargo traffic throughout the industry, measured in kilometers of cargo tons, had decreased by 1.4 percent year-on-year. According to information there are at least 70 international passenger airlines temporarily suspended flights to China in February, and the large and sustained loss in revenue that IATA hopes will increase significantly after air cargo revenue losses are calculated [16].

The current ban on activities has made most of the global passenger fleet lose 60 percent of air cargo capacity [17]. Significantly cargo capacity also experienced a lot of

decline because airlines reduced passenger operations as a result of travel restrictions due to Covid-19, which greatly impacted the global supply chain. UNICEF also explained that the current limitation of air transportation is the only single biggest challenge for UNICEF's logistics operations by limiting and reducing demand for passenger flights, which generally carry cargo [18]. Despite the current increase in freight flights, reductions in passenger flights have led to a 31% reduction in global air cargo capacity. Sea transportation is not affected much by constant tariffs although the decline in demand has caused a decrease in shipping frequency. In 2019, UNICEF supplied 2.43 billion doses of vaccine, valued at USD 1.65 billion, accounting for almost half of all items purchased by UNICEF.

About 30-40 percent of the vaccine is transported using passenger flights. The air transportation sector, according to [19], which has been giddy as a result of the cancellation of Chinese passenger flights designed to slow the spread of the coronavirus, is currently facing freight and logistics issues with wider impact. Supply chain and logistics are also affected according to [20] for example, the trucking industry in China has also collapsed, because the government has imposed travel restrictions, which prevent containers for export from reaching the loading dock, and containers for imports continue to pile up on the dock waiting for ships.

In general, several opinions from leaders in Indonesia such as the Indonesian Logistics Association (ALI), the Trustees of the Indonesian Logistics and Forwarders Association (ALFI) at Soekarno-Hatta Airport, Chair of the Institute of Supply Management (ISM), regarding the impact of the spread of Covid-19 which explains that overall demand in the logistics sector has fallen by 50 percent because many industries have fallen due to the influence of the spread of Covid-19, [21]; [22]; [23]; [24]; [25]. Air cargo agents, according to Adrian, as a Cargo practitioner in Indonesia, felt that the costs were up to three times higher and incurred long transit times due to the temporary suspension of flights to and from China in anticipation of the spread of the corona virus or Covid-19 [26].

Likewise, imported goods from China, shipping costs jumped significantly. This is certainly inconvenient for cargo agents who are suppliers of these goods. After closing international flights to and from China, the Government of Indonesia, according to [27] decided to ban the shipment of live animals and carry out special treatment for cargo from China. Special treatment is applied to both cargo carried by sea or air. Transportation is one of the media that has the potential to make the distribution more massive, but on the other hand transportation is still needed to facilitate the movement of interested communities and logistics and supply chains related to basic needs and health. This requires an analysis of the role of supply chain logistics in hampering the spread of Covid-19 in Indonesia.

## II. RESEARCH METHOD

This paper method is descriptive-explorative using a quantitative qualitative data source from the International and national regulation as well as literature references. Research with this literature study emphasizes the sources of discussion from Indonesian government regulations, data and international regulations from world bodies such as UNICEF, WHO, CDC, IATA, IMO, USAID. Also based on the phenomenon of Covid-19 through relevant previous research. Also study literature through several opinions from the Indonesian Logistics Association (ALI), Trustees of the Indonesian Logistics and Forwarders Association (ALFI). Limitations in this study are prioritized on logistics and supply chain services.

## III. RESULTS & DISCUSSION

The International Air Transport Association (IATA) and its members continue to support countries to restrain the spread of COVID-19 (IATA, 2020a). Air cargo also plays a role in transporting food and other products purchased online to support quarantine and social grouping policies implemented by the state. Dramatic travel restrictions and declining passenger demand have very limited cargo capacity. IATA calls on the government to take urgent steps to ensure that air cargo will be available to support the global war against Covid-19. The implementation of PSBB in Indonesia, taken from PM 18 year 2020 [8]. Most of the requirement of the regulation related to outbound activity as follows : On Article 5 point 3c. ensuring all personnel of transportation facilities declared healthy by a health agency or doctor authorized, provide personnel reserves means of transportation for long distance travel, and provide medical equipment for personnel the least means of transportation in the form of masks, gloves, and hand sanitizer (hand sanitizer); and on Article 8 Control of transporting transport logistics / goods as referred to in Article 3 performed by: a. transportation facility operator; b. transport operational manager; and c. shipper and owner.

The transportation facility operator as intended in paragraph (1) letter a must meet the following provisions: a. ensure the application of maintaining physical distance (physical distancing) and use of health equipment in the form of a mask during operational activities transport; b. carry out sterilization of the transportation fleet and loading through disinfecting spraying; c. check the health of facility personnel transportation at the departure location and location arrival; d. provide emergency contact (emergency call) in all regions traversed to anticipate if an emergency occurs; e. assign personnel to report changes in conditions active health; and f. ensure ground handling personnel are on air transportation wearing masks and gloves hand. (3) Transportation operational management as intended in paragraph (1) letter b must meet the following provisions: a. supervise and ensure distribution logistics transportation of basic commodities, medical, health, and sanitation is not hampered; b. put special marking labels for transportation

logistics; c. provide facilities or checkpoints for checking the health of transportation facilities and personnel provide a break room for facility personnel transportation; and d. carry out sterilization of logistics / goods transportation through spraying disinfectant. (4) Sender and owner as referred to in paragraph (1) letter c must meet the following provisions: a. carry out sterilization of goods which sent / received with due regard to security self; and b. apply physical distance (physical distancing) and wearing health equipment such as a mask when sending and receiving goods.

On the Part 3 of Article 16 (1) Control of transporting goods as referred to in Article 9 shall be made of freight transportation other than freight transportation transport essential and essential goods.(2) Important and essential goods as intended in paragraph (1) consists of: a. medical, health and sanitation goods; b. staple goods; c. food and beverage goods; d. money / money circulation goods; e. fuel oil / gas fuel; f. goods for the distribution of industrial raw materials manufacturing and assembling (assembling); g. goods for export and import; and h) shipment.

For Ships or Vessel on Article 17 (1) Passenger ships may be permitted to transport cargo with the following conditions: a. there are limited numbers of cargo ships entering the Large-Scale Social Restrictions area so must use a passenger ship; b. used to transport logistical support treatment and prevention of Covid-19; c. used to transport logistical materials basic needs, essential goods, and essential; and d. cargo loading on passenger ships must be pay attention to the stability of the ship's safety. (2) Restrictions on port operations are permitted with the following conditions: a. do logistical loading and unloading support treatment and prevention of Covid-19; b. loading / unloading export / import goods, staple goods, important goods and goods essential; c. reduce the density of centralization of officers, workers, and port visitors with guard applications physical distance (physical distancing); and d. ship operations, stevedoring, cargodoring, and delivery is still permitted to be carried out with the application of maintaining physical distance (physical distancing).

While for aircraft Article 18 Passenger configuration aircraft can be used for carrying cargo in the passenger cabin (passenger compartement) specifically for transporting medical needs, health, and sanitation and food. Intensive control measures, including travel restrictions, have been implemented to limit the spread of Covid-19 in China. Here, we show that travel restrictions are particularly useful in the early stage of an outbreak when it is confined to a certain area that acts as a major source. However, travel restrictions may be less effective once the outbreak is more widespread. The combination of interventions implemented in China was clearly successful in mitigating spread and reducing local transmission of Covid-19, although in this work it was not possible to definitively determine the impact of each intervention.

Much further work is required to determine how to balance optimally the expected positive effect on public health with the negative impact on freedom of movement, the economy, and society at large [28]. Air travel should be limited for the cases unless severe medical attentions are required. Setting up temperature check or scanning is mandatory at airport and border to identify the suspected cases [29].

As per grafik of Capacity estimation Year on Year, Flight cancellation till Jun 2020, and estimate lost revenue in 2020 (USD) can be shown on figure 1 below:

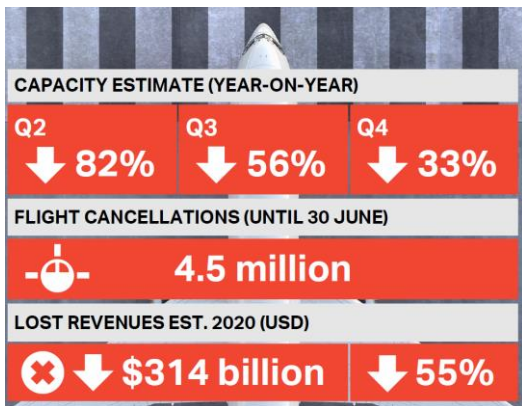


Fig 1:- Drop of Capacity, Total number of flight cancellation and Lost revenue estimate 2020 (inUSD)

Because of the limited air travel, as we can see on the graphic, the impact of Covid-19 on air cargo around the world on that Air cargo volumes to March 2020 was down less than during GFC, and cargo tonnage kilometres flow down 15.2% from March last year (figure 2).

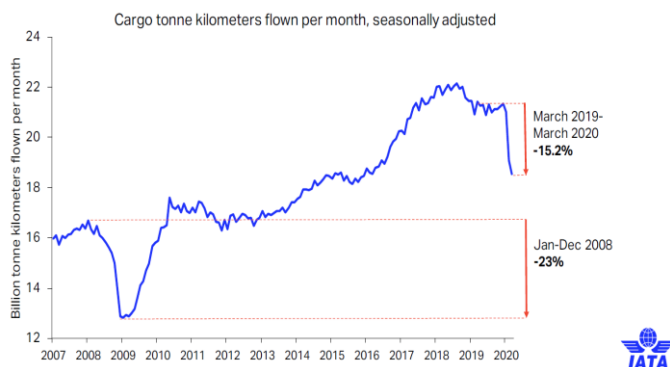


Fig 2:- Air Cargo Volumes to March 2020, Source of : IATA Economic using of IATA Statistic

Beside that capacity down in all market, despite freight utilization. The Airlines converted passenger aircraft because of capacity crunch.

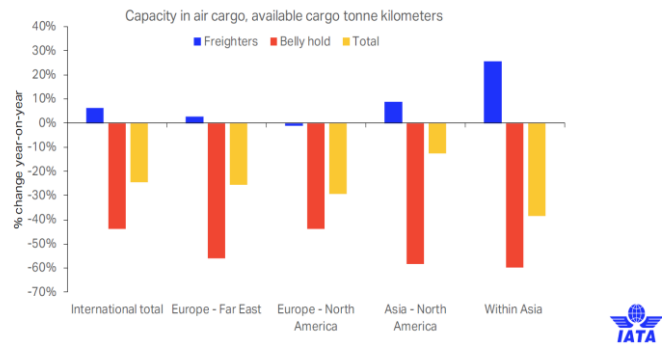


Fig 3:- Capacity in air cargo, available cargo tonne kilometre

Therefore to Keeping Air cargo Flying, IATA as well known Association in Air Transportation recommended or regulate further, for air cargo action (David Brennan-Assistant Director, cargo Safety and Standards) Safety must be considered first, by 1) Extensions to recurrent dangerous goods training validity; 2) Standard Operating Procedures incident reporting, and 3) Non-normal operations require a robust safety risk assessment and implementation of mitigations. While the policy given for passenger aircraft for cargo has been designed, to transport as cargo including medical supplies using aircraft configured to carry passengers. There are few Key considerations and opportunities as follows: 1) Carriage of Cargo Aircraft Only (CAO) Dangerous Goods, and ; 2) Cabin Loading of Cargo, which is can be located on : a) in overhead bins, cut cupboards and under seats b) On seats and ; c) In cabin with seat removed.

Reconfiguration of the aircraft also requires a formal authorisation from the national aviation authority of the State of the operator. Before considering such operation, a comprehensive safety risk assessment shall be performed involving all the relevant operational departments (i.e. ground, cargo, cabin, flight, engineering) [30]. And during pandemic Covid-19, the special cargo that become more attention to handle is 1) Transport of specimens and cultures of novel coronavirus (SARS-Cov-2). Which is also refer to local regulation [31] and; 2) Transport of human Remains. And further guidance can be found on Guidance Information on the Transport of Covid-19, Human Remains by Air Collaborative document by WHO, CDC, IATA & ICAO ( [32].

For the import of HUM where the cause of death was Covid-19, it is recommended to confirm with the air operators and local competent authority (e.g. Public Health Authority) for specific requirements, where Indonesia required the Doctor certificate to confirm the death was not caused by a contagious disease. Other country has different requirement additionally request to embalming. First for Industry relief, IATA recommended some policies such as 1) Slot relaxation ; 2) Advocating through ICAO and the states to reduce aircraft landing and parking fees; 3) Financial measures government to support the airline industry; 4) Advocating for cargo flight to be exempt from

state transport and cargo crew restrictions, and 5) WCO guidance on Medical Devices classification.

Secondly for Border & Security recommended to check on 1) Country specific requirement for air cargo (183 countries tracked, including Indonesia); 2) Bulletin on explicit Covid-19 measures; 3) Trade facilitation repository and; 4) Securing appropriate deadline extension, including security & training certificates. And the last for Operational Efficiency, 1) WCO on emergency border contact list for humanitarian goods; 2) European Union Aviation Safety Agency (EASA) recommendation for aircraft operators & staff; 3) Guidance on health of airport staff, border best practices and air cargo provisions. While for inbound seafreight, [33] SE 8 tahun 2020 Langkah Siaga Pencegahan Penyebaran Virus Corona di Wilayah Pelabuhan Indonesia or Preparedness Measures to Prevent Corona Virus Spread in Indonesian Port Areas, at least 4 step will be taken into consideration for 1) ensure identification need to all incoming ship who serve shipping either directly or transit from overseas, especially from country which is infected of the corona virus; 2) Support the activity of screening or preventing of virus corona which is conducted by Quarantine officers such as : ensure pax ship is health by using the scan of body temperature, coordination with health authority if any pax (corona suspect), ensure quarantine health staff work optimally, and ensure isolation room, hand sanitizer on arrival terminal are available; 3) Ensure the Port operator maintain the hygienic condition by spraying the disinfectant periodically on pax terminal, and 4) ,provide hand sanitizer or soap for washing hand at the reachable place, especially in public service in office.

So this inbound seafreight also will be treated as per procedures above. The most important strategy for the populous to undertake is to frequently wash their hands and use portable hand sanitizer and avoid contact with their face and mouth after interacting with a possibly contaminated environment [34]. To comply with the IMO ISM Code, shipping companies are required, inter alia, to assess all identified risks to the safety of ships and personnel, and establish necessary safeguards and procedures in a documented Safety Management System (SMS). As part of the SMS, shipping companies may help find it helpful to develop detailed plans and procedures for the different aspects and risks associated with the Covid-19 on their ship operations.

Elements of this framework of protocols could be integrated with the SMS as appropriate. Health protection measures, such as Personal Protective Equipment (PPE), as referred to in these protocols, should be provided, in principle, at no cost to seafarers, in accordance with the ILO MLC, 2006 [35].

World widely The Impact of Covid-19 on Maritime or ship Business 1) Estimated 17 Million TEU, would eventually be taken out of service this year. For the terminal, the loss could amount of 80 million; 2) Total damage to Maritime sector US \$ 17 Billion 3) The situation is Unprecedented and still unclear 4) Similar with global crisis 2008, that the global container volume shrank by 10%; and Impact on The Operation 1) Mandatory Pre arrival Crew reporting of ships crew health; 2) Leading to extra paper work can create operational delays; 3) Delay in pilotage service, if ships has transited from affected ports; 4) Ships facing problem in meetings, applicable statutory requirements such as inability to renew ship's certificates; 5) ships are unable to obtain dry docking and repair services 6) Classification societies are also limiting their activities as they are not able to respond to survey request.

Further related to the quarantine UU RI 2018, on Fifth Section Supervision of Goods, Article 44 that Every item that has a Health Risk Factor Communities in Transport Equipment that are in Status Quarantine, Health Quarantine Officer commits Health quarantine actions as referred to in Article 15 paragraph (2) letter c and letter d coordinate with related parties [36]. Article 45 (I) Human Remains and / or ashes in Transport Equipment examination of the causal documents is conducted death in accordance with regulatory requirements legislation. (2) If the examination of documents causes of death as referred to in paragraph (1) obtained: a. the document is incomplete then the person in charge The Transport Equipment must complete the appropriate documents with applicable requirements; b. Human Remain and / or corpse ash is not appropriate with documents, the Quarantine Officer Health can coordinate with parties who related; and / or c. Community Health Risk Factors then Health Quarantine Officials take action Health Quarantines.

This is necessary but not sufficient. In the complex and uncertain environment of a sustained, evolving crisis, the most robust organizations will not be those that simply have plans in place but those that have continuous sensing and response capabilities. As Darwin noted, the most adaptive species are the fittest [12].

Advantage in a crisis will go to the one that can leverage its capabilities and cooperate with other members of the community—even competitors [12]. Pandemic planning evolved into a form of strategic risk management (figure 6), which seeks to functionally integrate all assumptions and response actions within a given set of contingent possibilities or “scenarios [37].



Fig 4:- Strategic Risk Management Scenarios

Supply-chain managers should obtain advance approvals for acquisition of key commodities needed during the early stages of pandemic or disaster response. In the developing world, transport corridors function as vital economic and humanitarian routes. Despite their vital importance in pandemic preparedness, there are relatively few examples of comprehensive analysis of transport corridors, which would involve: 1. Identification of the most conceivable primary and secondary transport modes from point of entry to points of distribution; 2. Assessment of the respective governments' and NGOs' capacity to respond to emergencies, including customs, port, air, rail and road operations; food milling, storage, suppliers of food and non-food commodities; communications, and electricity generation and supply; and fuel refining supply and distribution; 3. Understanding each systemic link in the supply chain, including their strengths and shortfalls, with potential solutions or alternatives; 4. Identifying functional linkages between governments, UN agencies, NGOs, and private sector entities; 5. Understanding the extent of business continuity efforts [37].

Alexandre de Juniac, Director General and CEO of IATA [13], called on the governments of every country to see air cargo as an important part of the war against Covid-19 and take the following actions; (1) Exclude air cargo operations from travel restrictions related to Covid-19, to ensure life-saving medical products can be transported without interruption; (2) Ensure that there are standard steps so that air cargo can continue to move around the world with minimal disruption; (3) Free air cargo crew members, who do not interact with the public, from quarantine requirements of 14 days; (4) Supporting temporary traffic rights for cargo operations where restrictions may apply; and (5) Remove economic constraints, such as higher flight costs, parking fees, and slot restrictions to support air cargo operations for an unprecedented period. Juniac added that air cargo carriers work closely with governments and health organizations around the world to maintain public health while also keeping the global economy moving. The government must take immediate action to facilitate air cargo and keep cargo flowing saving lives.

UNICEF is currently working with state offices and global transport companies to prioritize emergency and important shipments, including route diversion, charter arrangements, sea shipments, to receive shipments on time [18]. UNICEF also works with partners (WHO, OCHA) and related exporting agencies. Finally, where possible and affordable, UNICEF is delivering supplies to the center and location as close as possible to activities that are programmed to increase travel to shipments. In other countries, such as in the Americas, efforts were made to prevent the spread of Covid-19 as was done by Canada, the first cargo-specific flight departing from Toronto to Frankfurt, London and Amsterdam, all of which were important business centers and connection points for shipping the next cargo [38].

Flights are operated using Boeing 787 aircraft capable of carrying 35 tons of cargo. While in Mexico due to this health contingency and supporting economic and business continuity, Aeromexico will use part of its land fleet for cargo only through the air transport division, Aeromexico Cargo [39]. Flights from Mexico City to Frankfurt, Germany with a 15 ton shipment. Domestically, Aeromexico can transport cargo to 41 airports, and internationally in the United States, Canada, Central and South America, Asia and Europe. Flights are operated using Boeing 787 aircraft capable of carrying 35 tons of cargo. In Hong Kong, according to Bradsher & Swanson, Cathay Pacific, canceled 96 percent of passenger flights in April and May, but continued to fly several empty passenger planes to transport cargo.

Agus Taufik Mulyono, as an academy of Gadjah Mada University (UGM), who is also the Chairperson of the Indonesian Transportation Society (MTI), said that the impact of the PSBB and the Covid pandemic was very significant [40]. Mulyono added, there was a decrease in logistics distribution during the pandemic due to supply chain disruptions. Thus, to improve the speed of management of the logistics distribution of staples and health, it is necessary to improve the literacy of Information Engineering and optimize the procedures for accelerating supply connections. The Indonesian Logistics and Forwarders Association (ALFI) believes that the industry and its supporters must be assisted by government policies, such as relaxation and stimulation, as a strategy to survive in these conditions of education [41].

The Incentive Program is also expected to support tax and customs payments and support logistics services. In total, demand in the logistics sector increased 50 percent due to the Covid-19 outbreak. At the end of this discussion, based on the limitations and objectives of the study, this paper scientifically supports several relevant previous studies, such as those conducted since early 2020 by several researchers, which explain the impact of transportation and supply chain due to the spread of Covid-19 [11]; [7]; [5]; [10].

They explained that planning and establishing a temporary reverse logistics system for medical waste management might soon be a challenge in many countries. When Covid-19 patients become ill during transportation during the trip, the accompanying staff must wear Personal Protective Equipment (PPE). In supply chain, it shows how a simulation-based methodology can be used to examine and predict the impact of epidemic outbreaks on supply chain performance. In supply chain research, introducing a new angle in supply chain resilience when resistance to extraordinary disturbances needs to be considered on a viability scale.

**IV. CONCLUSION**

The negative impacts of pandemic are serious. Pandemics have infected millions of people, causing widespread serious illness in a large population and thousands of deaths. It represents a serious threat not only to the population of the world, but also to its economy. The impact of economic loss can result in instability of the economy, which is through direct costs, long term burden, and indirect costs. An effective and efficient emergency response can reduce avoidable mortality and morbidity and reduce the types of economic and social impacts. How to have an effective and efficient emergency management will be a critical task of governments to deal effectively with disease outbreak and a pandemic now and future [3]. Evidence-based guidelines alone in complex humanitarian crises may not suffice during the emergence of the current SARS-CoV-2 pandemic. Without the adaptation of existing standards, mitigation plans will fall short of health and human rights obligations in outbreak response. Crisis-affected community engagement is integral in pandemic planning, in order to maximize the real-world effectiveness of efficacious interventions. Interventions tailored to the needs of crisis-affected populations, delivered with transparent information, in the context of inclusive governance practices, are urgently needed in the global response to the Covid-19 pandemic [42].

From the analyze and literature review above, the researcher can conclude event tough there is some impact of the Covid-19 outbreak or pandemic around the world and Indonesia as part of the world, but there will be a solution to recover by good plan, design and maintain the logistic service which can summary on the table 1 below :

Phase I	Phase II	Phase III	Phase IV
Logistic Impact	Action Plan	Design (back-up action plan)	Maintain the execution of plan
Air	Limited air travel	Regulation, Guidance	Evaluate, Improve
Sea	Quarantine		
Land	PSBB		

Table 1:- Phase from Impact to Recovery Periode

Planning to maintain critical services: Pandemic planning highlighted the importance of identifying the critical services that will be affected during a disaster, and the ripple effect this has across all aspects of society if they are not protected. Operational and business continuity planning are key. Fear of a pandemic stimulated an upsurge in business continuity planning a recognition of the importance of planning to deal with the impact of a crisis on an organization’s ability to function. Good continuity planning strengthens an organization’s resilience to all threats.

We believe the Pandemic will be handled properly by each party or stake holder involve, the most important on the execution phase and recovery phase to focus and calm down, some country has recover from the pandemic by doing the proper action plan, therefore the rest country can also recover , however there will be different way cause different culture and condition.

**REFERENCES**

- [1]. Y. C. Wu, C. S. Chen, and Y. J. Chan, “The outbreak of COVID-19: An overview,” *J. Chinese Med. Assoc.*, vol. 83, no. 3, pp. 217–220, 2020.
- [2]. C. Anastassopoulou, L. Russo, A. Tsakris, and C. Siettos, “Data-based analysis, modelling and forecasting of the COVID-19 outbreak,” *PLoS One*, vol. 15, no. 3, pp. 1–21, 2020.
- [3]. W. Qiu, S. Rutherford, A. Mao, and C. Chu, “The Pandemic and its Impacts,” *Heal. Cult. Soc.*, vol. 9, pp. 1–11, 2017.
- [4]. WHO, “Coronavirus disease,” *World Heal. Organ.*, vol. 2019, no. March, p. 2633, 2020.
- [5]. D. Ivanov, “Predicting the impacts of epidemic outbreaks on global supply chains: A simulation-based analysis on the coronavirus outbreak (COVID-19/SARS-CoV-2) case,” *Transp. Res. Part E Logist. Transp. Rev.*, vol. 136, no. 101922, 2020.
- [6]. A. Kuckertz *et al.*, “Startups in times of crisis – A rapid response to the COVID-19 pandemic,” *J. Bus. Ventur. Insights*, vol. 13, no. April, 2020.
- [7]. M. F. Liew, W. T. Siow, Y. W. Yau, and K. C. See, “Safe patient transport for COVID-19,” *Crit. Care*, vol. 24, no. 1, pp. 1–3, 2020.
- [8]. PM RI, *Peraturan Menteri Kesehatan Republik Indonesia Nomor 18 tahun 2020 tentang Pengendalian Transportasi dalam Rangka Pencegahan Penyebaran Corona Virus disease 2010 (Covid-19)*. Jakarta: Peraturan Menteri Kesehatan Republik Indonesia, 2020.
- [9]. F. Petropoulos and S. Makridakis, “Forecasting the novel coronavirus COVID-19,” *PLoS One*, vol. 15, no. 3, pp. 1–8, 2020.
- [10]. D. Ivanov and A. Dolgui, “Viability of intertwined supply networks: extending the supply chain resilience angles towards survivability. A position paper motivated by COVID-19 outbreak,” *Int. J. Prod. Res.*, vol. 7543, 2020.

- [11]. H. Yu, X. Sun, W. D. Solvang, and X. Zhao, "Reverse logistics network design for effective management of medical waste in epidemic outbreaks: Insights from the coronavirus disease 2019 (COVID-19) outbreak in Wuhan (China)," *Int. J. Environ. Res. Public Health*, vol. 17, no. 5, 2020.
- [12]. N. Nohria, "What Organizations Need to survive a Pandemic," *Harvard Business School*, p. 5, 2020.
- [13]. IATA, "Air Cargo Essential to Fight Against COVID-19," 2020.
- [14]. H. Ziady, "Most airlines could be bankrupt by May. Governments will have to help," 2020.
- [15]. C. Toczaer, "IATA February data shows initial COVID-19 impact on air cargo," *aircargoworld.com*, 2020.
- [16]. G. Knowler, "Revenue loss for airlines to top \$100 billion in 2020: IATA," *Joc.com*, 2020.
- [17]. G. Knowler, "Air cargo capacity drying up for non-emergency shipments," *Joc.com*, 2020.
- [18]. UNICEF, "COVID-19 impact assessment on supplies and logistics sourced by UNICEF Supply Division," 2020.
- [19]. S. Dowsett and J. Lee, "Coronavirus turmoil spreads to airline cargo operations," *Reuters*, 2020.
- [20]. M. A. Kuo, "COVID-19: Impact on Global Shipping and China's Economy," *The Diplomat*, 2020.
- [21]. K. Mada, "Menjaga Roda Ekonomi Tetap Berputar," *Kompas.id*, 2020.
- [22]. A. W. Puspa, "Penerbangan Susut, AP Kargo Sesuaikan Operasional," *ekonomi.bisnis.com*, 2020.
- [23]. S. A. Soenarso, "Gara-gara virus corona, bisnis pengiriman kargo udara ke China turun sampai 40%," *Kontan.co.id*, 2020.
- [24]. R. M. Azka, "Dampak Virus Corona, Agen Kargo Udara Tercekik Biaya," *ekonomi.bisnis.com*, 2020.
- [25]. E. A. Eloksari, "Logistics down by more than 50 percent amid COVID-19 outbreak," *The Jakarta Post*, 2020.
- [26]. R. M. Azka, "Akibat Virus Corona, 15.000 Ton Kargo Udara Lenyap," *ekonomi.bisnis.com*, 2020.
- [27]. N. A. D. Martiar, "Kargo dari China Diperlakukan Khusus," *Kompas.id*, 2020.
- [28]. M. U. G. Kraemer *et al.*, "The effect of human mobility and control measures on the COVID-19 epidemic in China," *Science*, vol. 497, no. May, pp. 493–497, 2020.
- [29]. H. Harapan *et al.*, "Coronavirus disease 2019 (COVID-19): A literature review," *J. Infect. Public Health*, vol. 13, no. 5, pp. 667–673, 2020.
- [30]. IATA, "Guidance for the transport of cargo and mail on aircraft configured for the carriage of passengers," *IATA J.*, no. April, p. 26, 2020.
- [31]. D. J. P. Udara, *SE 22 th 2020 tentang Pengangkutan sampel infectious substances (Covid -19) dalam rangka percepatan penanganan Pandemi*. 2020.
- [32]. I. IATA, CDC, WHO, "Guidance Information on the Transport of COVID-19 Human Remains by Air Collaborative document by WHO.CDC, IATA & ICAO," no. April, pp. 1–9, 2020.
- [33]. D. P. Laut, *SE 8 th 2020 Langkah Siaga Pencegahan Penyebaran Virus Corona di Wilayah Pelabuhan Indonesia*. 2020.
- [34]. et al Cascella M, Rajnik M, Cuomo A, *Features, Evaluation and Treatment Coronavirus (COVID-19)*. StatPearls Publishing, 2020.
- [35]. C. L. No *et al.*, "Recommended framework of protocols for ensuring safe ship crew changes and travel during the coronavirus (COVID-19) pandemic," vol. 44, no. 4204, 2020.
- [36]. UU RI, *Undang-undang Republik Indonesia Nomor 6 tahun 2018 tentang Keekarantinaan Kesehatan*. Jakarta: Undang-undang Republik Indonesia, 2018.
- [37]. USAID, "Beyond Pandemics : a Whole-of-Society," no. September, 2011.
- [38]. A. Gavine, "Air Canada switches to cargo to combat Covid-19," *Aircraft Interiors International*, 2020.
- [39]. Editor, "Aeromexico Passenger Jets for Cargo: Response to COVID-19 Emergency," *eturbonews.com*, 2020.
- [40]. N. Adelayanti, "Distribution of Humanitarian Logistics Needs Improvement," in *Virtual Seminar entitled The Role of Humanitarian Logistics in Minimizing the Impact of Covid-19*, 2010.
- [41]. R. M. Azka and P. W. Puspa, "Impact of Covid-9 pandemic: Logistics stimulus becomes urgent," *Bisnis Indonesia*, 2020.
- [42]. D. N. Poole, D. J. Escudero, L. O. Gostin, D. Leblang, and E. A. Talbot, "Responding to the COVID-19 pandemic in complex humanitarian crises," *Int. J. Equity Health*, vol. 19, no. 1, pp. 1–2, 2020.