

Covid-19 and Transportation Sector: (Effects, Challenges and Prospects)

^[1] Auwal Alhassan Musa, ^[2] Shashivendra Dulawat, ^[3] Lasmar Garba

^{[1][2][3]} Civil Engineering Department, Mewar University, Rajasthan, India

^[1] Civil Engineering Department, Kano University of Science and Technology, Wudil. Nigeria

Email: ^[1] auwalalhassanmusa@gmail.com

Abstract---This paper explains how the coronavirus pandemic affects the transportation sector. Transportation and Supply Chain are two integrated activities, which give all of us an unending opportunity to share ideas, knowledge, resources of any kind and interact with other people having different religious, ethnic, and cultural background. The coronavirus pandemic has impacted immensely to transportation and supply chain activities as they were linked with world economy directly. These impacts of coronavirus pandemic have come suddenly like a nightmare to all the transportation industries and supply chain activities ranging from manufacturing, logistics and service providers. Therefore, countries have to work together and formulate a long-lasting solution that will allow the transportation industries to resume back working. The solution may differ depending on the country's capability in terms of technology, security, economy, and population. Transport and supply chain policymakers must act promptly to respond by a rapid repercussion and adjustment that will significantly impact on the reviving transportation, logistics and tourism industries in the world to avoid future loss of benefits generated by these sectors to the society.

Key Words--- Coronavirus, Transportation, Activities, Policymakers

I. INTRODUCTION

Transportation and Supply Chain are two integrated activities, they have given all of us an unending opportunity to share ideas, knowledge, resources of any kind and interact with other people with different religious, ethnic, and cultural background. Therefore, an abrupt stoppage of both the two is tremendously harsh as they have been integrated into human culture. The sectors are the most suffered sectors after health due to the outbreak of coronavirus pandemic which they were taken a very negative hit that will take a very long period before recovery. Also, the inception of the pandemic in past few months, the world has dwelled in another surprise where most if not all of the transportation, supply chain activities and other economy-related activities were forcefully suspended. Only few were allowed which was fundamentally shifted and focused on transporting essentials goods to the public. this unprecedented disruption has contributed a lot in damaging economies.

Of course, sudden movement restrictions and cutting the supply chain are stressful. But it's necessary to enforce them, because they are preventive measures to ensure the virus spread has been reduced and to give medical professionals chance to come up with possible findings and contained those infected. Nevertheless, the most challenging task is when and how to keep people safe after easing the restrictions against the second phase of the spread is one of

the most unpredictable current issues by experts in every field dealing with public activities in which the transportation and supply chain are inclusive.

Transportation systems provides flexible mode and ensure successful movement of passengers, cargoes, and mails for different [1][2][3]. It is heterogeneous body of its own however, made up of different interacting sub-systems working integrally to ensure the reliability of its users. [4]. These sub-systems are composed of mutual and complex relationships between demand, locations, service and networks that support it. [5].

They also contributed toward the provisional interchange between different modes, and also help in consolidating users or for onward movement and fragmenting of freight in attaining reliable and active process of production [6]. An integrated, effective, efficient and reliable transport system is one of the major factors used for categorizing the country as developed one. countries have become increasingly relying heavily on to their transport systems to support a wide variety of activities ranging from commuting, supplying energy needs, to distributing parts between factories [7]. The Transportation is a sector that contribute more to economy as well as to socio-political activities across the world. A good and well-integrated transportation system and network helps in increasing economic activities by improving accessibility and facilitates movement of goods and services to all the nooks and cronies of the country [8].

II. EFFECTS OF CORONAVIRUS PANDEMIC ON TRANSPORTATION AND SUPPLY CHAIN ACTIVITIES

The coronavirus pandemic has impacted immensely to transportation and supply chain activities and they were linked with world economy directly. These impacts of coronavirus pandemic have come suddenly like a nightmare to all the transportation industries and supply chain activities ranging from manufacturing, logistics and service providers. They are experiencing a sharp flatten productivity. Most of them are working at losing stage. The competition between them has risen and very few can cope with the current challenge and possible future renaissance. This is because, day-to-day activities that bring people together such as work, shopping, conferences, concerts, parties, sports activities, etc. were suspended with limitation to market access in some green zones. As we were all covered and glued at homes watching media channels and the kind of responses by public health practitioners from different regions all over the world.

The outcome of the survey has revealed that an expected major shift could be experienced from the public transport services in the near future. This has been noticed as reference in at a Pan-India level as well as for three major cities where large samples were available. This reduction in public transportation usage was replaced by increasingly adopting the private vehicles [9]. Major cities could increase significantly. Another devastating effect of this pandemic on transportation and supply chain activities is the catastrophic decline of funding and continuous executions of the current projects, in which most of the ongoing project especially those in transportation sectors have been affected. This is because most countries budget's including that of India was shifted to the health sector for fighting this pandemic. So smooth funding of suspended projects will be faced with high intense hindrance as the world will be in economic shortfall crisis for a while in post coronavirus pandemic.

The level of expected behavioral changes, active steps were needed to be implemented for ensuring that the COVID-19 crisis does not amplify negative outcomes associated with the road transport sector. The overall aim should be to make public transport safe and accessible and to prevent a large increase in private vehicles on the road. Public transport is also essential in facilitating economic activity by ensuring mobility of workers, especially those who do not have access to alternate modes. Promoting non-motorized transport would provide alternate travel options for many commuters [10].

Again, Transportation industry and supply chain activities are two independent and reliable sectors for generating

revenue to India and world in general. the two sectors got more than 70% shortfall in term of revenue generation to the government so far during this pandemic. this was resulted due to disruption in production and halted supply chain. According to (IATA), Asian-Pacific region will lose approximately \$27.8billion and risk thousands of jobs as more than 10million passengers has been lost by the sector across the world. Also, the population living under the poverty line has raised as a result of the suspended transportation activities due to this pandemic which has contributed immensely to the rise of this figure due to the abrupt change in the continuous supply chain [11].

These impacts have gulped global transportation sectors into recession and trying to jeopardize it to ever worst conditions by forcing it to reduce the level of service it offers to the public. Logistics firms, which are involved in the maneuver, storage, and flow of goods, have been directly pretentious by the COVID-19 pandemic [12]. As a fundamental part of value chains, both within and across international borders, logistics firms facilitate trade and commerce and help businesses get their products to customers. Supply chain disruptions to the sector caused by the pandemic could therefore, impact competitiveness, economic growth, and job creation. [13].

III. CHALLENGES FACED BY TRANSPORTATION AND SUPPLY CHAIN DUE TO CORONAVIRUS PANDEMIC OUTBREAK

It's evident that the coronavirus pandemic has spread rapidly to every part of the world within a short period. And unfortunately, transportation industry was the major cause of the spread especially the aviation sector. Also, it was just recent to be in a packed train or congested public transport system is normal. But this scenario has become obsolete during this coronavirus pandemic, because using public transportation may be the most correlated means that will lead to the high risk of becoming a victim of the virus.

Transportation and supply chain activities have become an unseparated segment of every society, because they are among the main drivers of world economy. this sudden disruption will cause unpredicted and unprepared shrinkage in the world economy. Also, this phenomenon of coronavirus pandemic has rendered thousands of laborers and workers to lose their jobs especially those in the private sector, also people with a disease that need intensive medical care are facing hardship in accessing the healthcare service. In addition, unplanned freight transport suspension has affected small and medium scale businesses [14]. Even those essential businesses are struggling to survive. Because of the following three reasons. One, small retailers depend on long-distance supply chains as large cooperation control

production and transportation of essential commodities [15]. and these chains were abruptly distorted due to this lockdown. Two, most craft businesses that rely on mass public transportation cannot be conducted online. Three, the financial support provided by the government will not be sufficient for small retailers. Recently, Bloomberg reported that about 2.7 billion in global output was lost due to a shutting down of transport industries but unfortunately, this estimated prediction may arise anytime as more than 80% of economic activities depend entirely on the already suspended transportation and supply chain activities.

Furthermore, most of the transportation planners and traffic Engineers are focused on addressing usual and concurrent problems related to congestion, delay and pollution, with less consideration in climatic resilience and management of natural disaster but unfortunately, once-in-long period pandemics are entirely ignored by them. also, policy-makers have failed to pursue an interest in sustainable transportation and supply chain management which will be compatible to pandemic resilience. Also, probable uncertainties are much in the political horizon to support the investments toward the forecast of the future pandemic occurrence.

IV. POSSIBLE PROSPECTS TO TRANSPORTATION AND SUPPLY CHAIN ACTIVITIES

Nations and regions have to work together and formulate a long-lasting solution that will allow the transportation industries to resume back working. The solution may differ depending on the country's capability in terms of technology, security, economy, and population. They include working of the task force on this pandemic with public and private transport companies and help them become more agile to face the new challenge of service management and learn alternatives measures. Also, there is a need to invest heavily by the government to public transportation and supply chain management for their sustainability. the sustainability here is beyond just demand and supply basis, but to robustly remains capable of resisting future catastrophic probable event.

This pandemic also has exposed food insecurity associated with disruption in long supply chains. Therefore, Strict and longer suspension of the transportation industries has to be modified, they should operate to provide access to basic services to the public as before. this can be done by gradual trials of reopening and operation of the public transport sector and Regulatory guidelines should be enforced by the government in due course.

For airports both domestic and international, there is need of installing state-of-the-art body temperature detectors and fumigating the entire planes, passengers and their luggage,

this will decrease the level of infectious people entering and leaving particular country. being the main defense line to detect the suspects of the virus, rapid testing centers have to be established in all airports especially international ones with certified and qualified health workers. also isolating travelers for two weeks should be strictly followed by anybody who reaches the country via plane with no exception as directed by (IATA) in order to secure the aviation industries and to counter the spread of pandemic. Also, the same should be applied to seaports.

The most challenging segment which most population in the world especially in developing countries are utilizing for their activities is the public transport sector, which also needs to be monitored during the trying time. Despite the inadequacy of manpower in the health sector there is need to regulate the activities and operation of the public transportation such as making it mandatory by any person using public transport system such as bus or train must use hand sanitizer, wear face mask, and keep distances between the commuters while waiting for rides and ensure the buses and other means public transportation are not crowded as before.

Lastly, Transport and supply chain policymakers must act promptly to respond by a rapid repercussion and adjustment that will significantly impact on the reviving transportation, logistics and tourism industries in the world to avoid future loss of benefits generated by these sectors to the society.

V. ACKNOWLEDGMENT

We wish to appreciate the effort of our other faculty members of Civil Engineering Department for encouraging and supporting this research tirelessly. Also, special thanks to our friends Tajuddeen Mustapha, Zakariya Ibrahim Musa and Shehu Usman Muhammad for encouraging us in this research work.

REFERENCES:

- [1] Anyanwu, J.C.A. Oyefusi, H. Oaikhenan and F. A. Dimowo. "The Structure of the Nigerian Economy (1960-1997)". Onitsha: Joanee Educational Publishers Ltd. 1997
- [2] Good, Wilson and Jebbin, Maclean Felix. "Transportation and National Development. Journal of Economics and Sustainable Development" Vol.6, (9), 2015.
- [3] Rachi Jain, Rajkumar Soni, Devendra Kumar Meda "Comparative Analysis of Covid-19 Classification and Detection Methodology" International Journal for Research in Applied Science & Engineering Technology. Vol 8(V) May 2020, pp: 1130-1133.

- [4] Siddhi Kamlesh Bhoring “Impact of Coronavirus on Indian Economy” International Journal for Research in Applied Science & Engineering Technology. *Vol. 8 (V) May 2020*, pp:1133-1339.
- [5] Oyesiku O. “Institute of Transport Administration of Nigeria”. 3013.
- [6] Adeniran, Adetayo O. and Yusuf, Temitope B. “Transportation and National Development” Emphasis to Nigeria. *Developing Country Studies, Vol.7(9). 2016, Pp. 93-104.*
- [7] Jean-Paul Rodrigue, Claude Comtois and Brian Slack “Geography of Transport Systems”. First published by Routledge. 2006
- [8] Amba, Daniel A. and Danladi, Jonathan D. “An Appraisal of the Nigerian Transport Sector: Evidence from the Railway and Aviation Sub-Sectors” *Journal of Economics and Sustainable Development. Vol.4(10), 2013.*
- [9] Palak Thakur Promit Mookerjee, Aakansha Jain, and Aravind Harikumar, “Impact of Covid-19 On Urban Mobility in India: Evidence from A Perception Study Impact of COVID-19 on Urban Mobility in India: Evidence from a Perception Study”. New Delhi: The Energy and Resources Institute, 2020.
- [10] Jeff French, Randolph Smith and Russell Norris “Navigating the impact of COVID-19 on transportation & logistics grant” Thornton 2020.
- [11] World Health Organization. “Coronavirus disease 2019 (COVID-19):” situation report, 51. 2020
- [12] Ian Twinn, Navaid Qureshi, Maria López Conde, Carlos Garzón Guinea and Daniel Perea Rojas, “The Impact of COVID-19 on Logistics” International Finance Corporation (IFC), a member of the World Bank Group. For more information, visit www.ifc.org/infrastructure. 2020.
- [13] Emmanuel Mogaji “Impact of Covid-19 on transport in lagos, Nigeria” *Transport Research Interdisciplinary Perspectives, Volume, 6 july 2020, 100154*
- [14] J. De Vos “The effect of covid-19 and subsequent social distancing on travel behavior” *Transport Research Interdisciplinary Perspectives, Volume, 5 April 2020, 100121*
- [15] I.A. Adekunle, A. Onanuga, O. Wahab, O.O. Akinola “Modelling spartial variations of coronavirus disease (COVID-19) in Africa” *Sci. Total Enviro.(2020) P. 138998.*