Impact of the spread of epidemics, pandemics and mass diseases on economic security of transport

Nikolay Chernogor^{1,}, Alexander Zemlin², Ivan Kholikov¹, and Irada Mamedova³*

¹Institute of Legislation and Comparative Law under the Government of the Russian Federation, bldg. 22-24/1A, 1BV, B. Kharitonievsky Lane, 107078, Moscow, Russia

²Law Institute of Russian University of Transport, Obrastsova str., 9-9, 127994, Moscow, Russia

³Russian University of Transport MIIT, 2, Minayevskiy per., 127055, Moscow, Russia

Abstract. The problem of the spread of the coronavirus epidemic is now being widely discussed not only in the media, but also in legislative and executive authorities, business and scientific circles around the world, including in Russia. The article provides a brief overview of the main epidemics that occurred in modern world history, their impact on the economy of individual countries and the world economy as a whole. The main attention is paid to the analysis of the impact degree of epidemics and pandemics on the transport sector of the economy. The specificity of the impact of the spread of mass diseases on the functioning of transport system and its' economic security is shown. Possible directions of organizational and legal support for the activities aimed at minimizing the consequences of the pandemic on the economic security of transport are substantiated.

1 Introduction

As all spheres of human activity were globalized, there was also a globalization of threats, including threats to the health of the world's population associated with the spread of epidemics. The threat of the spread of epidemics and mass diseases was considered exclusively as a challenge to public health, the fight against which was the competence of narrow-profile departments.

The epidemics of plague, smallpox, typhoid, cholera, and influenza have occurred and continue to occur with varying frequency and scale, but they invariably terrify people. Infectious diseases caused enormous damage for centuries. They destroyed the whole nations, took so many lives that were not taken even by wars and also played a crucial role in the course of history.

Epidemic (Greek. "epidemios" – common among the people) is a category of intensity of the epidemic process, characterized by the fact that the level of incidence of a certain infectious disease is significantly higher than usually recorded in a given territory for a similar period (Great Medical Encyclopedia).

* Corresponding author: chernogor72@yandex.ru

Pandemic (Greek. "pandemic" – nation as a whole) is an unusually strong epidemic that spreads to the territories of countries and continents; the highest degree of the epidemic process development (Great Medical Encyclopedia).

In this regard, the international character of the problem came particularly early. The first organizational form of providing interstate anti-epidemic measures appeared already at the end of the 18th century - the International Sanitary Council in Tangier. In the 30s and 40s of the 19th century, similar councils arose in Constantinople, Egypt, Tehran, and other places. In the middle of the last century the first International sanitary conference was established in Paris; in the late 19th and early 20th centuries, international health organizations were established: International Committee of the Red cross (1863), the International office of public hygiene (1907), the League of Nations health organization (1919), the International committee of military medicine (1921), and finally the World health organization (1948)

Currently, the probability of a global epidemic is attributed to the so-called "black swans". "The Black Swan Theory" is the theory that considers difficult-to-predict and rare events that have significant consequences. The author of the theory is an American scientist of Lebanese origin Nassim Nicholas Taleb, who introduced the term "black swan type events" in his book *The Black Swan: The Impact of the Highly Improbable*. The author identifies three main criteria for a "Black Swan" event: 1) it is unexpected for experts, 2) it has significant consequences, and 3) after the event occurs, a rationalistic explanation is found, as if it were expected. From the point of view of Nassim Taleb, virtually all significant political and economic events are "Black swans" [1].

It is not surprising that economists, lawyers, governments and financial markets studied the situation with avian and swine flu several years ago, and now they are following the spread of the coronavirus with deep concern. After all, the global epidemic has already significantly affected the world economy and the stability and security of the global world order.

2 International nature of the threat

The activities of the World Health Organization are focused on achieving the social goal of the WHO and its member states, which was proclaimed in 1977: achieving a level of health for all inhabitants of the planet that will allow them to lead a productive life in social and economic terms.

Rapid epidemiological and regular scientific information disseminated by the WHO, well-founded and tested recommendations, and ready-made research results from the WHO collaborating centers are of great practical importance to member states [2].

The WHO, an agency of the United Nations and empowered by the International Health Regulations 2005 (IHR 2005), serves as the primary international body coordinating the public health response to major multi-national outbreaks. The IHR 2005 is a legally binding international treaty signed by all WHO members compelling governments and allowing non-governmental organizations to report outbreaks to the WHO, and compelling states to take an active role in disease surveillance [3].

It should be noted that the issues of pandemics and mass diseases are widely discussed in the political context, which includes various conspiracy theories that imply the organization of pandemics as biological weapons used to achieve specific foreign policy goals, such as local population reduction in a particular region. Nevertheless, it seems necessary to focus on the consideration of these issues from a theoretical and legal point of view, which will allow us to consider the problem of the spread of epidemics, pandemics and mass diseases as a threat to the economic and economic security of transport.

The issue of appropriate criteria, including quantitative ones, that should be followed, is of crucial importance for assigning a particular outbreak of a particular disease to the international legal sphere. The practice of the last twenty years shows that the UN and the WHO began to actively talk about the epidemic as a threat to international security in cases when the number of cases exceeded 2 thousand people, and the area of spread of the disease exceeded five or more states. The international health regulations single out in a special group "diseases, any event with which is always assessed as dangerous, because these infections have the ability to make a serious impact on the health of the population and spread rapidly on an international scale" (Ibid). Such diseases include cholera, plague, various forms of fevers (yellow fever, Ebola, West Nile fever, etc.), as well as various national and regional infectious diseases.

3 Impact of the past epidemics

The extent of the impact of epidemics on the economy has been little studied so far. The best studied and most famous epidemic, which all modern ones are compared to is the epidemic of "Spanish flu". It began in the last months of World War I. During 1918-1919 (18 months), 50-90 million people, or 2.7-5.3% of the world's population, died from the epidemic worldwide, according to various sources. About 500 million people, or 21.5% of the world's population, were infected. Its exact origin could not be determined, but according to some versions, the virus came from China. Many flu victims were young and healthy people in the age group of 20-40, i.e. the most able-bodied part of the population (usually only children, elderly people, pregnant women and people with certain diseases are at high risk).

The number of deaths, depending on the level of medical development, welfare, living conditions and quarantine measures, varied across the world from a fraction of a percent to a quarter of the total population. "Spanish flu" claimed the lives of 23% of the inhabitants of modern Samoa, 21% - Zambia, 10% - Zimbabwe, 7% - India.

In Europe, the most affected countries were the Balkans, where about one in thirty died, as well as Italy, Spain and Portugal, where the death rate ranged from 1.4 to 2.3%. The highest percentage of deaths relative to the entire population of the country was observed in Serbia-4.2%, followed by Montenegro (3.5%) and Croatia (3.2%).

In the autumn of 1918, an epidemic broke out in Russia and took the lives of about 3 million people, which was 3.4% of the total population of the country.

In absolute terms, "Spanish flu" became the deadliest disease in the history of mankind.

The disease spread was facilitated by the development of the international transport system and the mass movement of people during the war.

Studying the impact of the pandemic on the US economy, the economist T. Garrett provides a selection of excerpts from newspaper articles in 1918 about the economic consequences of the "Spanish flue" in his work. For example, the Arkansas Gazette dated October 18, 1918 writes: "Trade fell by 40%. And according to some estimates – by 70%. The only business that is thriving is pharmacies. Demand for beds, syringes and medical supplies has increased." And the Commercial Appeal newspaper from the same day paints an even darker Figure: "Coal production has fallen by 50%. The mines are on the verge of closing due to an epidemic in the mining camps. In the city of Coalfield, Tennessee, there are only 2% of the healthy population."

Harvard economists linked the Spanish flu epidemic to the recession in developed countries in 1919-1921, the fourth largest in the previous 150 years. They estimated that on average, the epidemic cost the world 6.6% of GDP. According to the World Bank, an epidemic of a similar scale would now cost the world economy 4.8% of GDP, and the damage would amount to more than \$3 trillion. But other studies note that the decline in the

working population led to a marked increase in real per capita income in the United States in the 1920s.

Of course, the experience of studying the epidemic of 1918-1919 may not be so relevant when analyzing today's problems. After all, the rate of the disease spread was associated with mass movements of soldiers after the First world war. Back then, there were no antiviral drugs to treat the flu and antibiotics to combat complications, people were poorer, they had worse diet, and the risk of infection was therefore significantly higher than today.

It should be noted that currently the infection is spreading even faster, since the world has become much more globalized. The transatlantic flight takes only 10 hours, while in 1918 it took weeks to cross the ocean. More people live in cities, and population density increases the speed of infection. And the number of antiviral drugs is quite limited. But the biggest impact is caused by panic among the population, which is cultivated by constant reports on the Internet, television and in newspapers. According to the WHO data, about 5 million people in the world suffer from flu every year, and 0.5 million people die. However, the usual flu is rarely mentioned, and news about SARS, avian and swine flu or Ebola is immediately in the top.

In 2002-2003, there was an epidemic of SARS. At that time, more than 900 people died from SARS, which started in China, most of them in mainland China (348 deaths) and in Hong Kong (298 deaths). A total of 8,436 infections were reported in 30 countries, and deaths were also reported in Singapore, Canada, Taiwan, Vietnam, Malaysia, Thailand and the Philippines. The economic consequences were not disastrous. China's economic growth slowed only for one quarter – from 11.1% to 9.1%. Direct damage to Asian countries is estimated at \$ 12-18 billion, and indirect damage to the world economy is estimated at \$ 30-100 billion.

The 2003 severe acute respiratory syndrome (SARS) epidemic was the first epidemic of the 21st century to pose a threat to global health and generate considerable panic across the globe. Fortunately, due to the rapid containment of the epidemic, both the harm to the public's health and economic losses were not as considerable as many feared they might be. After a short period of economic turmoil, lasting a few months, normal patterns of economic activity were resumed. However, during this period there were dramatic reductions in air travel and tourism, and leisure and/or hospitality services in the areas affected by SARS.

The SARS outbreak generated substantial attention and panic internationally. One reflection of this panic was the early economic projections on the impact of SARS, which generally predicted losses to be greater than what eventually transpired. The most significant economic losses occurred in: (i) the PRC; (ii) Hong Kong, China; (iii) Singapore; and (iv) Taipei, China. During the height of the epidemic, international visitor arrivals fell dramatically in these four economies that had the most SARS cases and resulted in an estimated gross domestic product (GDP) loss amounting to \$13 billion. These losses, however, did not affect any of these economies for more than a couple of quarters, and even the most heavily affected countries started recovering by Q3 2003. Overall, the economic cost of SARS has been estimated in the range of 0.5%–1% of annual GDP across the affected economies in the Asia-Pacific Economic Cooperation region, though this might be inaccurate. The observed effects were unequal across sectors; disproportionately affecting tourism, leisure, and transport, and equating to estimated losses of \$8.5 billion in the PRC; \$1.4 billion in Malaysia; and \$1.3 billion in Hong Kong, China.

The economic consequences of the SARS epidemic can be delineated into direct and indirect impacts. Direct impacts included lost income and output due to death and symptomatic illness, as well as increased health-care costs. Indirect costs arise, specifically in this case, from aggregate behavioral changes driven by the public's perception of the outbreak. It is worth noting that, for the SARS case, we focus almost exclusively on

indirect losses, and that the economic impacts to the tourism, transportation, and leisure industries can all be classified as indirect economic impacts of the SARS epidemic, since they were not caused by the direct illness of service providers. Because of this, the economic analysis of the SARS epidemic differs from some other notable epidemics. Typically, economic losses that occurred through epidemics such as HIV/AIDS in the 1980s–1990s, or the Spanish flu in 1918–1919 were first, and maybe foremost, measured via the cost of illness directly. This is not the case for SARS, and not for several other recent epidemics (like Zika). In contrast, the direct costs due to illness and mortality is basically what is measured by WHO when it measures the disability-adjusted life years associated with various illnesses and epidemics. As such, the disability-adjusted life years calculations miss a lot of the important consequences of modern epidemic events.

In even more comprehensive assessments, intertemporal and interspatial general equilibrium effects of indirect losses should also be measured. For example, these should examine reductions in labor productivity due to death and poor health in affected individuals, the consequent impact on productivity of nonaffected individuals, and for the acquisition of human capital due to time away from education (which may impact both directly affected and unaffected individuals).

International visitor arrivals in Hong Kong dropped by 65% in the previous year's figure during April and airlines consequently began canceling flights. Between March and April 2003, total arrivals of visitors fell by 63% from 1,347,386 visitors to 493,666—a drop of around 850,000 passengers on average. Daily arrivals plummeted from an average of around 27,500 passengers to roughly 5,000 passengers per day at the end of April. Airlines such as Cathay Pacific canceled over 45% of their scheduled flights in April 2003, and ticketing revenues plunged from HK\$120 million (\$15.3 million)¹ to HK\$4 million (\$510,000) (over 70%) in the first 2 weeks of April. Cathay Pacific's monthly passenger rate fell by 80%, from 1,000,000 to a little over 200,000 compared to the same period in the previous year [4].

As a positive consequence, the epidemic gave rise to the Chinese Internet boom: the need to use Internet services made people believe in them, and it was then that Jack Ma decided to make Alibaba a retail company.

The avian flu scare began in 2005, while memories of SARS were still fresh. This virus has a very high lethality rate (about 50%), but it is almost not transmitted from person to person, and infection requires very close contact with infected birds. Therefore, it is responsible for fewer than 400 deaths.

However, the economic damage caused by avian flu is comparable to that caused by SARS, mainly due to the loss of poultry. The total damage to the world's poultry industry is measured in billions of dollars. The avian flu epidemic alone (though of a different strain, H7N9) in 2013 caused \$ 6.6 billion in damage to Chinese poultry producers.

Another strain of flu that can spread from an animal to a person with a number of mutations is called swine flu. Outbreaks of this flu occurred in 1976, in 1988, in 2007. The World Health Organization and the US Center for disease control and prevention expressed serious concern about this strain in 2009, when the disease caused high mortality in Mexico. The level of the pandemic threat was raised from 4 to 5 points out of 6 possible. By August 2009, more than 250,000 infections and 2,627 deaths were reported worldwide. The infection spread all over the world.

Fig. 1. the impact of SARS and other respiratory infections on aviation sector of transport according to IATA.

On 11 June 2009, the WHO announced the first pandemic in forty years, the swine flu pandemic. Various mutated versions of the flu were followed by Ebola.

In 2014, the Ebola virus was able to spread uncontrollably over a relatively limited area of several countries on the African continent, and as a result of untimely and ineffective regime-limiting measures, it crossed the borders of this continent by the fall of 2014 [5].

Asian epidemics are dangerous because of the close integration of East Asia into the world economy and transport network, but Africa, with its poverty, social problems, and population displacement due to civil wars, remains the most susceptible to epidemics. The Ebola outbreak in 2014-2016, with 30,000 cases and 11,000 deaths, was the largest epidemic of the disease in history.

The World Bank estimates that the direct impact of the epidemic on the three most affected countries – Guinea, Liberia and Sierra Leone – was \$2.2 billion. But economists estimate the overall damage, taking into account rising unemployment, cost of social programs and damage to public health, at \$53 billion.

And the world's attention was focused on the exotic disease. All the world's media relentlessly trumpeted the horror and threat of global infection. Many companies operating in Africa quickly shut down their operations, fearing the threat of infection.

The threat of Ebola spreading beyond the borders of West Africa forced many countries of the world to join forces and stand united against the disease [6]. The Ebola pandemic, which began in December 2013, lasted for two and a half years. 28,652 people were infected, 11,325 of whom died. About 99 percent of all cases were reported in three African countries: Guinea, Liberia and Sierra Leone. The International Monetary Fund and the World Bank allocated about \$300 million to the most affected countries, with the US contribution amounting to \$175 million. and 3,000 troops were sent from Washington to the region.

The economic impact of Ebola extended beyond the devastating health effects. According to the CDC using World Bank projections, \$2.2 billion in GDP was “lost” in Guinea, Liberia and Sierra Leone in 2015. The disease had widespread socioeconomic effects. Guinea, Sierra Leone and Liberia suffered from lower investment and a substantial loss in private sector growth, declining agricultural production (leading to concerns about food security) and a decrease in cross-border trade as restrictions on movement, goods, and services increased.

The impacts of Ebola on the affected countries were severe and not limited to the Travel & Tourism sector. Currencies also suffered. The Sierra Leonean Leone depreciated 4% versus the dollar in 2014, 12% in 2015, and a further 24% in 2016. Currency depreciation made imports significantly more expensive and coupled with supply pressures as a result of lower production and closed borders, annual consumer price inflation in Sierra Leone was 11% in 2016. The impact on total economy GDP in Sierra Leone was significant, with growth first slowing in 2014, albeit still positive. However, this was followed by a 20% decline in 2015. Absenteeism increased among

In today's increasingly complex and interconnected global landscape, coordination and cooperation are a must have, especially when it comes to global security. The same principles apply to communication, whereby technologies from mobile to social media have enabled tweets, advisories and messages to go around the world in seconds. Given that cancelled trips to affected destinations is often the immediate response to news of a crisis event, it is essential that these decisions that affect economies and livelihoods are made with just cause rather than as a result of any sensationalized messaging or fear. According to the former Director General of the World Health Organization (WHO), Margaret Chan, 90% of economic losses during any outbreak arises from the uncoordinated and irrational efforts of the public to avoid infection.

Given the importance of Travel & Tourism to the global economy, accounting for 10% of global GDP and 1 in 10 jobs on the planet; the impact of a health emergency goes beyond the health of citizens to include the health of the economy.

As such, there is a need for cooperation not just between the public and private sectors, but within each of these, to ensure that all affected stakeholders have access to timely and accurate information to allow for efficient and optimal decision-making. All Ministries that have a stake in the issue, from Finance and Health to the Ministries of Tourism and Transport all need to have a seat at the table. The same principles should be applied in the context of private sector engagement.

Another important question in this case is whether "there is an obligation for states to cooperate in the event of epidemics", or whether states should deal with the problems and their consequences on their own. The trend in recent years shows that the international community is responding quite actively to pandemics. A good example is the outbreak of Ebola in February 2014. The countries with the highest number of cases are Liberia, Guinea, Sierra Leone, Nigeria, Senegal, and Congo. In its 2014 guidelines, the World Health Organization declared Ebola "an international health threat" [7]. On September 9, 2014, the United Nations Secretary-General, P. Ki-moon, said that all states must participate in what is happening and called it "an international call for rescue" [8]. UN Security Council resolution 2177 dated 18 September 2014 declared the Ebola epidemic a "threat to international peace and security". A special assistance fund was also established under the auspices of the UN, which accepts voluntary donations from states, as well as from individuals and organizations to fight the virus and eliminate the consequences of the epidemic [9].

4 Current pandemic

On December 31, 2019, Chinese authorities announced an outbreak of pneumonia in the city of Wuhan. The causative agent of the disease is a new type of coronavirus, which was officially named COVID-19. On March 11, the World Health Organization declared the outbreak of the new coronavirus a pandemic.

According to the WHO, as of April 29, about 3 million people were infected worldwide. More than 216 thousand died. The governments of most countries around the world responded to the spread of coronavirus by closing external borders and imposing various

restrictive regimes within states, primarily related to restricting the free movement of people, up to the introduction of a state of emergency.

When analyzing the impact of the coronavirus on the world economy, it is necessary to take into account that the current development of the world economy is taking place in the context of globalization processes, increased internationalization, liberalization, universalization, modernization, deterritorialization and informatization.

Let's look at how the new epidemic affects individual transport systems. The most obvious of the affected sectors are those that are directly or indirectly related to the movement of people or that involve a concentration of people. In the context of the ongoing pandemic, the main impact, as with previous pandemics of the 21st century, was on air transport. It is obvious that this type of transport, which is the main way to move passengers over long distances, especially between continents, is most dependent on global processes. People also try to avoid using public transport, and as a result, this affects both domestic and outbound tourism.

Fig. 2. Currently travel restrictions continue to influence international aviation, as markets with severe travel restrictions cover almost 98 % of global passenger revenues [10].

It means that international aviation simply does not function and only internal flights in countries with large territories continue to be operated by domestic airlines largely with financial support from their states.

The issues of determining the directions, prospects and, most importantly, the forms, means and methods of countering the pandemic, as well as minimizing its adverse effects on the development of the economy and transport, cannot be resolved, first, without proper scientific study and, second, without observing the legal norms established by acts of both national and international legislation.

If non-compliance with the first premise, as practice clearly shows, inevitably creates a situation where attempts to solve current, tactical issues without first resolving issues of a principled, strategic nature entail unscrupulousness and vacillation, forcing to return to solving the same technical problem many times, then violation of the second postulate initially determines the illegality of managerial decisions and administrative actions, which without proper explanatory, propaganda work, generates discontent among the population, social tension, protest moods, distrust towards the authorities.

Since the production of transport as a branch of material production is the activity on territorial movement of goods or people, transport is the link of the country's economy, covering all types of social production, distribution and exchange [11]. Consequently,

based on the system approach methodology, it seems a solid and acceptable conclusion that, as a subsystem of the world and national economy, the transport system of Russia not only actively affects the efficiency of the economy as a whole and most (if not all) sectors of the economy, but in the conditions of division of labor and globalization of production and distribution processes determines the very possibility of their existence. In the perspective of epistemological and especially praxeological aspects of construction and operation of the transport system, it becomes obvious that to say that there are certain "separate industries" is currently invalid and unacceptable, since their structure, in one way or another, but always - importantly, included transport legal relations, the presence of which determines the very possibility of functioning of other system components [12].

The presented abstract analysis of the role, place and significance of transport in the modern economy, using, of course, to a very limited extent, methods of systematic approach and achievements of legal hermeneutics, was, in our opinion, necessary to establish basic approaches to determining the possible consequences of disruption of the normal operation of the Russian transport system for the economy of the country and the world as a whole.

To determine the extent of the impact of the pandemic on the prospects for the development of the transport industry, it should be noted that at the meeting of the Government of the Russian Federation on March 26, 2020, transport Minister E. Dietrich formulated the basic goals of the transport strategy until 2035. There are five such goals: ensuring transport connectivity of the country's territories; organizing effective cargo transportation; ensuring affordable and high-quality passenger transportation; integrating the transport system into the global transport network; ensuring the security of the transport complex.

It is obvious that in the conditions of countering the spread of the pandemic, taking measures to achieve these goals is not only impossible, but also directly contradicts the needs of ensuring the safety of the population. In particular, in the context of the pandemic and its accompanying policy of isolationism, the very possibility of integrating the transport system into the global transport network quite naturally disappears, since, as practice has shown, when there is a threat of the spread of coronavirus, almost all states immediately took measures to close borders. At the same time, the problem of ships entering foreign ports has become very acute.

For instance, on 1 February, a passenger who had disembarked from the *Diamond Princess* days earlier in Hong Kong tested positive for the COVID-19 coronavirus. The ship was quarantined immediately after it arrived in Japanese waters on 3 February, with 3,711 passengers and crew members on board. Over the next month, more than 700 people on board were infected — including a nurse — and for weeks the ship was the site of the largest outbreak outside China. Outbreaks seed easily on the vessels because of the close confines and high proportions of older people who tend to be more vulnerable to the disease. Since the *Diamond Princess*, at least 25 other cruise ships have confirmed COVID-19 cases — including 78 cases on the *Grand Princess*, which was quarantined off the coast of California. Returned passengers have also seeded outbreaks in countries including the United States [13].

Moreover, despite the existence of international law that regulates transport relations in detail, some states refused to land aircraft. In conditions of increasing epidemiological danger, the problem of ensuring transport connectivity of the country's territories arises.

In these conditions, the issues of organizing effective cargo transportation, ensuring affordable and high-quality passenger transportation become very problematic, and the achievement of the basic (strategic) goals set for the transport system in the foreseeable future is extremely doubtful. Almost the only mode of transport that was not affected by the

pandemic was the pipeline, which, however, could not but be affected by the decline in oil prices.

Returning to the analysis of the prospects for strategic development of transport, it should be noted that the goal formulated as "ensuring the safety of the transport complex", in our opinion, acquires a slightly different content in modern conditions. It is obvious that we should not only and not so much talk about the security of the transport complex as about transport security, since transport, on the one hand, provides for the mobility of the population, acts simultaneously as a means of delivering people who spread infection to areas not yet affected by the pandemic, and, on the other hand, generates new foci of disease, since it is the elements of the transport complex, namely, vehicles and transport infrastructure, that are naturally a place of mass congestion of people.

At the same time, as the experience of fighting epidemics shows, with proper organization of work, transport infrastructure facilities can be effectively used for infection prevention, organization of quarantine measures and primary care for infected people. The use of public transport for these purposes is also very promising. In particular, to assist in carrying out preventive measures, providing medical assistance to residents of remote areas, etc. the experience of using sanitary trains, ships, mobile sanitary units placed on road transport, etc., equipped with specialists of various profiles, necessary equipment and inventory, to combat plague, cholera, and other infectious diseases, seems to be quite applicable. Issues related to ensuring technospheric and environmental safety in the operation of transport are of great importance in the fight against the pandemic. In particular, we must take measures to prevent the spread of infection in case the waste products of vehicle passengers and their crews are improperly disposed of.

5 Conclusion

Modern globalization contributed to the creation of an international division of labor, the formation of country and regional commodity markets, making economic relations between states foreign economic relations, and formed the transport industry as such. Besides, passenger transport provides not only free movement of labor, but also created a constantly developing industry of international tourism.

The international division of labor, specialization of countries in the production of certain products in accordance with natural conditions, traditions, and the level of economic and scientific and technological development, increased the interdependence of national economies. The emergence of a pandemic leads to disruption of established relationships and, as a result, failures in work, increasing costs.

As a result of the changes taking place in the world economy, each country became a hostage to the current situation – since the economic development strategy of any of the states is not able to independently form and implement its own plan without taking into account the interests and priorities of other participants. Local economic fluctuations or crises in one country can have regional or even global consequences.

The most obvious consequences of epidemics from an economic point of view, without taking into account the increase in mortality, include:

- temporary disability,
- temporary reduction of labor efficiency,
- need to close entire businesses for quarantine,
- growing distrust of each other in society and even emergence aggressive moods,
- violation of industrial relations,
- changing logistics routes
- decrease in securities quotations,
- stock market panic.

Macroeconomic risks for the world economy in the current situation can be assessed as high. This is due not only to the high uncertainty of how the situation with the virus will develop in the future, but also to the fact that many key economies are now at a mature (late) stage of the business cycle. This applies to the US, the Euro zone, and many developing economies.

If the economic consequences of spreading and fighting the virus are severe enough, it could not only further slowdown global economic growth, but also trigger a global recession.

The current and very briefly described situation, as well as the prospects for its further development, lead to the conclusion that there are problems both in scientific support and in normative and law enforcement activities in order to minimize the consequences of the pandemic for the functioning of the Russian transport system and, accordingly, the national and global economy.

Due to the above, the need for productive interaction of specialists in the field of legal and organizational support for transport development increases. Aware of this need, the authors believe that the article presented to the interested reader, containing the results of analysis of the impact of the spread of epidemics, pandemics and mass diseases on the functioning of the transport system and the economy, can serve as a starting point for a scientific discussion on the directions of organizational and legal support for activities to minimize the consequences of the pandemic on the economic security of transport.

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