The impact of modern civil aviation on the environment: Regional legal mechanisms and regulatory issues

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Abstract. The article discusses the legal issues of the increased impact of Modern Civil Aviation, which is of a dynamic nature, and the regulation of this problem in the last decades. In order to examine the practice of law enforcement in the field of Environmental Protection, the author suggests considering this issue in the regional aspect, as well. The author sheds light on the applicable legislative norms and legal control mechanisms of the Republic of Azerbaijan and the Baltic countries in this field to study the legal basis of the impact of Civil Aviation on the environment. The article also delineates the impact of Civil Aviation on the environment in the pre-pandemic and pandemic periods in order to study a number of aspects of the problem. The research presents the positive impacts of restrictions on the civil aviation and industrial activities on the environment, especially the atmosphere during the pandemic. As a conclusion, the research states that, legal norms and standards on environmental issues in the regional framework and in separate countries prove to be more effective in light of the international obligations.

1 Introduction

Civil aviation is one of the leading fields of the global transport sector and therefore, has a large share in passenger and cargo transportation. However, the expansion and development of civil aviation, the opening of new airline routes and giant airports have created other negative consequences of this field. Thus, the high impact on the ecology has led to the release of large amounts of pollutants and waste into the environment, especially into the atmosphere [23].

The problem has reached the point, where large holes have formed in the ozone layer of the atmosphere, which poses a global threat to humanity. However, these holes were not caused only by the gases emitted by the aircrafts [20, 21].

Other factors (gases from cars and factories, noise, etc.) also play a role here. At the same time, it should be noted that, although the issue is topical, today in the world scientists have conducted few researches regarding the impact of civil aviation on the environment and the legal aspects and mechanisms of this impact. And in the Republic of Azerbaijan and the Baltic States, we did not come across any scientific research material in this regard.

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However, harmonization and unification of legal norms in this field, as well as sanctioning is nowadays one of the important requirements in order to balance the impact of civil aviation on the environment. The multifaceted nature of the problem requires the application of new legal norms and standards in this field.

The objective of our research is to determine the legal aspects of the assessment of the impact of civil aviation on the environment and the atmosphere, as well as the legal mechanisms of influence at the level of regional legislation in this field.

2 Methods

In this regard, we will try to study the legal framework of the Republic of Azerbaijan and the Baltic States in this field and to learn what norms are reflected in the legislation. Analysis and synthesis, as well as comparative research methods have been used in our research. Thus, the legislation has been examined through the method of analysis in order to find out the existing gaps and problems. Using the synthesis method, the existing unregulated public relations related to the impact of civil aviation on the environment have been summarized and systematized and it has been proposed to compile them in a single regulatory provision. Also, the legislation of the Republic of Azerbaijan and the Baltic States on the subject has been analyzed and compared using the method of comparative analysis.

3 Results and Discussion

The civil aviation has a significant impact on the weather and related climatic factors. Unfortunately, the effect here is negative. According to the sources, aviation is the most harmful mode of transport for the climate. Thus, in addition to CO2, aircraft emit various substances, which have a sharp negative impact on the atmosphere and climate in general. Also, despite the fact that, less than 10 percent of the world’s population use air transport, a significant portion of the world’s greenhouse gas emissions have been produced and released into the environment as a result of civil aviation activities. At the same time, with the construction of new airports and runways, thousands of square kilometers of arable land are being destroyed, and the natural landscape and ecosystem are being damaged. According to the sources, air transport contributes to 4.9 percent of man-made climate change, including carbon emissions and other greenhouse gases. To this end, airlines develop and implement specific action plans, which include the use of low-fuel engines, the use of battery-powered electric motors and biofuels in the aviation. In October 2016, 191 countries signed a landmark UN agreement to achieve a 50% reduction in aviation carbon emissions by 2050. The International Civil Aviation Organization (ICAO), the United Nations’ specialized agency for international civil aviation, promotes sustainable development through four key initiatives: setting aircraft noise standards, sustainable airport management, and adaptation of operational procedures to reduce noise impact on the ground and application of operational restrictions. Due to the urgency of this field, scientists conduct numerous studies on the subject, exhibit different approaches to the problem and offer solutions [2, 5, 7, 11, 12, 14, 22, 23].

Figures and analysis of the impact of civil aviation on the environment and climate have been reflected in the reports of a number of regional and international organizations, as well as in the scientific researches. Thus, the relevant paragraphs of the seventh chapter of the 2019 Report on the Environmental Impact of European Aviation, prepared jointly by the European Environment Agency, the European Union Aviation Safety Agency and
Eurocontrol, address noise, air quality and climate change. It has been noted that the noise level of aircraft during take-off and landing above the established level can lead to complications in human health and adversely affect air quality [3, 10, 15, 17].

The EU also has a climate change adaptation strategy to reduce the impact of civil aviation on the climate and increase resilience and capacity building to address climate change, as well as a number of mechanisms, including scientific research for “green” technology, modernized air transport management systems and market-based measures [3, 9].

It should be noted that, it has not been possible for many years to reduce the impact of toxic gases emitted by the aircrafts and civil aviation in general on the environment. Because, it was necessary to limit and stop this activity for a while in order to enable the nature to recover and reduce the amount of toxic gases and restore the holes in the atmosphere. Of course, the prevention of mass passenger flows and the cessation of aircraft traffic could be caused by global environmental and natural disasters or other important reasons. That’s exactly what happened. Thus, the restriction of industry and economy, the activities of the transport sector and its most important branch, civil aviation, happened only due to the COVID-19 virus, which began to spread in China in late 2019 and now covers most of the world. It was the World Health Organization’s declaration of the COVID-19 virus pandemic that limited civil aviation [19].

Experts have all witnessed the positive impact of restricting civil aviation on the environment, together with its repercussions. Thus, according to the ecologists and scientists, the hole in the ozone layer of the atmosphere has already been closed, and the air has been significantly cleaned, which has had a positive impact on the nature and people, resulted in reduction of diseases [8, 20, 21].

We consider that, the existence of a legal framework and standards related with the environment, as well as a mechanism of control and appropriate accountability plays a crucial role in preventing the excessive emissions of toxic gases and pollutants into the atmosphere by civil aviation, as well as the noise above a certain level. Because the lack of control and strict comprehensive measures in this field leads to excessive exposure, and this factor results in serious complications.

Of course, the legal framework varies from country to country. First of all, if we look at the topic in the context of the legislation of Azerbaijan and the Baltic States, even though the existing legislation on civil aviation in the Republic of Azerbaijan was reflected in the Air Code from 1994 to 2005, the legal act in this field in our country is the Law of the Republic of Azerbaijan “On Aviation” which has been enacted since 2005. I would like to note that, the Law of the Republic of Azerbaijan “On Aviation” stipulates that aircrafts used in the country are airworthy and meet the requirements of environmental protection and have a relevant certificate. In addition, the Resolution of the Cabinet of Ministers of the Republic of Azerbaijan dated December 13, 2000 “About approval of Rules of transportation of dangerous goods by air transport” specifies which dangerous goods can be carried and the rules for carrying them, only one provision of these rules indicates the method of eliminating the consequences of hazardous waste. While examining the national legislation of Azerbaijan, it can be seen that, the other main act in this field is the Resolution of the Cabinet of Ministers of January 15, 2013 No. 3 “About approval of Rules of use of airspace of the Azerbaijan Republic”. Thus, these rules contain detailed information that, at what height and under what pressure and angle the aircrafts move and present the flight trajectories [13, 16, 18].

According to our research, it is clear from the national legislation of the Republic of Azerbaijan that, the inspection and assessment of the environmental impact of the aircrafts are carried out in advance, while the relevant certificates and permits are being issued to
them. We consider that, the environmental impact assessment and inspection of an aircraft should be carried out directly during air transport. Because certain defects in the details and devices of the aircraft during air transport will cause it to emit excessive amounts of waste and gases into the air.

Thus, when looking at the legislation of the Republic of Azerbaijan, we did not come across a set of rules or standards that detail the inspection and assessment of the environmental impact of aircraft traffic or civil aviation activities (flights). This is one of the urgent problems of today.

Considering the the impact of the civil aviation on the environment in the Baltic States and the legal norms related to the inspection or assessment of this impact, Article 34 called “nature protection requirements” of the second section entitled “Airworthiness and Environmental Protection Requirements” of the Aviation Law of the Republic of Lithuania No. VIII - 2066 of October 17, 2000 states that, only the aircrafts, which do not make more noise than the level set by the Minister of Environment and the Minister of Transport and Communications may fly in the airspace of the Republic of Lithuania [1].

Thus, it is evident from the law that, in the Republic of Lithuania there are standards for the amount of noise and aircrafts can not exceed this level.

In the Republic of Estonia, as in Lithuania, public relations in the field of civil aviation are regulated by the Law “On Aviation” dated February 17, 1999. Paragraph 7 of the Article 4 of this Law about the legal aspects of the impact of civil aviation on the environment states that, a permit for the flight of supersonic aircraft in the country’s airspace is issued by the relevant ministry, in case it does not pose a threat to the environment or other aircrafts. The second section of the law, in particular Article 15, contains provisions on the airworthiness and environmental compatibility of the aircrafts. It also discusses the existence of environmental standards and noise requirements for the flight of the aircrafts [4].

In the Republic of Latvia, the management and control in the field of civil aviation is carried out by the Civil Aviation Agency. Although the sources state that, there is no limit to the liability of aircrafts for causing damage to the land, two provisions of Article 97 of the Latvian Law “On Aviation” provide a brief explanation of the rules governing the liability of an aircraft for the damage to the third parties on Earth [6].

4 Conclusions

Having taken the abovementioned facts into account, we consider it necessary to adopt a separate set of rules in the Republic of Azerbaijan, that specify the weather conditions in which the aircrafts may fly or which maneuvers have a negative impact on the airspace, as well as the measurement and assessment of the amount of the gases and noise during the flight, intensity of the aircraft movement while abiding by distance and duration, flight and friction force, parking of the aircrafts in closed parks, monitoring of these processes and checking the environmental compatibility of the aircrafts, along with the damage assessment after aviation accidents and incidents, rehabilitation of landscape and area damaged by the accident, comprehensive control measures in this field and specific standards and norms on figures. Of course, we must emphasize the need for the adoption of such norms and standards in the Baltic States and other countries of the world in which they do not exist.

In addition, we draw a conclusion from our analysis that, in order to minimize the negative impact of civil aviation on the environment, it is necessary to adopt international conventions and agreements, to have and actively operate international and domestic control mechanisms, and to apply appropriate liability and sanctions. This includes
promoting the use of biofuels by electric motors or aircrafts, as well as the use of fuel-efficient and low-noise engines in the aircrafts. We consider that, this incentive should be reflected in national and international law, and the air operators abiding by these terms and conditions should be granted with appropriate benefits in the legislation (low taxation or exemption from taxes and duties, quick and long-term issuance of permits and certificates, etc.).

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