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CHALLENGES IN DEVELOPING THE ICAO PROACTIVE RISK MANAGEMENT TOOLKIT FOR CIVIL AVIATION FLIGHTS IN ARMED CONFLICT ZONES

Dmytro Bugayko, Ramil Mammadov, Huseyn Akhmadov. *"Challenges in developing the ICAO proactive risk management toolkit for civil aviation flights in armed conflict zones". The global air transport network is an open system subject to a vast array of interdependent and independent variables. This is particularly evident during periods of military conflict. Notable incidents such as the downing of Malaysia Airlines Flight MH17 by a Russian missile and the 2014 downing of a Ukraine International Airlines Boeing 737 by an Iranian surface-to-air missile starkly illustrate the vulnerability of civil aviation in rapidly shifting conflict zones. [1] The catastrophic events, including the downing of an Embraer 190 operated by Azerbaijan Airlines (Flight No. J2-8243, Baku-Grozny, December 25, 2024), underscore the urgent need to evaluate the effectiveness of international frameworks, particularly the International Civil Aviation Organization (ICAO). Under the 1944 Chicago Convention, ICAO is tasked with promoting flight safety in international air navigation [2], a mandate critical for the protection of civil aviation against the growing threat posed by military activities. This article seeks to undertake a rigorous legal analysis to evaluate the efficacy of current international civil aviation regulations*

and their capacity to mitigate similar aviation disasters in the future, alongside proposing measures to enhance the security of civil aviation amidst escalating global conflicts.

Keywords: analysis, aviation safety, aviation security, civil aviation, risk management, zones of armed conflict

Дмитро Бугайко, Раміль Маммадов, Хусейн Ахмадов. «Виклики розвитку інструментарію проактивного ризик менеджменту ІКАО щодо польотів цивільної авіації у зонах збройних конфліктів». Світовий авіаційний транспорт є системою відкритого типу, на яку мають вплив велика кількість, як пов'язаних, так і не пов'язаних між собою чинників.. Особливо це відчувається у період проведення воєнних дій. Катастрофа Боїнг 777 Малайзійських Авіаліній у наслідок влучення російської ракети та катастрофа у 2014 році Боїнг 737 Міжнародних авіаліній України в Ірані у наслідок влучення іранських протиповітряних ракет у 2020 році є прикладом вразливості цивільної авіації у швидкозмінних умовах воєнних дій [1]. Кількість жертв цих катастроф, а також катастрофи повітряного судна Embraer 190 компанії Azerbaijan Airlines, який виконував рейс № J2-8243, Баку – Грозний 25 грудня 2024 року обумовлює актуальність дослідження ефективності діяльності Міжнародної організації цивільної авіації, покликаної згідно з Конвенцією про міжнародну цивільну авіацію від 7 грудня 1944 року. та «сприяти безпеці польотів у міжнародній аеронавігації» [2]. У рамках цієї статті ми постараємося провести максимально об'єктивний правовий аналіз того, наскільки ефективно існуюче на сьогоднішній день міжнародно-правове регулювання діяльності цивільної авіації дозволяє запобігти подібним авіаційним пригодам у майбутньому і які заходи можуть бути вжиті з метою посилення захисту повітряного транспорту та його користувачів від головної небезпеки повітряного судна різними видами зброї.

Ключові слова: аналіз, безпека авіації, авіаційна безпека, цивільна авіація, ризик менеджмент, зони збройних конфліктів

Introduction. The soaring demand for civil aviation services for both passengers and cargo is increasingly juxtaposed with a disturbing rise in aviation accidents. A significant number of these incidents occur when aircraft traverse airspace embroiled in military operations or armed conflicts. The utilization of military weaponry constitutes a direct and potent threat to civil aviation. Catastrophes in the skies are not the result of technical malfunctions but rather are the consequences of decisions made on the ground, particularly the determination to allow flights over hazardous zones. As long as such flights continue, the risk to civil aviation remains ever-present. Unfortunately, despite extensive international efforts to mitigate global security threats, many regions of the world remain hotspots of political and military tensions. Aircraft traversing these regions remain vulnerable, caught in the crossfire of geopolitical strife.

The purpose of the article. This article aims to conduct a thorough and objective legal analysis of the present international legal framework governing civil aviation and its capacity to prevent future aviation accidents. Additionally, it will explore what measures can be instituted to bolster the protection of civil aviation users from the main risk posed by military weaponry targeting aircraft.

Presentation of the main results. Since its inception in 1944, the International Civil Aviation Organization (ICAO) has overseen the development of a robust regulatory framework aimed at safeguarding international air transport. Yet, the history of aviation is marred by over a dozen significant incidents in which military actions—intentional or unintentional have resulted in the destruction of civilian aircraft, claiming the lives of over 1,352 people [3]. These incidents highlight the vulnerability of civil aviation to military activities and the

limitations of current safety protocols in conflict zones.

An example of a national response to such threats was the situation when at the beginning of the Second Karabakh War, the Republic of Azerbaijan called on the International Civil Aviation Organization (ICAO) to bolster safety measures in its airspace due to the aggression and missile attacks by Armenia. The appeal stated that "Over the past few days, the Armenian Armed Forces have continued intensive shelling with medium- and long-range missiles at civilian targets on the territory of Azerbaijan. These actions pose a serious threat to civil aircraft operating international flights through the airspace of Azerbaijan."

Unfortunately, Azerbaijan and Ukraine have not bypassed such disasters. Despite the efforts of states and the international aviation community to ensure the safety of air transport, unfortunately, there are many threats to the safety of civil aircraft flights in the world nowadays, which include, in particular, military operations and other military activities conducted in various parts of our planet. The crash of a Malaysian Airlines Boeing 777 after being hit by a Russian missile and the 2014 crash of a Ukraine International Airlines Boeing 737 in Iran after being hit by Iranian anti-aircraft missiles in 2020 are examples of the vulnerability of civil aviation in the rapidly changing conditions of warfare. The tragedy that shocked the world community and once again clearly demonstrated the dangers faced by civilian aircraft flying in the airspace near areas where military actions take place was the accident involving Azerbaijan Airlines flight No. J2-8243 en route from Baku to Grozny on December 25, 2024. The plane crashed near Aktau city in Kazakhstan, where it was attempting to make an emergency landing. There were 62 passengers and 5 crew members on board. This disaster claimed the lives of 38 people, 29 survived. Despite the fact that a considerable amount of time has passed since the plane crash, numerous political, legal and other issues related to it

remain open and continue to be discussed at various levels [4].

The preliminary investigation concluded the following:

- the aircraft was subjected to an external impact that resulted in failure of its hydraulic systems and damage to the electrical wiring of the stabilizer control mechanism (pitch trim) prior to impact with the ground, caused by metal objects penetrating the aircraft components;

- the air traffic controllers responsible for providing services to the aircraft were not timely informed about operations under "Carpet" plan (closed skies regime) and subsequently did not inform the crew about restrictions in effect at the time of approach for landing at Grozny;

- the concerned flight was operated on an airworthy aircraft and no technical malfunctions that could affect safety of the flight were known, both pilots had necessary clearances and appropriate qualifications to operate the aircraft of this type [5].

According to government sources, the aircraft was hit by Russian surface-to-air missiles. Missile fragments struck passengers and crew members, exploding near the plane [4]. According to preliminary information from military experts, the plane was hit by the Russian Pantsir-S air defense system, and its communications systems were paralyzed by electronic warfare systems long before it approached Grozny [6].

Thus, as can be seen from the above, the air crash of December 25, 2024 was not associated with any technical malfunction of the aircraft or, for example, with the so-called human factor (in particular, with errors of the pilot or air traffic controller), but occurred as a result of the aircraft being hit by an external high-speed object during its go-around after an unsuccessful landing approach at the airport of the city of Grozny, which was open for international flights of civil aircraft. Although it is obvious that the prevention of air accidents similar to the one that occurred with the Embraer 190 aircraft of Azerbaijan Airlines depends on many factors of an

organizational and technical nature (including, for example, the timeliness and completeness of the provision of the necessary aeronautical information, the accuracy of the coordination of the actions of air traffic services, etc.), it seems that it is the proper international legal regulation of civil aviation activities and issues of ensuring its safety that can and should play one of the primary roles in solving this problem. And it is very interesting to find out what type of safety & security in civil aviation the issues of this incident relate to?

Therefore, it seems appropriate to consider the documents developed within the framework of ICAO in order to ensure the safety of civil aviation flights in a situation of armed conflict in the territory of a state.

The basis of the international legal regime for ensuring safety of civil aircraft flights in combat areas is made up of treaty and customary norms of international law, as well as standards and other acts adopted by ICAO. Article 9 of the Convention "Prohibited Zones" states: "a) Each Contracting State may, for reasons of military necessity or public safety, restrict or prohibit on a uniform basis the flights of aircraft of other States over certain areas of its territory ...". The Chicago Convention of 1944 only confirms the right of each state based on the principle of state sovereignty over airspace, but does not oblige it to prohibit or restrict flights of aircraft within its territory if any danger arises. At the same time, the Convention establishes that the exercise of this sovereign right should not be discriminatory on the basis of the nationality of the aircraft.

The standards and recommended practices adopted by ICAO and contained in the annexes to the 1944 Chicago Convention regulate in sufficient detail the actions of States in cases where there is an activity that creates a threat to the safety of international air navigation. According to paragraphs 2.18 and 2.19 of Annex 11 to the 1944 Chicago Convention, the implementation of activities that create a potential hazard to civil aircraft must be coordinated in advance between the

air traffic services units and the military authorities of the State in order to ensure optimal conditions that will avoid creating a hazard to civil aircraft and minimize interference with the normal operation of their flights [7]. Standard 5.1 of Annex 15 to the Convention ("Aeronautical Information Services") requires States to issue NOTAM (Notice to Airmen) in the presence, among other things, of "...sources of danger to air navigation (including obstacles, military exercises...)" [8].

The ICAO Manual on Safety Measures Relating to Military Activities Potentially Hazardous to Civil Aircraft Operations, which provides guidance for the application of Annex 11 to the 1944 Chicago Convention [9], and Circular 330 "Civil/Military Air Traffic Management Cooperation" [10], developed by ICAO experts and containing recommendations and successful practical examples in the field of civil/military cooperation, also speak about the need for close coordination of military and civil air traffic services when hazards to civil aircraft operations arise, such as armed conflicts, and indicate that responsibility for initiating the coordination process lies with the State whose armed forces are involved in the conflict. There are a number of ICAO documents regarding aeronautical communications, establishing the methods and rules for the exchange of information. These include:

- Annex 11 ("Aeronautical Communications");
- Procedures for Air Navigation Services. ICAO Abbreviations and Codes (Doc 8400);
- Location indicators (Doc. 7910);
- Designators for Aircraft Operating Agencies, Aeronautical Authorities and Services (Doc. 8585).

It can therefore be concluded that the ICAO documents establish the responsibility of the State in whose territory a conflict occurs for ensuring the safety of foreign civil aircraft. The ICAO notes that the safety measures to be taken depend on the State's assessment of the degree of danger to the passage of

foreign civil aircraft. Therefore, the State providing air traffic services is forced to make difficult decisions, taking into account the fact that an error may entail additional risks for civil aircraft.

On 27 October 2014, during the 1st meeting of the 203rd session, the Council considered working paper C-WP/14227, "Risk Assessment of Operations Over Airspace Affected by Armed Conflict – Responsibility of States for Ensuring the Flight Safety of Civil Aircraft Within Their National and Delegated Airspace over Armed Conflict Zones of Military Exercises", submitted by the State of Bolivia. In particular, the document noted that "The use of unreliable or deliberately distorted information on the existence of a risk in the airspace of third countries or in the airspace of third countries with great concern does not produce any results". On the contrary, the consideration of such assessments carried out on the basis of unreliable information may be the introduction of unjustified restrictions for the protection of those performing the functions of flights, or conversely, the unjustified continuation of flights in the airspace over zones where there are risks associated with the military zone, providing a dangerous for the occurrence of air waves. Also, the dissemination of unconfirmed information with a high probability can be used for the purposes of unfair competition." Thus, although the Chicago Convention enshrines the principle of complete and exclusive sovereignty of the state, including the sovereign right to act in this air zone of prohibited zones, it does not contain provisions expressly provided by the States Parties in certain cases, limiting restrictions or prohibitions for flights causing air flows in the airspace over all or part of their territory. Such implementation will obviously have a positive impact on the establishment by States of adequate restrictions on the use of sovereign or civil airspace and ensuring the objective conduct of investigations into the implementation of aviation accidents as a result of acts of gradual transition to civil

aviation activities. On the contrary, the absence of such obligations and responsibility on the part of States creates favorable grounds for the use of weapons against the movement of aircraft in flight, and does not encourage the State to cooperate in the investigation of aviation accidents. There are objective reasons to consider this incident in the context of aviation safety.

Following the tragic accident with the Malaysian Boeing, governments established an ICAO task force that developed a comprehensive program for civil aviation flights in conflict zones. In accordance with these recommendations, amendments were made to the Chicago Convention, as well as other international instruments regulating civil aviation safety. New regulations were also issued to reduce the risks of flights over conflict-affected areas. In 2023 ICAO issued updated guidance material to assist aviation regulators and operators in managing their airspace during conflicts, including deciding whether to allow or prohibit flights over or near conflict zones.

This article is a continuation of a number of publications by the authors devoted to the problems of civil aviation proactive safety & security risk management [1, 11 - 16].

Conclusions. The Republic of Azerbaijan and Ukraine support the efforts of ICAO and other international organizations that would contribute to the most complete and effective implementation of UN Security Council Resolution 2166, in order to ensure a comprehensive, thorough and independent investigation of the air crash in accordance with ICAO guidelines, as well as the development and implementation of measures aimed at ensuring civil aviation safety & security in order to prevent such incidents with civil aircraft, including in armed conflict zones.

The motto of ICAO, "Aviation Uniting the People of the World," encapsulates the ultimate goal of global civil aviation: the safe and secure movement of people and goods across borders, regardless of the geopolitical challenges that may arise.

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