



ASSEMBLY — 42ND SESSION

EXECUTIVE COMMITTEE

Agenda Item 13: Aviation Security – Policy

JOINING EFFORTS TO MITIGATE RISKS ASSOCIATED WITH THE MALICIOUS USE OF AIRSPACE INVOLVING UNMANNED AIRCRAFT SYSTEMS

(Presented by Colombia and sponsored by 16 Member States of the Latin American Civil Aviation Commission (LACAC)²)

EXECUTIVE SUMMARY

This paper presents a proposal for ICAO South America (SAM) Office to promote and prioritize the development and update of Standards and Recommended Practices (SARPs) for the safe management and use of airspace to address the misuse of drones. The goal of the proposal is that, as a matter of priority and through its regional planning groups, ICAO recommends actions, regulations and Standards aimed at harmonizing criteria among States to mitigate the risk posed by the malicious use of airspace and unmanned aircraft for terrorist purposes. Such actions are essential for the proper use of emerging technologies in unmanned aviation, to enhance airspace control, safety and security, and to promote the sustainable and reliable development of the aviation sector, as well as to ensure public trust in the peaceful use of airspace by this type of aircraft.

Action: The Assembly is invited to:

- a) convey to the ICAO Council the urgency to prioritize the regulation and control of unmanned aircraft to protect aviation safety and security, critical infrastructure and human lives;
- b) urge States to promote regulatory frameworks, control strategies, and management technologies and methodologies in their respective airspaces to minimize the risk of unmanned aircraft being used to commit terrorist acts;
- c) recommend that Member States encourage the development of unmanned aviation under safe and secure operating standards by adopting measures to control the manufacture, marketing and operation of unmanned aircraft; and to raise awareness among all stakeholders about the importance of creating a collaborative airspace, as well as to manage the implementation of a global system to exchange data on identified threats and best control practices;
- d) recommend that Member States develop awareness strategies to increase public aeronautical knowledge on unmanned aviation with the goal of promoting safety and security, ensuring that unmanned aviation becomes a development keystone in every country; and
- e) recommend that Member States develop inter-agency coordination mechanisms with their national security agencies aimed at reducing the risk of misuse of unmanned aircraft for illegal and/or terrorist purposes.

¹ Spanish version provided by Colombia.

² Belize, Bolivia (Plurinational State of), Cuba, Dominican Republic, Ecuador, El Salvador, Guatemala, Honduras, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Peru, Uruguay and Venezuela (Bolivarian Republic of).

<i>Strategic Goals:</i>	This working paper relates to <i>Every Flight is Safe and Secure, and Aviation Delivers Seamless, Accessible, and Reliable Mobility for All</i>
<i>Financial implications:</i>	
<i>References:</i>	Circ 328 AN/90: Unmanned Aircraft Systems (UAS) -December 2011 ICAO Model UAS Regulations - Parts 101 and 102 (June 2020) and Part 149 (June 2020) Advisory Circular (AC) 101–1: Unmanned Aircraft Systems (UAS) [25 kilograms or less] Operating in compliance with Part 101 rules – June 2020. Advisory Circular (AC) 102–1: Unmanned Aircraft Systems Operations – Certification – June 2020. Advisory Circular (AC) 102–37: Carriage of Dangerous Goods by Unmanned Aircraft Systems– June 2020. UAS CNOPS (Operational Concept for Unmanned Aircraft Systems) - ICAO SAM - March 2023 Annex 6, Part IV – International Operations – Remotely Piloted Aircraft Systems (RPAS) - July 2024 Drones market: https://www.informesdeexpertos.com/informes/mercado-de-drones [in Spanish]. Webpage available in English: https://www.expertmarketresearch.com/reports/drones-market

1. INTRODUCTION

1.1 In its Preamble, the Chicago Convention indicates that “the future development of international civil aviation can greatly help to create and preserve friendship and understanding among the nations and peoples of the world, yet its abuse can become a threat to the general security”.

1.2 Fast advances in unmanned aircraft technologies have created unprecedented opportunities in several industries, such as agriculture, entertainment, logistics and surveillance, among other practical uses, which have allowed for mass access to airspace. This, however, also poses significant risks, particularly related to domestic, regional, and international security, as unmanned aircraft systems have been directly involved in harmful activities.

1.3 To date, unmanned aircraft capable of carrying dangerous goods and explosives are being manufactured, sold, and used, given the relative lack of specific regulations and controls and clear standards, which has allowed for their malicious use aimed at causing harm to infrastructure and human beings, contrary to the principles upholding the use of aviation for peaceful purposes.

1.4 Terrorist and outlaw groups have adapted unmanned aircraft for intelligence collection purposes, attacks with explosives and weapon delivery. Examples include attempted attacks since 1994 in Colombia, Iraq, Japan, Pakistan, Russia, Syria and Venezuela. Commercial drones have grown in speed, flight range and payload capacity, with some models being capable of operating in air, land and water. Advances in autonomous navigation software have made their detection and neutralization increasingly difficult, which has made this issue a top security priority for States.

1.5 It is the duty of the Assembly to preserve public trust in aviation for the sake of air transport development. In this regard, global acceptable levels of safety and appropriate regulations must be ensured, as well as the perception of air transport as a public utility, which is particularly important in the case of drones, since their misuse has caused concern about their impact on the security of airspace, airports and human lives alike.

1.6 This is a global problem, from manufacturing to use, registration, ownership and second-hand market, as indicated in a market report on drones: "The global drones market size reached approximately USD 30.64 billion in 2024. The market is further projected to grow at a compound annual growth rate of 10.30% between 2025 and 2034, reaching a value of approximately USD 75.21 billion by 2034." (www.informesdeexpertos.com), which calls for action along the whole drone manufacturing and sales process.

1.7 The industry itself has, for its part, developed detection and neutralization systems to prevent drone misuse that involve different forms of anti-drone airspace protection, ranging from radio frequency or GPS signal blocking to the use of radars, among other alternatives in the market, which calls for the introduction of standards to further prevent airspace misuse and to protect assets and critical infrastructure.

2. DISCUSSION

2.1 In 2024, commercial drone flight hours reached 10.8 million, with a 29% increase from 2023 figures. Asia leads, with 3.8 million hours, followed by Europe and North America. The VLOS mode continues to be the most widely used, with up to 61% global growth, with a marked increase in South America and Oceania. In contrast, BVLOS faces challenges in most countries, except in Asia and MEA, where it has grown significantly, with only a moderate increase in Europe and North America, according to *Drone Industry Insights Data*.

2.2 Evidence of the irrational use of unmanned aircraft systems to cause harm can be found in many events around the globe. Therefore, it is crucial that ICAO give special priority to this issue and develop guidelines and standards that define procedures to control advanced technologies that possess certain payload and autonomous flight capabilities, as a mitigation measure to prevent the misuse of airspace for terrorist purposes through the use of unmanned aircraft systems.

2.3 Easy access to commercial drones has allowed non-State actors, without air forces, to conduct remote and premeditated attacks. With minimal investment, drones may be modified by adding launch mechanisms and explosive loads to damage critical infrastructure, such as ports, military facilities and power plants. From 2018 to September 2024, 810 drone attacks have been recorded, resulting in 1 300 dead and 1 500 injured, with a marked increase after October 7, 2023. (Source: Orion Policy Institute and Global Terrorism Trends and Analysis Center).

2.4 These events reflect the growing role of civilian drones in international conflicts, showing how outlaw groups have made them key weapons for transnational attacks. Their ease of access and low cost reinforce the urgency of developing more effective security and regulatory strategies to address this threat.

2.5 As the use of drones spreads, risk assessments become essential to protect critical infrastructure and vulnerable populations. Without fully effective detection and neutralization systems, strategic assets remain exposed, which represents one of the biggest challenges for global security policymakers. In particular, the economic imbalance between the cost of drone strikes and of anti-drone defence systems makes an effective response difficult.

2.6 Advances in drone technology are transforming terrorist tactics, allowing for non-State actors to commit low-cost, high-impact attacks. Governments still face significant challenges to protect their critical infrastructure effectively in the face of this growing aerial threat; therefore, as a global priority, this issue must be analysed to set up controls on the industry, from manufacturing to operation.

2.7 Four key strategies for the effective implementation of measures to mitigate possible misuse of unmanned aircraft are submitted for consideration. These strategies are designed to address both regulatory and technical considerations necessary to ensure the safe and efficient integration of these technologies in airspace. These strategies are outlined below:

2.7.1 **Develop regulations to control the production of unmanned aircraft systems based on their capabilities:** It is proposed that a solid regulatory framework be created to regulate the production and distribution of unmanned aircraft, based on their payload capacity, technology, and airspace areas accessible for their operation. The implementation of such a framework is crucial to ensure that their manufacturing, practical uses by the public at large, and control mechanisms are developed safely and efficiently, mitigating risks from design to operation. With a structured approach, this regulation would ensure adequate control of unmanned aircraft systems, allowing for their responsible development without compromising aviation safety or critical infrastructure.

2.7.2 **Develop standards to control the sale of unmanned aircraft systems and their registration:** It is proposed to develop specific standards to control the sale of unmanned aircraft systems and for their registration in a centralized database, supervised by the civil aviation authority of each country and shared on a common global platform. It is also proposed to establish a unified system to standardize, integrate and regulate the purchase of these systems, including background checks on buyers, in coordination with the United Nations agencies involved in this strategy.

2.7.3 **Airspace access control and slotting:** It is necessary to promote the development of drone detection and neutralization technologies in critical areas, such as airport infrastructures; in areas defined as strategic by each ICAO Member State, and particularly to protect human lives, as well as vital and critical infrastructure under the responsibility of their Civil Aviation Authority. This requires a detailed approach that allows each Civil Aviation Authority to establish No-Flight Zones for unmanned aircraft systems; these, together with sales control and registration regulations, aim at ensuring that terrorist acts are prevented at the source, from manufacturing to slotting, in airspace where UAS are allowed to operate by manufacturers, strengthening aviation security and protecting essential infrastructure.

2.7.3.1 Another proposal is to encourage the use of anti-drone systems to limit and control airspace use in areas that have been defined as No-Flight Zones, and to implement geo-awareness and geofencing capabilities for unmanned aircraft system operators.

2.7.4 **International cooperation:** It is essential to create a mechanism to share information on incidents and malicious acts involving unmanned aircraft, as well as on efficient control strategies implemented by aviation authorities. Also, key are cooperation agreements to coordinate efforts to investigate, detect and neutralize threats, especially those that affect aviation safety, aeronautical infrastructure and the protection of human lives.

2.8 To address these challenges, the Assembly is urged to convey to the Council of the International Civil Aviation Organization (ICAO) the urgency to develop guidelines or recommendations to set up a common framework to minimize and/or control the likelihood of unmanned aircraft being misused to commit malicious acts. Such a framework would lay the foundation for Member States to adopt standards and recommended practices safely and in a harmonized manner, respecting the sovereign rights of ICAO Member States over their airspace.

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