



WORKING PAPER

ASSEMBLY — 42ND SESSION

TECHNICAL COMMISSION

Agenda Item 24: Aviation Safety and Air Navigation Priority Initiatives

PRIORITIZING THE URGENT DEVELOPMENT AND IMPLEMENTATION OF AN INTERIM SOLUTION TO FACILITATE LEGALLY COMPLIANT AND SAFE UNMANNED AIRCRAFT SYSTEMS (UAS) OPERATIONS OVER THE HIGH SEAS

(Presented by Australia, co-sponsored by Brazil and New Zealand)

EXECUTIVE SUMMARY

Recognizing the difficulties in lawfully approving the safe conduct of many high-value and important unmanned aircraft systems (UAS) operations over the high seas, as well as the growing need to enable those operations today, ICAO is urged to prioritize the expeditious development and implementation of an interim solution to facilitate UAS operations over the high seas in a manner that is compliant with the legal requirements of the *Chicago Convention* and achieves an appropriate level of safety.

Action: The Assembly is invited to:

- a) *Recognize* the obligation and prerogative of States to ensure that they authorise UAS operations over the high seas in a safe and lawful manner;
- b) *Recognize* the need for ICAO to urgently prioritize an interim solution to enable safe and lawful UAS operations over the High Seas, while continuing work to develop an enduring approach;
- c) *Urge the Council to* prioritize the development and approval of an interim solution to enable the safe and lawful operation of UAS over the high seas by 31 December 2026 by:
 - 1) acknowledging and confirming the bases on which UAS operations over the high seas may proceed today on an interim basis within existing legal frameworks;
 - 2) developing pragmatic outcome-based criteria consistent with the intent of the *Chicago Convention* to facilitate an acceptable means of compliance with the safety architecture of the Annexes; and
 - 3) acknowledging the need for continued consideration and development of an enduring framework for the safe and lawful conduct of UAS operations over the high seas having regard to the principles reflected in the development and implementation of an interim solution.

<i>Strategic Goals:</i>	This working paper relates to: - <i>Every Flight is Safe and Secure;</i> - <i>Aviation Delivers Seamless, Accessible, and Reliable Mobility for All;</i> - <i>The Economic Development of Air Transport Assures the Delivery of Economic Prosperity and Societal Well-Being for All; and</i> - <i>The International Civil Aviation Convention and other Treaties, Laws and Regulations address all Challenges.</i>
<i>Financial implications:</i>	Nil.
<i>References:</i>	Recommendation 5.2/1 of the 13th Air Navigation Conference.

1. INTRODUCTION

1.1 The growth in capability of unmanned aircraft systems (UAS) is providing new ways to conduct important tasks, often in a manner that is more efficient, more effective and safer than the conduct of such operations in conventional aircraft. On this basis, significant demand is growing for UAS to enable many important activities, including over the high seas, such as search and rescue, humanitarian work, freight and logistics, surveillance, law enforcement, scientific endeavours and natural resource management.

1.2 Many States have developed mature regulatory frameworks and processes for considering and approving safe and lawful UAS operations within their territorial airspace. However, UAS operations over the high seas fall under the *Convention on International Civil Aviation (the Chicago Convention)*, which did not envisage the particulars for the regulation of UAS that have emerged in recent times, thereby effectively complicating or preventing the lawful authorisation of those operations.

1.3 Following the AN-Conf/13 recommendation that ICAO develop a solution to enable States to authorize operations of non-certificated UAS over the high seas, various ICAO expert groups have been tasked to consider and provide advice on the range of issues associated with developing a comprehensive framework to enable UAS over the high seas. It is recognised that the development of this novel comprehensive framework to form an enduring approach will take a significant amount of time and consideration.

1.4 While ongoing exploration and consideration on these issues continues, many important and vital UAS operations over the high seas are not proceeding. This is significantly impacting the capability and effectiveness of many organizations and legitimate activities. Many States face increasing operational and economic pressures to apply national solutions that might be seen to conflict with the foundational principles of the *Chicago Convention*. Furthermore, in the absence of a multilateral approach, some operators may be incentivized to provide UAS services without authorization or oversight.

1.5 The expeditious development of a pragmatic interim solution will enable these valuable UAS operations over the high seas to occur in a manner that is safe and compliant with the applicable legal requirements of the *Chicago Convention* and facilitate consistency in acceptable levels of safety, in advance of continuing longer-term efforts to settle an enduring approach.

2. DISCUSSION

2.1 A number of expert ICAO groups have been exploring the pathway to enabling UAS operations over the high seas. Two key aspects of this issue have emerged that require attention:

- a) operations must be consistent with the legal basis in the *Chicago Convention*; and
- b) a mechanism to ensure all UAS operations over the high seas achieve an acceptable level of safety.

2.2 Confirming the enabling legal bases for operations

2.2.1 In keeping with the principles underpinning the *Chicago Convention*, ICAO and Member States seek to achieve the Convention's objectives on clear legal bases, reflecting broad trust in, and a commitment to, our multilateral approach to maintaining the safety of international aviation and international air navigation.

2.2.2 A key provision of the *Chicago Convention* that is integral to safety is the requirement of Article 31 that every aircraft engaged in international navigation shall be provided with a certificate of airworthiness issued or rendered valid by the State in which it is registered. However, most UAS rely on other certification pathways that are more appropriate for UAS that do not involve a standard certificate of airworthiness of the kind normally contemplated for crewed aircraft.

2.2.3 Other aspects of the *Chicago Convention* also require consideration to determine their appropriate applicability to UAS operations, including: Article 8 *Pilotless Aircraft*; Article 12 *Rules of the Air*; Article 20 *Display of Marks*; Article 29 *Documents carried in aircraft*; Article 32 *Licences of personnel*; Article 33 *Recognition of certificates and licences*; Article 34 *Journey log books*.

2.2.4 Informed by the ongoing work of the Secretariat Study Group on Legal Issues Related to Pilotless Aircraft (*SSG-LIPA*), a number of States have identified tenable legal bases on which UAS may effectively comply with all applicable provisions of the *Chicago Convention* today, pending the development and adoption of enduring standards formally governing those operations.

2.3 Standardizing outcome-based safety criteria for interim authorizations

2.3.1 Many States have existing safety regulatory frameworks and base assessments for UAS operations on rigorous standards and processes with widespread international acceptance. Risk-based consideration of authorizations for UAS operations that address air and surface risks to preserve the required levels of aviation safety are in use today by many Member States, often in complex airspace environments. As a practical matter, the use of these existing standards and processes to manage air and surface risks for UAS operations over the high seas are effective, having regard to the nature and extent of the safety risks extant in those kinds of environments.

2.3.2 In the absence of a formally adopted, comprehensive multilateral safety framework for operations over the high seas, expert groups within ICAO have been considering the use of widely recognised high-level outcome-based criteria that could ultimately be included in Annex 2 to provide a global standard for authorizations by states of registry consistent with the *Chicago Convention* in order to achieve an acceptable level of safety. An example of outcome-based safety criteria that could be considered is:

- a) undertaking an air risk and ground (surface) risk assessment leveraging existing frameworks or standards with widespread international acceptance;
- b) operators hold appropriate State-issued authorisation and have necessary experience; and
- c) States have appropriate, legally enforceable operational risk management conditions imposed on flight authorisations.

2.3.3 In order to ensure an interim solution remains appropriate until an enduring approach can be settled, and to promote the efficient use of ICAO resources, any interim safety criteria must be outcome-based to ensure operations can safely evolve without necessitating further effort for continual reform of the interim solution.

2.4 A pragmatic pathway forward – an interim solution in advance of continuing work to develop a comprehensive enduring framework

2.4.1 It is vital that an interim solution is pragmatic and implemented in an expeditious manner. Effective and appropriate as they can be expected to be, the implementation and evolution of interim solution models will inform the development of approaches to the management of more complex issues and challenges, which can then be reflected in a more comprehensive and enduring framework.

2.4.2 It is recognized there are many complex and important matters required to inform a more considered and enduring approach, such as catering for more complex operations and/or increased scale. However, this tension with preparing a thorough approach to cater for the future operational environment needs to be balanced against the impact of preventing the current and near-term operations over the high-seas that are largely low risk and/or already occurring within the territorial airspace of States in often more complex airspace and with higher inherent ground risk.

2.4.3 Given this urgent need to facilitate UAS operations over the high seas more immediately, a pathway for implementing an interim solution could:

- a) leverage existing work and advice already being undertaken by expert groups within ICAO to:
 - 1) identify and acknowledge the legal basis on which UAS operations over the high seas may be conducted within the existing legal framework;
 - 2) settle outcome-based high-level safety criteria consistent with established practice in many States to ensure harmonized consideration of authorizations by States of registry for UAS operations over the high seas consistent with principles of the *Chicago Convention*; and
- b) urge the approval of such arrangements by the Council to facilitate the expeditious implementation of an interim solution.