International Civil Aviation Organization

A39-WP/95
TE/23
25/7/16

WORKING PAPER

ASSEMBLY — 39TH SESSION

TECHNICAL COMMISSION

Agenda Item 33: Aviation safety and air navigation monitoring and analysis

REMOTELY PILOTED AIRCRAFT SYSTEMS (RPAS)

(Presented by Slovakia on behalf of the European Union and its Member States[1], the other Member States of the European Civil Aviation Conference[2]; and by EUROCONTROL)

EXECUTIVE SUMMARY

The development of the remotely piloted aircraft systems (RPAS) industry has been accelerating over the recent years. Especially the small RPAS industry seems as the most dynamic one. To address this growing reality, a number of States have developed provisions regulating the use of RPAS.

Whereas a substantial part of the RPAS activities are expected to remain outside the traditional ICAO remit and raise issues beyond safety, RPAS operations will eventually engage in international civil aviation. Therefore, ICAO should prioritize the development of provisions that would support the establishment of the legal framework for the operation of RPAS in ICAO Contracting States. Furthermore, there is a need to ensure global coherence of provisions that are adopted at State, regional and global levels.

Action: The Assembly is invited to:

a) call upon ICAO to identify potential barriers to the RPAS industry development in the Chicago Convention, Standards and Recommended Practices (SARPs) and related material; and to take actions accordingly while ensuring the safety and security of operations;
b) call upon ICAO to promote a coherent framework for RPAS operations through consistent provisions regulating RPAS in international operations taking into account ongoing developments at national, regional and international levels (e.g. the Joint Authorities for Rulemaking on Unmanned Systems (JARUS)); and
c) urge ICAO and its Contracting States to focus activities within the ICAO framework on core tasks, namely international civil aviation and international RPAS operations, and to further prioritize ongoing work in that regard, taking into account the need for a flexible, risk-based and innovative regulatory approach.

[1] Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxemburg, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden and United Kingdom

[2] Albania, Armenia, Azerbaijan, Bosnia and Herzegovina, Georgia, Iceland, Republic of Moldova, Monaco, Montenegro, Norway, San Marino, Serbia, Switzerland, The former Yugoslav Republic of Macedonia, Turkey and Ukraine

Strategic Objectives:	This working paper relates to all Strategic Objectives.
Financial implications:	The activities referred to in this paper will be undertaken subject to the resources available in the 2017-2019 Regular Programme Budget and/or from extra budgetary contributions.
References:	Convention on International Civil Aviation and its Annexes A39-WP/107

1. INTRODUCTION

1.1. Remotely piloted aircraft systems (RPAS)[3] operations are representing today a marginal part of aircraft operations globally. Yet, it is estimated that about 10 per cent of civil aviation will be unmanned in just ten years' time. The development of the RPAS industry is reflective of technological advances and evolving automation. The small RPAS industry appears currently as the most dynamic one.

1.2. This provides great, possibly almost unlimited opportunities from an economic point of view but also in many other aspects such as social conditions and welfare. At the same time the RPAS are bringing about with them new elements and considerations that will bring significant changes to the aviation landscape.

1.3. A regulatory approach to RPAS should be built on safety and security principles of aviation, while accepting the specifics of the rapidly evolving technology and related operations. This regulatory approach should also cover other kinds of unmanned aircraft operations.

2. DISCUSSION

2.1. *Challenges*

2.1.1. The RPAS industry is expanding while the development of proportionate international standards that take into account the diversity of the RPAS and their operation lags behind. Operating the RPAS without a regulatory framework adjusted to the complexity of the operations may jeopardize the safety and security of aviation. Moreover, as the span of RPAS operations is much wider than in the traditional manned operations, the span of safety risk is much wider.

2.1.2. The diversity of RPAS and of RPAS operations can lead to the identification of two main types of challenges: the ones posed by large RPAS that are to be integrated into international air navigation, and the ones posed by small RPAS which, while not being intended for international operations, could threat civil aviation safety when operated nearby or within the same environment as international flights.

[3] For the purpose of simplification, the term RPAS is used in this working paper, but it is understood that other terms such as UAVs, UAS, unmanned aircraft or drones may be used by States to refer to this new category of aircraft.

2.1.3. As RPAS are driven by technological innovation, the use of RPAS should be regulated in a timely and appropriate manner avoiding over regulating an activity whose characteristics are not yet well known and appear very dynamic and changing. Any regulatory intervention should be performance oriented and risk based, serving the purpose of maintaining and enhancing the safety, security, operational efficiency, economic effectiveness and environmental efficiency of air transport. The RPAS rules should be proportionate and flexible in order to take into account the diversity of the equipment and their operations.

2.1.4. The RPAS activities bring along actors that have no prior experience and/or understanding of the framework in which traditional, manned aircraft operations are carried out. Therefore the Contracting States should provide support to them where relevant (e.g. informing on legal framework, facilitating training activities, producing guidance, etc.).

2.2. *Ongoing initiatives and their rationale*

2.2.1. To address the growing reality of RPAS operation expansion, a number of States have developed or are developing provisions regulating the use of RPAS in a national or regional context (see notably information paper A39-WP/107 on recent developments in the European Union framework).

2.2.2. At the global level, Article 8 of the Chicago Convention establishes high-level principles regarding pilotless aircraft which will need to be considered in ICAO work on the development of provisions addressing the integration of the various components of the RPAS into the aviation system.

2.2.3. Beyond ICAO, the Joint Authorities for Rulemaking on Unmanned Systems (JARUS) constitutes a worldwide group of regulatory experts from States and has strong connections with the industry. Their purpose is to recommend a single set of technical, safety and operational requirements for all aspects linked to the safe operation of RPAS.

2.2.4. These initiatives are important for two reasons. Firstly, small RPAS allow for operations that were not imaginable for traditional manned aviation. This broadens the span of possible mitigations of the risks that need to be regulated and, consequently, the provisions must become more flexible than for manned aviation.

2.2.5. Secondly, provisions originally intended to address safety concerns are also serving other objectives, for example, the registration or identification requirement for safety purposes also facilitates the work of police or security forces. Although not within the scope of ICAO, issues such as privacy or data protection need to be taken into account in order to ensure wide acceptance of any proposed international RPAS framework. Issues mentioned above highlight the need for good coordination between the initiatives that Contracting States are undertaking in the context of JARUS and the work that ICAO is undertaking in its remit.

2.3. *Need for coherent approach at global level in a timely manner*

2.3.1. Whereas most of the current RPAS activities are not engaged in international civil aviation and may remain outside the traditional ICAO remit, it is clear that RPAS technologies will also be used for aircraft engaged in international operations. Therefore, Contracting States need to develop the ICAO legal framework that would modernize the application of Article 8 of the Chicago Convention and would facilitate such "pilotless" aircraft operations. These considerations are supporting the introduction of greater flexibility in ICAO provisions.

2.3.2. Ongoing work within ICAO on the development of provisions for supporting RPAS integration into traditional, international civil aviation should, therefore, be further prioritized in the work programme of ICAO. This would help States in the development of national or regional legal frameworks and ensure overall consistency between local and global provisions.

2.3.3. As for RPAS operations presenting a lower level of risk, it is of prime importance that provisions concerning international unmanned civil aviation are designed accordingly, without necessarily copying and pasting the regulatory approaches and structure of the regulations applying to manned aircraft.

2.3.4. Furthermore, ICAO should promote the sharing of information among States to achieve a better understanding of the safety risks posed by RPAS.

2.3.5. To contribute to the achievement of these objectives, ICAO is encouraged to identify potential limitations to RPAS industry development in current provisions and related material.

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