



**WORKING PAPER**

**ASSEMBLY — 41ST SESSION**

**TECHNICAL COMMISSION**

**Agenda Item 31: Aviation Safety and Air Navigation Standardization**

**THE NEED FOR INTERNATIONALLY HARMONIZED STANDARDS FOR DRONES USED FOR HIGH RISK FLIGHT**

(Presented by Japan)

**EXECUTIVE SUMMARY**

In Japan, beyond visual line of sight (BVLOS) flights over people by drones will commence from December this year. In order to secure the safety of BVLOS flights over people by drones, registration of drones has been mandated, and drone safety certification system and pilot licensing system will be introduced. Especially, it is highly probable that a large drone causes a serious damage to people and property on the ground if it crashes during the flight over people, therefore, each aviation authorities of Member State should undertake an important role to ensure the safety of its citizens with respect to the flight of such drones. However, in view of the fact that the safety standards for drones of each State are not necessarily harmonized at present, this paper proposes that ICAO take the leadership to establish harmonized standards at least for the drones the could affect the safety of the general public.

**Action:** The Assembly is invited to:

- a) note the commencement of BVLOS flights over people by drones in Japan; and
- b) recommend ICAO to consider establishing common safety standards for large drones that perform high-risk flights such as BVLOS flights over people for the safety of general public, taking into account that those drones are actively traded internationally, if not make international flights.

<i>Strategic Objectives:</i>	This working paper relates to Strategic Objective of Safety.
<i>Financial implications:</i>	Not significant.
<i>References:</i>	

## 1. INTRODUCTION

1.1 The use of drones has spread rapidly in recent years, creating new industries and services in areas such as aerial photography, goods transportation, pesticide spraying, and infrastructure inspection. Furthermore, drones are expected to play a key role in maintaining people's daily life right after disasters by transporting supplies and medicines to isolated areas, surveying infrastructure damage to identify the most effective way of recovery of its function, or by serving as a radio station flying above an affected area. Some of the large drones used in Japan weigh as much as approximately 100kg, and the weight and payloads of drone are expected to increase further.

1.2 The Japanese government is properly managing the ever-increasing number of drones by its drone registration system. In addition, BVLOS flights over people by drones will commence from December this year to further expand the use of drones while ensuring flight safety under a newly developed legal framework.

1.2.1 Regarding the proper management of drones, as of June this year, it became mandatory for all drones weighing 100g or more to be registered with the government, to display the registration ID on the drone, and to be equipped with a remote identification function. As of the end of July this year, 290,000 drones were already registered in total.

1.2.2 In order to secure the safety of BVLOS flights over people by drones from December this year, the new legal framework introducing a drone safety certification system (Category One and Two of Drone Certification), a pilot licensing system (Category One and Two of Pilot Qualification) and operation rules (e.g., filing flight plans, keeping flight logs) will come into effect. In particular, as Japan is a densely populated country, our regulation requires Cat. 1 Drone Certification and Cat.1 Pilot Qualification to carry out BVLOS flights over people to ensure the higher level of safety. Therefore, drones to be exported to Japan and to conduct BVLOS flights over people are basically required to obtain Cat.1 Drone Certification.

1.3 In regard to UAS traffic management, the function to share and coordinate drone flight plans before taking off (strategic deconfliction) has been integrated into the FISS (Flight Information Sharing System) in 2019. As drones are expected to fly more frequently in the future, Japan is looking at deploying UAS traffic management system based on real-time location information of each drone, maps and weather information, to avoid conflicts within the airspace.

## 2. DISCUSSION

2.1 As drones are easier to develop compared to manned aircraft and are expected to come in a various types to fit their intended use, there will likely be a further increase in number of drone manufactures and types of drones worldwide.

2.2 On the other hand, as BVLOS flight over people has a high-risk and large drone has a high possibility of causing damage to people and property on the ground if it crashes, each aviation authority of Member State should undertake an important role to ensure the safety of its general public with respect to the flight of such drones.

2.3 Taking into account that drones are globally traded between States, it is extremely inefficient that manufacturers in the exporting State design and manufacture their drones under their own safety standards, and the aviation authority in the importing State checks the conformity against their own safety standards to ensure the safe flight of drones separately.

2.4 The ICAO has set up a platform to share information on respective regulations and safety standards for drones in each State and has presented Model UAS Regulations. Currently, however, common safety standards for drones used for high risk flight have not yet been developed, and there is a lack of harmonization of safety regulations in each State.

2.5 Considering that BVLOS flights over people by drones will soon be common globally, we believe that it is necessary to reduce the burden on authorities in each Member State to confirm the safety of drones by establishing common safety standards at ICAO, at least for large drones that engage in BVLOS flights over people.

2.6 In addition, if each Member State adopts harmonized safety standards for drones, drone manufacturers around the world will be able to export their drones to many countries, which will contribute to the expansion of the global drone industry.

2.7 Furthermore, in addition to drone safety standards, standards for pilot qualification and operation rules will also be desired to be common in order to minimize the duplication of checks by each authority.

### 3. CONCLUSION

3.1 In Japan, BVLOS flights over people by drones will begin from December this year. In preparation for this, the registration of drones has been made mandatory, and a new legal framework introducing drone safety certification system and pilot licensing system will come into effect.

3.2 ICAO should consider establishing common safety standards for at least large drones used for BVLOS flights over people.

3.3 The Assembly is invited to:

- a) note the commencement of BVLOS flights over people by drones in Japan; and
- b) recommend ICAO to consider establishing common safety standards for large drones that perform high-risk flights such as BVLOS flights over people for the safety of general public, taking into account that those drones are actively traded internationally, if not make international flights.

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