International Civil Aviation Organization
*Asia and Pacific Office*

**Thirteenth Meeting of the Regional Aviation Safety Group – Asia and Pacific Regions (RASG-APAC/13)**

*Hong Kong, China, 18-19 December 2023*

**Agenda Item 5: ICAO / Member State / Industry Presentation**

# RISK-BASED FACILITATION FOR SMALL UNMANNED AIRCRAFT APPLICATIONS IN HONG KONG

*(Presented by Hong Kong, China)*

**SUMMARY**

With increasing popularity of Small Unmanned Aircraft (SUA) applications across the globe, the demand for use of SUA in various domains in Hong Kong, China has also risen - ranging from recreation and STEM education to professional deployment for building inspections, aerial surveying and photography, search and rescue operations, drone shows, drone sports, etc. On the other hand, Hong Kong, China is a densely populated cosmopolitan with high-rise buildings and busy traffic. This paper will discuss how Hong Kong, China accommodates diverse applications of SUA in the city's urban environment without compromising aviation and public safety by the facilitation provided by a new regulatory regime.

## 1. INTRODUCTION

1.1 The world has witnessed rapid advancement in SUA technologies and applications in recent years. Hong Kong, China, being a densely populated cosmopolitan with high-rise skyscrapers and a congested environment, has also embraced the high mobility and aerial accessibility of SUA in various applications. These range from recreational and STEM education purposes to professional deployments and public services. On the other hand, the same features which contribute to the flourishing SUA operations also present unique challenges in the city.

1.2 To address the increasing demand and anticipated challenges, the Civil Aviation Department of Hong Kong, China ("HKCAD") has implemented a new forward-looking regulatory regime for SUA. This regulatory framework, known as the Small Unmanned Aircraft Order ("SUA Order"), allows for the evolving developments and diversified applications of SUA whilst safeguarding aviation and public safety through risk-based facilitation. The SUA Order came into effect on 1 June 2022.

## 2. DISCUSSION

*Diversified SUA Operations*

2.1 The implementation of the SUA Order gave new momentum to the popularity of SUA operations. SUA has taken up an increasingly vital role in supporting the traditionally labour-intensive missions for both the private and public sector. In various sectors, such as photography and filming, inspection of high-rise structures, land surveying, and 3D mapping, SUA has emerged as a convenient

tool, if not a replacement, for providing efficient and cost-effective services. The versatility of SUA has also extended to other areas, including education and research, where drones are utilised for STEM education, scientific studies, environmental monitoring, etc. Moreover, the use of multiple drones for light shows during festive occasions and events has become increasingly popular, adding a new dimension to the city's celebrations.

2.2 Within the Government, more departments have recognised the merits of SUA and developed their own fleet of SUA to discharge their duties in providing public services. SUA has been integrated into various Government day-to-day tasks, such as flight checks at the airport, inspections of infrastructure and utilities, patrol and surveillance, collection of traffic data, monitoring of compliance, etc. Additionally, SUA are also being utilised as a safer and more agile alternative in times of emergency. For instance, during search and rescue operations, drones can conduct quick inspections over large areas and provide real-time aerial imagery to aid in locating missing persons or assessing terrain situations. SUA is also employed for the delivery of relief supplies to areas which are difficult to access by traditional means. In recent incidents, such as fire outbreaks and post-typhoon inspections, several Government departments deployed SUA to gather crucial information and assess the situation effectively.

*The Risk-based Regulatory Regime*

2.3 Efficient and productive as the diversified operations of SUA are, these operations in a congested urban environment with busy air traffic may pose certain levels of risk if not duly mitigated or regulated. As such, the SUA Order regulates SUA operations under a risk-based approach which takes into account the weight of the SUA and the operational risk level. Operations at different risk levels are subject to their corresponding requirements including registration and labelling of SUA, registration of remote pilots, training and assessment, equipment, operating requirements and insurance. Operations at a lower operational risk level are classified as “Standard Operations” and can be conducted without prior permission from the HKCAD, providing a flexible arrangement which can even be applicable to some professional deployment. Whereas operations with a higher operational risk level, such as operating an SUA exceeding 7 kg in weight or within a restricted flying zone, are defined as “Advanced Operations”. These operations are subject to more stringent regulatory requirements and require prior permission. With the new SUA Order providing a clear and flexible regulatory framework, operators may avail themselves of the opportunity to deploy SUA for different purposes while safeguarding aviation and public safety.

*One-stop Electronic Portal*

2.4 To facilitate compliance with the SUA Order, the HKCAD has launched a dedicated one-stop electronic platform, the “Electronic Portal for Small Unmanned Aircraft (“eSUA”) accessible through a mobile application and a web portal. The eSUA offers various functions to users, including obtaining safety information for SUA operations, viewing a drone map which shows real-time restricted flying zones, and applying for SUA and remote pilot registration. Under the regulatory regime, registration of SUA and remote pilot is required unless the SUA weighs no more than 250 g and complies with the applicable operating requirements at all times during the flight. The registration requirements, as well as the labelling requirements for SUA, greatly enhance the traceability of the SUA owner and remote pilot, thereby contributing to the enforceability of the regulatory requirements. As of November 2023, eSUA has processed over 30,000 registration applications for SUA and around 25,000 for remote pilots.

*Ensuring Remote Pilot Competence*

2.5 Traceability aside, competency and safety awareness of remote pilots are also crucial in upholding the safety of SUA operations in the territory. Therefore, another key element of the SUA Order is the requirement for appropriate training and assessment for remote pilots. The HKCAD has

prepared a Safety Information Package which provides latest updates of regulatory requirements, basic safety information and other important points to note for remote pilots conducting Standard Operations. For operations of higher risks, i.e. Advanced Operations, remote pilots are subject to advanced training and assessment by approved training organisations. This training aims to enhance their situational awareness and safety management skills through flight planning, risk assessment and mitigating measures. As of November 2023, HKCAD has approved 9 training organisations which altogether trained over 2,200 students.

*Clear Risk-mitigating Requirements and Guidance*

2.6 In view of the wide range of SUA operations, the HKCAD has developed a set of comprehensive guidance materials which provide safety guidelines for various types of operations according to their associated risks. These materials include a Safety Requirements Document and advisory circulars which outline specific safety requirements and risk-mitigating guidelines for different SUA operations, such as night operations, heavy SUA operations, building surveys or inspections, aerial surveys and photography, drone shows, and drone racing. By providing clear guidance, these publications assist operators from different sectors and with different operational needs in understanding and complying with the regulatory framework, thereby promoting safe and responsible SUA operations.

*Facilitation for Advanced Operations Applications*

2.7 Following the published guidance, an SUA operator may apply for a permission to conduct advanced operations with sufficient risk-mitigating measures in place. These operations may include flying within a restricted flying zone designated for aviation safety such as a busy airspace. During the permission application process, the operator will be guided to establish communication with the relevant airspace users to ensure effective traffic coordination. The communication protocol allows for safe operation within busy airspace, such as the popular location at the Victoria Harbour, which shows the city's iconic skyline view while being home to a few helicopter bases. Furthermore, operators with genuine operational need can be granted longer-term permission with specific conditions, providing them with flexibility while still maintaining safety standards.

*Continuous Safety Promotion*

2.8 The HKCAD recognised the importance of safety promotion in enhancing safety awareness among the public and SUA operators. Despite the implementation of the SUA Order, efforts on territory-wide safety promotion have not diminished. On the contrary, the HKCAD has continued to actively engage in various promotional activities to educate and raise awareness about safe SUA operations. Examples including public seminars, talks, innovation fairs and joint publicity events with Hong Kong Police. Survey has also been conducted to seek feedback from the community to address specific concerns and provide relevant guidance and support. These initiatives serve as platforms to educate and promote safe operations of SUA. By actively engaging with the community through these events, the HKCAD aims to foster a culture of safety and responsibility in the use of SUA.

*Way Forward*

2.9 Looking ahead, the HKCAD will stay ahead of the international latest developments of SUA and the relevant regulatory considerations and mitigating measures. We look forward to embracing new initiatives on applications of SUA while securing aviation and public safety, so as to foster a safe and thriving environment for SUA operations in Hong Kong, China.

## 3. ACTION BY THE MEETING

3.1 The Meeting is invited to:

a) note Hong Kong, China's efforts in accommodating diverse applications of SUA in the city's urban environment without compromising aviation and public safety by the facilitation provided by the new regulatory regime; and

b) encourage States / Administrations to share their experiences and regulatory best practices in regulating SUA.

— END —