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Paper for the House Committee meeting on 27 August 2021

Report of the Subcommittee on Subsidiary Legislation to Regulate the Operation of Small Unmanned Aircraft

Purpose

This paper reports on the deliberations of the Subcommittee on Subsidiary Legislation to Regulate the Operation of Small Unmanned Aircraft ("the Subcommittee").

Background

2. Small Unmanned Aircraft ("SUA"), commonly known as "drone", is defined as unmanned aircraft weighing 25 kg or less according to the International Civil Aviation Organization's general classification of unmanned aviation. With the advent of aviation technology in recent years, SUA are widely used in many parts of the world. In Hong Kong, SUA are used for recreation and STEM education as well as professional deployment. There are more than 80 000 drones in Hong Kong as suggested by the industry.

3. Under the existing legislative framework, unmanned aircraft are classified as aircraft and are governed, as far as aviation safety is concerned, by the Air Navigation (Hong Kong) Order 1995 (Cap. 448C), which provides that a person must not recklessly or negligently cause or permit an aircraft to endanger any person or property. In addition, the Air Transport (Licensing of Air Services) Regulations (Cap. 448A) requires that a person using an aircraft for hire or reward, including unmanned aircraft, must apply for a permit granted by the Director-General of Civil Aviation ("the Director") before flight and must abide by the terms and conditions of the permit issued.

4. As the existing civil aviation legislation mainly aims at regulating the operations of manned and larger civil aircraft and is not specifically designed for unmanned aircraft, the Administration considers it necessary to introduce a customized and self-contained legislative framework under the Civil Aviation

Ordinance (Cap. 448) to regulate SUA, taking into account the recommendations of the consultancy study on the regulation of SUA commissioned by the Civil Aviation Department ("CAD") in March 2017, views received from the subsequent three-month public consultation launched in April 2018 and practices in other major jurisdictions.

5. According to the Administration, the new regulatory regime for SUA adopts a risk-based approach which on the one hand aims to safeguard aviation and public safety while on the other, allows ample room for the development and applications of SUA in tandem with the evolving technology and innovation.

The subsidiary legislation

6. The following Subsidiary Legislation were gazetted on 16 July 2021 to regulate the operation of SUA and to provide for consequential amendments:

- (a) Administrative Appeals Board Ordinance (Amendment of Schedule) Order 2021 (L.N. 115);
- (b) Small Unmanned Aircraft Order (L.N. 116);
- (c) Air Transport (Licensing of Air Services) (Amendment) Regulation 2021 (L.N. 117);
- (d) Air Navigation (Hong Kong) Order 1995 (Amendment) Order 2021 (L.N. 118); and
- (e) Civil Aviation (Insurance) (Amendment) Order 2021 (L.N. 119).

L.N. 116

7. L.N. 116 is a new order made by the Chief Executive ("CE") in Council under sections 2A and 12 of Cap. 448 to regulate the operation of SUA and to provide for the registration of SUA and remote pilots. The key provisions of L.N. 116 are summarized below:

- (a) Part 2 provides for, among others, the basic operating requirements and insurance requirements relating to the operation of different categories¹ of SUA, the additional requirements for flights within a restricted flying zone ("RFZ") and the carriage of dangerous goods, and various related offences (e.g. dangerous operation, causing or permitting SUA

¹ Under section 3(2) of L.N. 116, an SUA is (a) a Category A1 aircraft if its weight does not exceed 250 g at all times during a flight; (b) a Category A2 aircraft if its weight exceeds 250 g but does not exceed 7 kg at all times during the flight; or (c) a Category B aircraft if its weight exceeds 7 kg at any time during a flight.

to endanger person or property, interfering with SUA and operating prohibited SUA for flights, each of which is punishable by a fine at level 6 (i.e. \$100,000) and imprisonment for two years);

- (b) Part 3 provides for, among others, the registration (and renewal thereof) of an unmanned aircraft as a registered SUA and of a person as a registered remote pilot, the assignment of rating (and renewal thereof) to a registered remote pilot, the approval of training courses and course providers, the authorization of assessors, and the application for permission for certain flight operations;
- (c) Part 4 provides for the appointment, duties and enforcement powers of authorized officers and related offences (e.g. failure to comply with a requirement made by an authorized officer, providing false or misleading information, and obstructing an authorized officer, each of which is punishable by a fine at level 6 (i.e. \$100,000) and imprisonment for two years);
- (d) Part 5 provides for, among others:
 - (i) the powers of the Director to issue safety directions and a safety requirements document (which are not subsidiary legislation), and the effect of such directions and document;
 - (ii) the review of and appeal against the Director's decisions (e.g. to refuse a person's application for registration of an SUA or as a registered remote pilot); and
 - (iii) other miscellaneous matters, including a defence of lawful authority or reasonable excuse for certain offences under L.N. 116, the Director's power to exempt an unmanned aircraft or a person from any or all provisions of L.N. 116, and the transitional arrangement for certain offences under L.N. 116 during the six-month period between 1 June 2022 and 30 November 2022; and
- (e) the Schedule prescribes the fees payable for various applications under L.N. 116, all of which are at present set at \$0.²

² According to the Administration, to minimize the burden on users at the initial stage of the new regime so as to promote safe operation of SUA, no fees will be charged on such applications for the first three years from the implementation of the new regime.

L.N. 115

8. L.N. 115 is made by CE in Council under section 4 of the Administrative Appeals Board Ordinance (Cap. 442) to amend the Schedule to Cap. 442. The effect is that appeals may be made to the Administrative Appeals Board in respect of the Director's decisions made under section 61(3) of L.N. 116 upon review to confirm, vary or reverse the Director's decisions in relation to, among others, the registration of unmanned aircraft, registration and rating of remote pilots, approval of training courses and course providers, authorization of assessors, and permission for flight operations.

L.N. 117 to L.N. 119

9. L.N. 117 to L.N. 119 are made by CE in Council under sections 2A and 12 of Cap. 448. They make consequential amendments to Cap. 448A, Cap. 448C and the Civil Aviation (Insurance) Order (Cap. 448F) respectively to the effect that Cap. 448A, Cap. 448C and Cap. 448F do not apply to or in relation to an SUA.

Commencement

10. Except for section 12(2)(c) relating to mandatory insurance for operations of certain Category A2 SUA (which comes into operation on a day to be appointed by the Director by notice published in the Gazette), all other provisions of L.N. 116 come into operation on 1 June 2022. L.N. 115 and L.N. 117 to L.N. 119 also come into operation on 1 June 2022. A phased approach is adopted for the mandatory insurance requirement under L.N. 116. The Administration's plan is to conduct a review of the implementation of the first phase and the readiness for commencement of the second phase (concerning Category A2 operations) after L.N. 116 has commenced operation for a year.

The Subcommittee

11. At the House Committee meeting held on 23 July 2021, Members agreed to form a subcommittee to study the Subsidiary Legislation to regulate the operation of SUA. Under the chairmanship of Hon WONG Ting-kwong, the Subcommittee has held two meetings with the Administration to examine the Subsidiary Legislation and has invited written views from the public³. The membership list of the Subcommittee is in **Appendix I**.

12. To allow time for the Subcommittee to complete its work, the Subcommittee Chairman moved a motion at the Council meeting of 18 August

³ Six submissions have been received by the Subcommittee.

2021 to extend the scrutiny period of the Subsidiary Legislation to the Council meeting of 8 September 2021. The motion was passed.

Deliberations of the Subcommittee

13. While members welcome the regulation of SUA operation to safeguard public and aviation safety, some members have raised concerns about the impact of the new regulatory regime on different types of SUA operations by different sectors/industries and call on the Administration to provide flexibility in the regime to cater for different situations and the future development of SUA. Concern has been raised about the use of SUA by minors in busy urban areas which may pose danger to the public nearby. The major deliberations of the Subcommittee are set out in the ensuing paragraphs.

Risk-based classification and operating requirements

14. Under section 3(2) of L.N. 116, an SUA is (a) a Category A1 aircraft if its weight does not exceed 250 g at all times during a flight; (b) a Category A2 aircraft if its weight exceeds 250 g but does not exceed 7 kg at all times during the flight; or (c) a Category B aircraft if its weight exceeds 7 kg at any time during a flight. The new regulatory regime provides that all SUA operations will be subject to applicable operating requirements as specified by CAD⁴. For Category A1/A2 operations, no prior permission from CAD will be required if respective operating requirements are complied with; and for Category B operations involving higher risk operation (namely operations of Category B SUA and Category A1/A2 SUA exceeding the respective operating requirements), prior permission from CAD will be required before flight. An overview of the new regulatory requirements under L.N. 116 is set out in **Appendix II**.

15. Given that some SUA operations with special needs by certain sectors/industries may fall under Category B operations which require permissions from CAD before flight, some members, including Mr MA Fung-kwok and Mr Tony TSE, have expressed concerns on the applicability of L.N. 116 to certain operations, such as drone racing, multi-drone show, surveying, 3D mapping and filming, etc. Members urge CAD to streamline the procedure for vetting and approval of applications for permission with a view to shortening the processing time. Some members also call on the Administration to devise specific measures and tailor-made guidelines to facilitate different types of SUA operations by different sectors.

16. The Administration has advised that flexibility has been built in L.N. 116 to cater for different types of SUA operation and rapid development of SUA.

⁴ Operating requirements include but are not limited to, maximum flying altitude, maintaining visual line of sight with the SUA, maximum speed, minimum lateral separation with uninvolved people/structures/vehicles/vessels, day-time flying, etc.

The new regulatory regime, which adopts a risk-based approach allowing general use for lower risk operations (i.e. Category A1/A2 operations) and, with prior permission, higher risk operations (i.e. Category B operations), and supplemented by detailed technical requirements to be specified, promulgated and reviewed by CAD from time to time, should be able to achieve the objective. When considering an application for permission, CAD will take a host of factors into account to ensure that aviation safety and public safety can be achieved, and the provisions of L.N. 116 would be complied with, in tandem with the latest safety standards and technological development.

17. Regarding the applicability of L.N. 116 to certain operations which have special needs, the Administration has advised that CAD will consider granting permission for certain SUA operations on a one-off or longer term basis to facilitate applicants provided that the overarching policy objective to safeguard aviation and public safety should not be undermined. The time required for processing an application for permission depends on the sufficiency and completeness of the information submitted by the applicant, as well as the complexity and potential risks of operational plans. CAD will continue to review the application procedures so as to further reduce the application processing time. CAD will also launch a dedicated electronic portal of SUA to facilitate the application process and minimise the time required for applications.

18. Mr MA Fung-kwok has pointed out that as the various requirements imposed by the new regulatory regime may restrain the development of drone racing in Hong Kong, the Administration should consider granting exemption to drone racing sector from certain requirements and designating an area of land for drone racing and related training to promote drone racing in Hong Kong under L.N. 116. The Administration has advised that on the basis that aviation and public safety would not be compromised, L.N. 116 allows drone racing events and training to take place. For example, if drone racing activities are conducted in schools or indoor areas, they will not be subject to most of the requirements under L.N. 116, and prior permission from CAD will not be required. If drone racing activities are proposed at other locations, application for the proposed activities will be considered by CAD. If the relevant venue is a controlled environment and suitable for the safe conduct of the flight activities, and that operating guidelines, risk assessment and mitigating measures, safety management measures, etc. submitted are adequate, CAD may consider granting longer term permission, including exemptions from requirements (such as the minimum age limit for remote pilots, speed, equipment requirements, etc.) as appropriate.

19. The Administration has assured members that after the passage of L.N. 116 and before its implementation, CAD will publish a Safety Requirements Document ("SRD") to provide the general public and stakeholders with further technical/operational guidance and details of application for permission. As certain operations may have special needs, CAD will provide specific information

in relation to these operations to further elaborate details of L.N. 116 where necessary. As requested by members, the Administration agrees to liaise with the concerned sectors in formulating SRD and specific guidelines as appropriate and to update the Legislative Council ("LegCo") on the progress of its work in this regard.

20. On the reason why the notices published in the Gazette in respect of the parameters for operating requirements and SRD relating to operations of SUA issued by the Director are not subsidiary legislation subject to scrutiny by LegCo, the Administration has explained that in order to ensure that new technical and operating parameters and requirements of SUA can be put into effect in a timely manner in tandem with the developing and evolving technology, the Director should be given the power to specify new technical and operating requirements or specifications in the interest of aviation safety and public safety through gazette notices. When formulating and updating the operating requirements and SRD which are technical in nature, CAD will take into consideration the prevailing technological development and international practices. Depending on the nature of the technical requirements, views from relevant stakeholders will also be sought as appropriate.

Establishment of an SUA and remote pilot registration system

21. Under the new regulatory regime, a registration system administered by CAD will be established, under which both SUA and remote pilots for Category A2 and Category B operations are required to be registered. For registration of SUA, the registrant, normally the SUA owner, should be a natural person of at least 18 years of age, body corporate or unincorporated body. As for the registration of remote pilot, the registrant should be a natural person of at least 14 years of age. During the registration process, the registrant will be required to go through safety information and know-how on safe SUA operations to enhance their safety awareness. Members have divergent views on the age limit of remote pilots. While Mr SHIU Ka-fai considers that for public safety consideration, SUA should not be allowed to operate in busy urban areas, especially if the remote pilots are minors under the age of 18, Mr MA Fung-kwok however considers that to facilitate the development of drone racing, flexibility should be provided in the new regulatory regime to allow minors under the age of 14 accompanied by parents or guardians to operate SUA with reference to similar practice adopted in some jurisdictions.

22. The Administration has advised that the minimum age requirement of 14 years of age for remote pilot of SUA is set after balancing different public views as well as taking reference to the minimum age requirement imposed by other major civil aviation authorities. To ensure competency and enhance safety awareness of remote pilots for Category B operations, they will be required to undertake advanced training and assessment from a training organisation approved by CAD at their own cost. To pave the way for developing an approval

scheme for SUA training organisations, CAD has also been working with industry partners, such as the Employees Retraining Board, Vocational Training Council and Hong Kong Productivity Council under a pilot scheme to validate the SUA training syllabus and assessment criteria. The training courses are designed to help participants to gain a thorough understanding of the new regulatory requirements and develop situational awareness and safety management skills so as to safeguard aviation and public safety. Training subsidies will be provided by some of the industry partners to eligible participants.

Equipment requirements

23. Under the new regulatory regime, SUA for Category A2 and Category B operations should be equipped with basic capabilities of flight log and geo-awareness. Details of the equipment requirements will be promulgated and reviewed by CAD from time to time in the light of the latest technological development and prevailing operating environment. In response to members' concern on compliance of equipment requirements by existing SUA owners/operators, the Administration has advised that the majority of the SUA products available in the market have already equipped with the relevant safety equipment, and self-assembled SUA can also be equipped with the relevant equipment.

24. On the retention of flight information, the Administration has advised that L.N. 116 stipulates that relevant persons must keep information recorded by a safety system (normally referred to the flight log) in connection with a flight for a period of six months. As information recorded by the safety system contains pertinent details of the SUA flights operated, it is essential for the relevant authorities to follow up complaints and non-conforming/unsafe operations and take enforcement actions under L.N. 116. Taking into account the normal time required for follow-up and investigative actions, particularly in complex cases, and with reference to similar statutory requirements for keeping other aviation records, the legislative intent is to require such information to be kept for six months. Persons including the remote pilot and the SUA responsible person have the responsibility to ensure that such information is kept in compliance with L.N. 116.

Insurance requirements

25. Having considered that Hong Kong is densely populated and in view of the potential risks that SUA may pose to third parties, the Administration has proposed that insurance requirements in respect of third party liability for bodily injury and/or death should be imposed for SUA for Category A2 and Category B operations. The minimum coverage for Category A2 operations should be set at \$5 million, and for Category B operations, \$10 million. As SUA is a relatively new product under development, members have expressed grave concerns about the market availability and premium level of the SUA-related insurance products

in Hong Kong. Some members have pointed out that given that a natural person of at least 14 years of age can be registered as a remote pilot under L.N. 116, the Administration should consider whether minors as young as the age of 14 can be held liable for the legal responsibility arising from SUA accidents. Members urge the Administration to discuss with the insurance sector to formulate suitable insurance products with affordable premium and flexible choices of duration to suit the needs of different SUA owners and operators.

26. The Administration has advised that CAD has been liaising with the Insurance Authority and the Hong Kong Federation of Insurers on the availability of products to meet the relevant insurance requirements. While industry players see the market potential, more time would be required to collect information in relation to the use of SUA in Hong Kong for launching new SUA-related insurance products. Balancing the market readiness and the risks to public safety, the Administration proposes adopting a phased approach in implementing the mandatory insurance requirement. The first phase will be mandatory insurance for Category B operations, which will take effect immediately upon commencement of L.N. 116. The second phase will be mandatory insurance for Category A2 operations, which will commence on a later date to be specified by the Director by notice published in the Gazette. The commencement notice is subsidiary legislation and subject to scrutiny by LegCo. This arrangement will allow the Administration to continue its liaison with the insurance industry and for the insurance industry to collect more information on the use of SUA in Hong Kong such that the industry can launch SUA-related insurance products with varied premium level and coverage.

27. While members have divided views on the timeframe for commencement of mandatory insurance for Category A2 operations, some members have proposed granting appropriate exemptions to designated locations for operating SUA for recreational purpose without the need for taking out insurance policies before flight. The Administration has advised that CAD will continue to liaise with the insurance industry and, during the liaison, proactively consider different options including members' proposal for granting appropriate exemptions to designated locations for operating SUA. In addition, CAD has also been liaising with relevant Government bureaux/departments to identify suitable venues for flying SUA for recreational purpose and organising SUA activities. With the enactment of L.N. 116 which will enhance public safety, bureaux/departments are generally positive towards appropriate use of SUA in their venues.

Fees arrangement and review mechanism

28. In response to members' concern on the level of fees and charges prescribed under L.N. 116, the Administration has advised that in order to minimise the burden on users at the initial stage of the new regulatory regime and encourage participation from the public and the industry, all fees relating to

applications processed by CAD or provision of services by CAD will not be charged for the first three years of implementation of L.N. 116. After three years, CAD will set the fees on a full cost-recovery basis, and table the proposal in respect of the fee levels and the commencement date to LegCo for negative vetting. The Administration has undertaken to review whether there will be room for further reduction of the relevant costs through technology after the implementation of L.N. 116.

29. The Subcommittee also notes that a review mechanism will be established to handle requests for review on decisions made by CAD under L.N. 116 in connection with various applications. If the person concerned is not satisfied with the result of a review, a further safeguard with a statutory right of appeal against the decision to the Administrative Appeals Board or the Chief Secretary for Administration (as the case requires), is provided. No fee will be charged for lodging an appeal to the Board or the Chief Secretary for Administration against CAD's decision.

Enforcement/penalty

30. Under the L.N. 116, if a person commits an offence, the person is liable on conviction on indictment to a fine at level 6 and to imprisonment for two years. The Subcommittee has examined whether the maximum penalties are proportionate to the relevant offence.

31. The Administration has advised that in determining the level of maximum penalty, due consideration has been given to section 2A(7) of Cap. 448 and the penalty for similar endangering offences under Article 91(6) of Cap. 448C. Compared with section 4 of Cap. 448, the scope of endangering acts covered under L.N. 116 is much broader and could induce safety risks to a wider scope of persons or properties, including but not limited to those on land or water. A higher level of maximum penalty is thus provided for in L.N. 116. Depending on the types and seriousness of the offences and the circumstances of the cases, enforcement agencies which include the police officers and the authorized persons appointed under L.N. 116 may take actions ranging from issuance of warnings or safety direction, suspension or revocation of registration/permission/rating/approval, etc. to prosecution in court, with the main objective of requiring the concerned person to rectify the breach in a timely manner and ensure safe operation of SUA.

Recommendation

32. The Subcommittee has completed the scrutiny of the Subsidiary Legislation. The majority of members of the Subcommittee support the Subsidiary Legislation. The Subcommittee will not propose any amendment to the Subsidiary Legislation.

Advice sought

33. Members are invited to note the deliberations of the Subcommittee.

Council Business Division 4
Legislative Council Secretariat
26 August 2021

**Subcommittee on Subsidiary Legislation to
Regulate the Operation of Small Unmanned Aircraft**

Membership list

Chairman	Hon WONG Ting-kwong, GBS, JP
Members	Hon MA Fung-kwok, GBS, JP Hon CHAN Han-pan, BBS, JP Hon LEUNG Che-cheung, SBS, MH, JP Hon SHIU Ka-fai, JP Hon YUNG Hoi-yan, JP Hon LUK Chung-hung, JP Hon LAU Kwok-fan, MH, JP Hon Tony TSE Wai-chuen, BBS, JP (Total : 9 members)
Clerk	Ms Shirley CHAN
Legal Adviser	Miss Rachel DAI

Overview of the Proposed Small Unmanned Aircraft (“SUA”) Regulatory Requirements

Category of Operation	Category A1	Category A2	Category B
Criteria	SUA weight ≤ 250 g (Within Cat A1 operating requirements)	SUA weight > 250 g to ≤ 7 kg (Within Cat A2 operating requirements)	(i) SUA weight ≤ 7 kg but <u>exceeding</u> the respective Cat A1/A2 operating requirements; (ii) SUA weight > 7 kg to ≤ 25 kg; (iii) operations involving carriage of dangerous goods; <u>or</u> (iv) operations in restricted flying zone
Registration and Labelling Requirements for SUA			
Registration and labelling of SUA	×	✓	✓
Minimum age of SUA responsible person ⁽¹⁾	×	18	18
Registration of Remote Pilots			
Registration of remote pilots	×	✓	✓
Minimum age of remote pilot	×	14	14
Training and Assessment Requirements			
Training and assessment of remote pilots	×	×	✓
Equipment Requirements			
Basic (flight log and geo-awareness)	×	✓	✓
Operating Requirements			
Operating requirements	✓ (Cat A1 operating requirements)	✓ (Cat A2 operating requirements)	✓ (Same as Cat A2 operations unless with permission)
Permission from CAD prior to operations	N/A	N/A	✓
Insurance Requirements			
SUA insurance for third-party liability (bodily injury and/or death)	×	✓ ⁽²⁾	✓
Minimum coverage	×	HKD \$5 million	HKD \$10 million

Note: (1) Responsible person refers to the registrant of a SUA. Upon successful registration of a SUA, the registrant will be named as the responsible person of the SUA.

(2) Mandatory insurance requirement for Category A2 Operations will commence on a later date to be specified by the Director-General of Civil Aviation by notice published in the Gazette.

Operating Requirements for SUA Operations

Key Operating Requirements	Category A1 Operations	Category A2 Operations		Category B Operations
Time of operations	Daylight only			Same as A2 operations unless with permission
Maintain full-time visual line of sight	✓	✓		
Maximum flying altitude [Above Ground Level (AGL)]	30 m (approximately 100 ft)	90 m (approximately 300 ft)		
Minimum lateral separation from uninvolved people / structures / vehicles / vessels	10 m	10 m	30 m	
Maximum speed	20 km/hr	20 km/hr	50 km/hr	
Maximum distance from remote pilot	50 m	500 m		
Maximum number of SUA to be operated at the same time	1	1		
Nothing to be dropped from SUA	Unless with permission			

Source: Annex F of Legislative Council Brief (File Ref: THB(T)CR 59/951/08)