**Opening address by the**
**ICAO Secretary General,**
**Dr. Fang Liu,**
**to the ICAO DRONE ENABLE UAS Industry Symposium**

*(Intercontinental Hotel, Global Center, Chengdu, China, 13 September 2018)*

*Good morning ladies and gentlemen,*

1. I'm delighted to welcome you here today to our second DRONE ENABLE event, focused on the theme of:

***UTM to ATM - Transitioning from Segregation to Integration***

2. The aim of these symposia is to help support and guide our continued work to address a comprehensive and harmonized framework to support UAS activities.

3. We are here to listen to what you have to say, and to learn more about what you are innovating and how you are moving this industry forward.

4. As I'm sure you're all quite aware, the purposes and capabilities of UAS are multiplying almost daily today as new uses for drones are researched and brought to market.

5. Only a few weeks ago, for instance, I saw a report about a UK researcher who is exploring the viability of UAS to 'shepherd' bird flocks in order to mitigate bird strike threats at major airports.

6. Truly, there is an almost limitless potential in this exciting domain of aviation innovation, and we're very excited to be working with you here in Chengdu to discover how UAS can bring further benefit to citizens and societies and industries, all over the world.

7. Any aircraft which is intended to be flown without a pilot on board is considered an unmanned aircraft, per ICAO's international definition.

8. This covers a rather broad range of aircraft types, and in turn gets divided by us into several subcategories based upon the type of regulatory framework each requires, including the RPAS aircraft types we just explored new developments on at RPAS/3.

9. In parallel, we continue to witness the emergence of a range of new aviation activities being conducted in low level airspace, typically in urban or suburban environments.

10. Most of these activities include the operation of small unmanned aircraft, commonly referred to as "drones".

11. Drones today are supporting an almost limitless range of operations which expands almost daily. To cover just a few we can appreciate their current applications for inspection, monitoring, emergency services, cargo delivery, and recreational activities.

12. The competitive advantage of small unmanned aircraft (UA) over traditional ground transportation modes, or manned aviation for that matter, is particularly strong in densely-populated urban areas.

13. When it comes to advancements in small unmanned aircraft operations, Asia, and China in particular, play an important role.

14. According to industry studies, Chinese manufacturer DJI accounts for nearly 70 per cent of the non-military small UAS market today, and has seen revenues increase from just over 4 million to a staggering billion dollars in revenue between 2011 and 2015.

15. Other regions are also seeing the rapid growth in this area, and while it is difficult to forecast the full economic impact of UAS until a harmonized regulatory framework is in place, there are a few eye opening forecasts.

16. For example, the European market is expected to be worth over 10 billion EUROS or 78 billion Yuan annually in 2035, and over 15 billion EUROS or 178 billion Yuan annually by 2050.

17. In the United States, meanwhile, the integration of UAS is forecast to support more than 13.6 billion dollars or 94 billion Yuan in economic activity in just the first three years of integration.

18. And at the same time it expects over 100,000 jobs to be created in this field by 2025.

19. What this helps to make clear for us is that these operations are expanding, very dramatically, and that as the unmanned industry grows so will the numbers of aircraft operating simultaneously within congested metropolitan areas and airspace.

20. This is a tremendous challenge for regulatory officials and airspace planners, and one which will require completely new approaches when it comes to the management of air traffic.

21. The UAS traffic management (UTM) concept which ICAO is now developing seeks to meet this challenge, head on.

22. It can be defined today as a system that provides traffic management through the integration of humans, information, technology, facilities and services, supported by air and ground and/or space-based communications, navigation and surveillance.

23. Two of the most important aspects of UTM are therefore the need for it to accommodate very high-density aircraft operations, as well as a multitude of varying aircraft types and flight operations.

24. And we must also take into account that the airspace segment from ground-level to upwards of 1,000 feet is already an important operating environment for numerous low-flying helicopters and other manned aircraft.

25. These are critical components in this issue and must absolutely be addressed and accounted for by any effective UTM system.

26. At ICAO's last Assembly, in 2016, our Member States drew attention to the rapid development of the various aviation technologies planning to operate in low level airspace.

27. They expressed broad support there that ICAO should take a leadership role by assisting them in the development of materials to permit a harmonized approach internationally to regulating small unmanned aircraft.

28. The growing importance of unmanned aviation is also being reflected in the agenda of ICAO's upcoming Thirteenth Air Navigation Conference, which will be held at our Headquarters in Montréal next month.

29. Among the key objectives of the Conference will be the ongoing development of operational solutions and guidance to support the safe and coordinated development of aviation activities at low altitudes.

30. Special attention in this regard will be paid to urban and suburban environments, including those areas in and around airports.

31. This Assembly request was quite unusual in that our States were essentially requesting guidance on domestic operations, even though ICAO's mission and role has always focused on standards and recommended practices for international operations exclusively.

32. This speaks very clearly to the fact that our sector has entered into a new era of air transport and aircraft development, and in order to facilitate this expansion of ICAO's work programme we took a similarly innovative and flexible approach.

33. We have expanded the terms of reference for the ICAO UAS Advisory Group as an important first step, and since last year's iteration of this DRONE ENABLE conference it has been busy developing the first edition of the UTM Framework. You will hear much more about this later in the symposium.

34. As we continue to move this file forward, and UTM applications and operations continue to evolve, many further challenges will need to be identified and addressed.

35. An important one among these will be the convergence of UTM and ATM, which explains our second Request for Information (RFI) which has brought you all here today along with the 48 proposals to be considered.

36. These submissions were reviewed by the UAS Advisory Group, and those respondents that most effectively addressed this year's RFI problem statement will be discussing their activities and proposals as part of a combined panel session this afternoon.

37. Particularly in urban and suburban areas, it is understood that without considering the surrounding ATM structure, a UTM system could not provide an effective capability.

38. Additionally, any related framework will need to be made up of many separate components, and three of these were addressed at DRONE ENABLE 1 last September as a matter of priority.

39. One addressed the need for a registration system, accessible in real time to allow remote identification and tracking of each UA, its operator/owner, and location of the remote pilot/control station.

40. The other two components addressed geo-fencing like systems, and communications systems.

41. ICAO is seeking support of its Member States to develop and deploy a global aircraft registry network which will facilitate the connectivity between national aircraft registries.

42. This registry network would not only support RPA and other unmanned activities, but also manned aircraft registrations. You will hear about this tomorrow.

43. Additionally, ICAO is in the process of developing a Trust Framework solution to permit the secure, timely and accurate transmission and storage of aviation data, for both manned and unmanned aviation, on a global scale.

44. This too will be discussed over the next two days.

45. Finally, I would like to re-emphasize a point which was made during the opening of the RPAS/3 symposium, namely that unmanned aviation currently challenges many fundamental tenets of the existing international regulatory framework.

46. A related concern surrounds UA operations over the high seas, which are increasingly carried out in activities such as oil platform and ship inspections, fisheries resource monitoring and compliance, atmospheric research and weather measurement, search and rescue, and security operations.

47. How can small, uncertificated, unmanned aircraft comply with the requirements of the Chicago Convention? Will they for instance possess and carry a certificate of airworthiness? A certificate of registration? Will they purposefully avoid the water surface or man-made structures?

48. Again, considering the difficulty – and in many cases impossibility – for UA to comply with several of these mandates, the question arises as to the best method to resolve these issues.

49. However we accomplish this, significant work and bold thinking will be required. And we cannot simply ignore the existing aviation regulatory framework given its proven and indeed exemplary safety record for manned operations.

50. Over the next two days, you will be exposed to some of the best and brightest in the UTM domain. I challenge you to keep your minds open, and to very actively participate in the panel and other discussions which will emerge.

51. Together we must exploit the same pioneering spirit which has already helped to make you all leaders in this field.

52. In closing now, ladies and gentlemen, let me please reiterate that in such a dynamic and innovative area of activity, with such a continuous flow of emerging ideas and techniques, the UAS industry and regulatory communities must stay in close contact and work together to realize effective resul

53. ICAO will continue playing the leadership role in this process which world governments have asked us to fill, providing a forum with a very long and proven track record for effective and consensus-based global dialogue and harmonization, in the service of practical and sustainable regulatory and non-regulatory solutions.

54. Please let me wish you all a very productive and engaging next two days here at DRONE ENABLE 2, and I will very much look forward to reviewing the results of what you achieve here in Chengdu.

Thank you.