Opening address by the
Secretary General of the
International Civil Aviation Organization (ICAO),
Dr. Fang Liu,
to the 2018 ICAO RPAS Symposium

(Chengdu, China, 10 September 2018)

Distinguished colleagues,
Ladies and gentlemen,

1. It is my great pleasure to open this third Remotely Piloted Aircraft Systems (RPAS) Symposium.

2. 首先，我要代表国际民航组织对中国政府、四川省、民航局、空管委表示衷心感谢，感谢中方为承办此次会议做出的各方面贡献和付出的各种努力。

3. 中国在无人机研制方面起步较早，对无人机的应用领域近年来不断扩大，产业化发展很快，显示出巨大潜力。

目前，中国消费级民用无人机市场迅速崛起。无人机在航拍、物流等领域被广泛应用，无人机送货和热门真人秀采用无人机进行航拍，使得民用无人机被广泛关注。我祝愿中国在无人机科技、应用、产业化、监管等各方面取得更好发展和更多成就。

4. As you know, unmanned aviation offers a vast range of capabilities and sophistication, and constitutes a growing industry which is rife with operational opportunity and economic potential.

5. An important clarification we should be clear on from the outset of this event concerns the distinction between unmanned and RPA aircraft and operations.

6. To begin with, any aircraft that is intended to fly without a pilot on board is an unmanned aircraft.

7. Those more highly-capable unmanned aircraft which will be required to fully integrate with traditional aircraft operations, in accordance with instrument flight rules (IFR) and requiring all of the certifications and equipage as manned aircraft, are officially referred to as remotely piloted aircraft, or RPA.

8. Worldwide, RPAS and UAS technologies and operations have been evolving rapidly in recent years, spurring thousands of new entrants to the aviation sector and a multitude of new products and services requiring incorporation into the global aviation framework.

9. New opportunities are emerging, and at the same time these are posing new types of safety and other risks to legacy aircraft and operations, as well as the populations on the ground which these emerging UAS must operate among.

10. ICAO's Member States anticipated these challenges when they mandated ICAO to develop new guidance for what are essentially domestic operations.

11. Their goal in this regard was to make use of ICAO's cooperative and consensus based decision mechanisms to realize practical and effective operational guidelines which could be codified for implementation in almost any urban environment.

12. This standardization also promises many additional benefits for the companies which will be employing these new aircraft, notably in terms of operational and investment certainty when entering new markets.

13. The applications for RPA are numerous, and they are understandably also expanding quite rapidly.

14. Today they are being employed in roles as diverse as cargo delivery; wildfire mapping; agricultural monitoring; disaster management; thermal infrastructure surveys; law enforcement; telecommunications; and weather monitoring.

15. We are also seeing their deployment aiding such activities as aerial imaging and mapping; television news coverage, sporting events and moviemaking; environmental monitoring; and oil and gas exploration.

16. RPA provide further and very critical benefits to civil societies everywhere by delivering urgent humanitarian relief, medical assistance, and other forms of response to crises and public health emergencies.

17. In order for the considerable socio-economic benefits of unmanned aviation to be optimized while respecting at the same time aviation's longstanding concerns for safety and sustainability, regulators must work to craft and implement a well-structured and flexible regulatory framework.

18. Safety concerns such as collision with manned aircraft, the use of unapproved communications spectrum, and even the expectations of privacy for the citizens living among these intended operations are all of great concern at the national level.

19. And there are further issues we must address such as the functional interoperability we can expect to achieve with traditional air traffic management mechanisms, airspace design and rules of the air for these new aircraft types, and the location and types of operations relevant to UAS traffic management.

20. Traditional aviation also has a much more meaningful human element included in its processes, based whereas RPAS and UAS are being considered in terms of more automated management techniques, some of which will be employing Artificial Intelligence and other advanced capabilities.

21. Given how dynamic and innovative RPA activities have become, and the likelihood that their applications will only be increasing as they become more prevalent, it is essential for industry stakeholders and regulators to realize close and effective relationships designed to enable and not impede future RPA innovations.

22. Many States and organizations are already contributing to this process, and given our longstanding role at the heart of international aviation progress, ICAO has been rightfully seen as the natural forum for this intensive public-private dialogue.

23. Already our mission to ensure an effective global alignment of RPA regulations has entailed hundreds of new Standards and Recommended Practices (SARPs) being developed.

24. This effort is led by the Remotely Piloted Aircraft Systems Panel, and as a result of its work we have already adopted new provisions in:

- Annex 1 to the Chicago Convention concerning *Personnel Licensing*,
- Annex 2 on the *Rules of the Air*,
- Annex 7 on *Aircraft Nationality and Registration Marks*,
- And Annex 13 which concerns *Aircraft Accident and Incident Investigation*.

25. As an important early step in this process, ICAO has been addressing the issuance of certificates. Without these international operations are not permitted under the Chicago Convention.

26. To-date this work has addressed the Remote Pilot Licence and Certificate of Airworthiness, and we've also mandated an RPAS Operator Certificate similar to the Air Operator Certificate for Commercial Air Transport operations.

27. I am very pleased to highlight in this regard that the Annex 1 provisions for the remote pilot licence were adopted last March by the ICAO Council, and that they are now available for voluntary use by States.

28. In line with our ongoing *No Country Left Behind* (NCLB) initiative, ICAO has also begun to assist States in their effective implementation of this new guidance.

29. Priority is also currently being assigned to the development of new RPA SARPs respective of Annex 6, which concerns the *Operation of Aircraft*, the planned new Part IV of Annex 6 on *RPAS International Operations*, Annex 8 on the *Airworthiness of Aircraft*, and lastly Annex 10 on *Aeronautical Telecommunications*.

30. This work will be followed by the amendment or development of other provisions that will support the safe, secure and efficient integration of RPA into non-segregated airspace and aerodromes.

31. In parallel with RPA, there are other types of unmanned aircraft which are now being used in an increasing range of activities.

32. Some of these activities take place in very low altitude airspace, through the operation of smaller unmanned aircraft, commonly referred to as “drones”. This work will be addressed in depth during the DRONE ENABLE Symposium, and explains why it has been scheduled back-to-back with this Symposium.

33. Other new developments which we have on our unmanned aircraft radar today include “flying taxis” such as the Ehang project, the Cora aircraft now seeking regulatory approvals in New Zealand, or the Uber Elevate.

34. It must also be noted that just this past week, at the 37th Session of the ICAO Legal Committee, many States expressed a strong interest in identifying potentially relevant international legal issues related to unmanned aircraft.

35. The Legal Committee approved the establishment of a Working Group, which will identify legal issues and possible solutions within the framework of ICAO’s on-going work.

36. The safe integration of these aircraft with existing airspace users such as manned helicopters, paragliders, and other users, will require innovative and holistic thinking.

37. At the global level, the growing importance of unmanned aviation has certainly not been lost on the planners and organizers of ICAO’s Thirteenth Air Navigation Conference, which will be held at our headquarters in Montreal from 9 to 19 October this year.

38. One of its key objectives will be the continuous development of the regulatory framework necessary to support the integration of RPA into non-segregated airspace and aerodromes.

39. I am further confident that ICAO will receive a renewed RPA mandate, together with the assurance of associated resources, when our 192 member States join us in Montreal next September for our 40th triennial Assembly.

40. We must continue all efforts leading to the safe and coordinated development of unmanned aviation activities, including those at very low altitude and at or near airports.

41. As we already know, unmanned aviation challenges some rather fundamental tenets of our regulatory framework.

42. One obvious illustration of this is the basic absence of a pilot on board, which calls into question how to apply the "see and avoid" and "remain well clear" concepts.

43. Other significant challenges to our decades-old regulatory framework are also emerging, and we need to be ready for them.

44. Let me give you a few examples…

45. Mindful that RPA are indeed aircraft, they will need to comply with general rules, or "*rules of the air*" as contained in Annex 2 of the Chicago Convention.

46. Among other rules are the obligations to comply with minimum safe distances, heights, or cruising levels, in particular over cities, assemblies, or persons. This poses some complex concerns for regulators given that many small unmanned aircraft are being specifically designed to operate in urban environments, where proximity with the ground surface or occupied buildings is a clear pre-requisite for their intended purposes.

47. Similarly, the rules of the air provide that aircraft shall be operated under either visual or instrument flight rules (VFR or IFR), which among other requirements impose distances from clouds and other visibility and separation standards.

48. Considering the difficulty – and in many cases impossibility – for RPA to comply with several of these rules, whether VFR or IFR, this presents us with many and quite challenging questions.

49. I am fully confident, however, based on the work already achieved and the motivation of our States to address these concerns, that further effort and innovative thinking will help us to adapt our aviation regulatory framework to the demands of the unmanned aviation industry, and without undue safety risks.

50. Ladies and gentlemen,

51. In concluding today, I would like to highlight that while the potential for development in the unmanned aircraft area is considerable, the challenges to be addressed will require continuous efforts and unparalleled creativity.

52. More than ever, the active cooperation of all stakeholders, including regulators and industry, both civil and military, will be essential to ensure that this emerging activity yields its full benefits while maintaining or improving aviation safety.

53. I would like to underscore again ICAO's leadership role with respect to assuring the safe, secure, and orderly development of unmanned aviation globally, and reiterate my expectation that the ideas generated here this week will play a significant role in shaping the safe and harmonized future of this very exciting and promising new field in civil aviation.

54. Thank you.