



**WORKING PAPER**

**ASSEMBLY — 41ST SESSION**

**TECHNICAL COMMISSION**

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

**CHALLENGES FOR OPERATORS IN OBTAINING, AND REGULATORS TO ISSUE,  
APPROVALS FOR HUMANITARIAN UNMANNED AIRCRAFT SYSTEM (UAS)  
OPERATIONS**

(Presented by the World Food Programme)

**EXECUTIVE SUMMARY**

This paper presents a summary of the challenges faced by operators to obtain, and regulators to issue, approvals for humanitarian unmanned aircraft system (UAS) operations. The key contributing factors are the lack of regulatory harmonization, even at the regional level, certification challenges for UAS, and approvals for beyond visual line-of-sight (BVLOS) operations.

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

- a) urge States to share, with other States and ICAO, their experience regulating UAS, including at the regional level;
- b) recognize the importance to implement an appropriate national UAS regulatory framework to support humanitarian aid operations using UAS, including both emergency and steady-state responses;
- c) urge ICAO to consider the development of fit-for-purpose airworthiness and operational provisions that would support the certification of certain categories of UAS; and
- d) call upon States to use the ICAO UAS model regulations as starting point for comprehensive UAS regulatory framework.

<i>Strategic Objectives:</i>	This working paper relates to Strategic Objectives of Safety, Air Navigation Capacity and Efficiency objectives. Furthermore, it supports the UN Sustainable Development Goal 2 (Zero Hunger) and Goal 17 (Partnerships for the Goals).
<i>Financial implications:</i>	This working paper has minimal financial implications.
<i>References:</i>	ICAO UAS model regulations <sup>2</sup> UN SDG Goals ( <a href="https://www.wfp.org/sdgs">https://www.wfp.org/sdgs</a> )

<sup>1</sup> English, Arabic, Chinese, French, Russian and Spanish versions provided by WFP.

<sup>2</sup> [ICAO Model UAS Regulations](https://www.wfp.org/sdgs)

## 1. INTRODUCTION

1.1 Unmanned aircraft systems (UAS) provide unique and effective ways to respond to humanitarian needs, including urgent disaster relief. UAS are used to deliver life-saving materials, such as medicine and food, where the use of conventionally piloted aircraft is either cost-inefficient, or where significant security and safety threats preclude the deployment of such aircraft. Data collection and connectivity are other functional areas which could be further developed into humanitarian UAS services over the next few years.

1.2 The UN World Food Programme (WFP) has demonstrated that the use of UAS in disaster response and for rapid-onset emergency response are efficient and effective. Over wide areas of operations, the use of beyond visual line-of-sight (BVLOS) UAS is particularly critical to locate people in need of aid.

1.3 The WFP works on intensifying market intelligence and performing test flights of UAS aimed at expanding WFP's cargo delivery capabilities in countries with growing needs such as Mozambique and South Sudan.

1.4 International Civil Aviation Organization (ICAO) and WFP are collaborating to support States in implementing UAS regulations, such as through ICAO Implementation Packages (iPacks), particularly to allow the safe integration of UAS into selected States' airspace.

## 2. DISCUSSION

2.1 The increased use of UAS for data collection, connectivity and cargo for civilian applications has presented civil aviation authorities (CAAs) with regulatory challenges, including the need to ensure that UAS are operated safely, without causing harm to people or property and respecting national security. The key factors contributing to such challenges are:

- a) the lack of regulatory harmonization;
- b) incomplete airworthiness standards; and
- c) the lack of standards for BVLOS operations.

2.1.1 *Harmonization of UAS regulations.* ICAO has developed Standards and Recommended Practices (SARPs) regarding remotely piloted aircraft systems (RPAS) airworthiness under instrument flight rules (IFR) operations that must be implemented and further developed to include additional operations like BVLOS to facilitate humanitarian operations. Humanitarian UAS operations goals may require a new approach to regulations. State civil aviation authorities are challenged to develop such new regulations for UAS. Therefore, CAAs are using different sources of guidance, one of which is the ICAO Model UAS regulations. The use of guidance from multiple sources creates inconsistent approaches for UAS certifications and operator approvals. Such regulatory variations also create difficulties to establish rapidly deployable humanitarian UAS operations in case of emergency.

2.1.2 *Airworthiness standards for cargo UAS.* Worldwide, the number of UAS in development capable of delivering more than 100 kg of cargo is limited. The absence of Airworthiness and Operational standards for UAS precludes manufacturers and States from certifying UAS.

2.1.3 *BVLOS operations.* Approving BVLOS operations can be challenging for both the regulator and the operator. Key factors in approving a BVLOS operation include:

- a) the lack of applicable flight rules;
- b) the ability of the regulator to assess whether risks of harm to people and property on the ground have been mitigated to an appropriate level; and
- c) whether the collision risk with other aircraft operating in the same airspace is mitigated.

BVLOS operations may also be limited by the lack of unmanned aircraft systems traffic management (UTM) systems that support strategic deconfliction of UAS with other traffic.

### 3. **CONCLUSION**

3.1 Manufacturers of humanitarian UAS and UAS operators face multiple challenges when seeking UAS certification and approvals for UAS operations. Many of these challenges are persistent, previously identified and remain yet to be addressed. Equally, CAAs face significant hurdles to grow their confidence to handle UAS operational approval requests.

3.2 WFP is working to enable humanitarian cargo UAS development by cooperating with ICAO, CAAs, States with humanitarian needs, UAS operators and UAS manufacturers.

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