WFP
World Food Programme

SAVING LIVES
CHANGING LIVES

WFP Drone Factsheet

Unmanned Aircraft Systems (UAS) Coordination

The World Food Programme (WFP) is scaling technology and innovation as part of its strategy to end hunger by 2030. Looking up to the skies to improve its ability to prepare for and respond to humanitarian emergencies, WFP has been developing the use of unmanned aircraft systems (UAS), commonly known as drones, since 2017. With support from the Government of Belgium, WFP developed a **UAS coordination model,** and in parallel, has been building local capacity to use drone technology in countries prone to natural disasters. Recent emergency responses including in Mozambique (2019) have shown that the responsible use of drones can help coordinate and accelerate local partner efforts on the ground.

WFP has decades of experience in Aviation, Logistics and Telecommunications which it uses to serve affected populations in over 80 countries each year; it is well positioned to **develop**, **coordinate** and **deliver the** standardized, **safe and ethical use of drones** for its own operations as well as those of partners and the wider humanitarian community.

WFP is focusing on three core areas related to drone technology: **data collection, cargo delivery** and **connectivity**. These three functional areas are being developed by WFP into **common humanitarian services** with the support of partners and funding from United Kingdom's Foreign, Commonwealth and Development Office Development (FCDO). Prepositioning drones and Information Management are at the heart of the project's approach.

Internal collaboration within WFP has been key to develop and start integrating machine learning (ML) capabilities with drone technology. WFP's Emergency Response division (EME) and the UAS team have designed a tool called the "Digital Engine for Enhancement of Photos" or DEEP. The software can be installed on any laptop to run a model that can automatically extract and analyse objects including from drone imagery. The tool can classify infrastructure images as damaged or intact and plot these on a map to support decision making on the ground. Integrating ML with drones can dramatically shorten the time it takes for rapid damage assessments in the field, from weeks to hours.

December, 2020

WFP IS EXPLORING HUMANITARIAN DRONES FOR USE IN:

DATA COLLECTION

CARGO DELIVERY

INTERNET CONNECTIVITY

The humanitarian community has identified several ways to use drones in emergency preparedness and response:

- Damage assessment
- Site Survey
- Line of Sight
- Search & rescue
- Flood modeling
- Project Management
- Community Participation
- Cargo delivery
- Connectivity (Wi-fi in the Sky)
- Communication (public information & advocacy)

What we have done so far

WFP has been active with drones in **30 countries** — from prepositioning equipment in high risk countries and strengthening local emergency preparedness efforts through training and workshops, to supporting emergency responses when disaster hits.

Emergency response: When two powerful cyclones struck Mozambique in 2019, WFP worked with the country's National Institute of Disaster Management (INGC) to coordinate and deploy drones for the first time. Central to using UAS technology during the response was the need to **deconflict airspace** and ensure operational safety; **manage humanitarian needs and partner activities** to minimize duplicating efforts; and **deliver drone services** to fill operational gaps. Drones were used to capture thousands of images, creating detailed maps to help enable rapid disaster assessments and support the work of over 20 humanitarian organizations.

Capacity building: WFP has designed a complete **UAS training exercise package** divided into three modules: Let's COORDINATE (a workshop on strengthening cooperation between national stakeholders), Let's MAP (a practical course on processing data obtained from drones) and Let's FLY (a hands-on flight exercise).

In 2018 and 2019, WFP and its local partners delivered a series of UAS training exercises in nine countries: Bolivia, Colombia, Cuba, El Salvador, Ethiopia, Haiti, Madagascar, Mozambique, and Nepal, strengthening the capacity of **400 representatives** from more than **100 organizations**.

Preparedness: As part of its strategy towards improving local food security, WFP is exploring how drone technology can be leveraged for emergency preparedness including with monitoring crops and livestock as well as mapping out flood planes to bolster resilience and support local small holder farms.

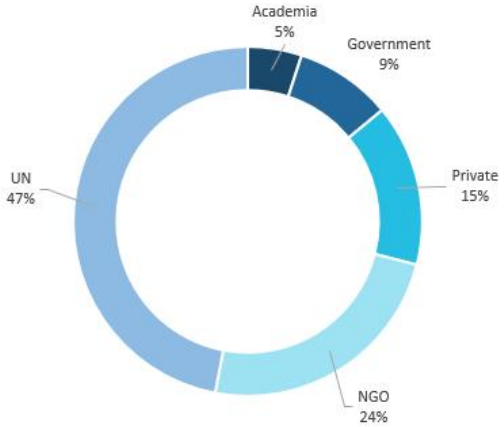
Working with the wider humanitarian community

Technical Working Groups:

While UAS technology holds tremendous potential in humanitarian operations, it also poses key challenges notably legal and operational issues, ethical procurement, partnerships, privacy and data protection, and community perception. To help steer the responsible use of drones and build a community of humanitarian stakeholders, WFP set up four technical working groups (TWG) around the following thematic areas

- Regulation and Operation
- Ethics
- Connectivity
- Imagery

Types of organisations participating in UAS TWGs



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For more information, contact **wfp.drones@wfp.org**