

SAVING  
LIVES  
CHANGING  
LIVES



# Unmanned Aircraft Systems (UAS) Training

Report on the Let's COORDINATE Training in Addis Abeba, Ethiopia



# Contents

<b>Introduction .....</b>	<b>1</b>
<b>Training Overview .....</b>	<b>3</b>
<b>Training Details.....</b>	<b>5</b>
<b>Conclusion .....</b>	<b>7</b>
<b>Annex.....</b>	<b>8</b>
<b>Acronyms .....</b>	<b>9</b>

# Introduction

In April 2019, World Food Programme (WFP), as lead of the Emergency Telecommunications Cluster (ETC), conducted the Unmanned Aircraft Systems (UAS) training in Addis Abeba. Let's COORDINATE, was the first out of three teaching modules. This four-day training gathered national stakeholders to discuss the cooperation and integration of the drone technology into the Ethiopian regulations and humanitarian operations.

This capacity building opportunity was a joint initiative between WFP's Aviation (including United Nations Humanitarian Air Service [UNHAS]) and Programme (Climate Change Solution) teams in the Ethiopia country office, conducted with support and personnel from the Technology Division and funding from the Government of Belgium.

38 participants from 11 organizations attended the first training module, learning basics about the technology, its historical development and practical applications. Let's COORDINATE covered various aspects around the use of this technology such as coordination of actors and airspace, data protection, safety procedures, and use cases in development and humanitarian projects. The training aimed to equip the participants with broad understanding of the technology, and how it fits into emergency preparedness and response as well as climate change adaptation. With case studies from various countries, including the most recent emergency response in Mozambique, the participants learnt to develop the concept of operations and discussed local uses. The final day included a practical demonstration and first hands-on flight and mapping exercises.

This report outlines key figures and achievements as well as a way forward.

**This training was organized and supported by:**



**Belgium**

partner in development



**World Food Programme**





# Training Overview

Between 15 and 18 April 2019, WFP, supported by the Government of Belgium and local organizations, conducted the Let's COORDINATE Training in Addis Abeba, Ethiopia. National entities, intergovernmental organizations and humanitarian agencies attended this four-day event.

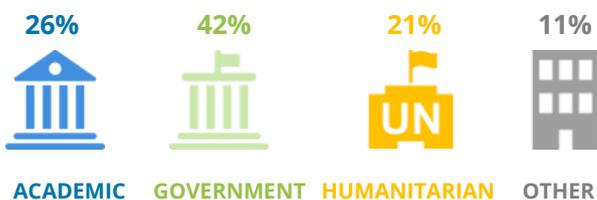


**11 ORGANISATIONS**  
**38 PARTICIPANTS**  
**92% MEN VS. 8% WOMEN**

## Participating organizations:

- Abyssinian Flight Services (AFS);
- Ethiopian Civil Aviation Authorities (ECAA);
- Geospatial Information Institute (GII), former Ethiopian Mapping Authority
- Information Network Security Agency (INSA);
- Ministry of Agriculture (MoA);
- National Disaster Risk Management Commission (NDRMC);
- National Institute for Control and Eradication of Tsetse Fly and Trypanosomosis (NICETT);
- National Meteorological Agency;
- Somali Regional State Agricultural & Natural Resource Development Bureau;
- World Health Organization (WHO);
- WFP (including Aviation, Programme).

## Breakdown of organizations:



## The full UAS training consists of three modules:

### LET'S COORDINATE



### LET'S FLY



### LET'S MAP



During Let's COORDINATE, the participants received training on the technology and its applications as well as an in-detail discussion on national and international regulations. The training was complemented by debate around data privacy and practical applications in other countries and regions, especially in climate change scenarios. The remaining two modules—Let's FLY and Let's MAP—will be conducted in May 2019.

## Theoretical sessions

The facilitators delivered theoretical sessions on:

- Overview of UAS coordination;
- Local airspace regulations;
- Case studies and lessons-learned;
- Safety procedures; as well as
- Data privacy and protection.

## Technology used for practical sessions:



**PHANTOM  
MAVIC PRO**

During the practical day, participants got the detailed look into the technology and the first hand-on experience with flying and mapping operations.



*“Over the last six years, we have been using aircrafts to release sterile males over infested areas. This is very costly. If we use drones, we will save cash, we will save time, and be more efficient because drones can easily access valleys or mountainous areas, unlike the aircrafts.”*

**Aschenaki Kalssa, the Head of the National Institute for Control and Eradication of Tsetse Fly and Trypanosomosis (NICETT)**

### Survey results:

- The training has met the expectations of 93 per cent of the participants.
- 100 per cent of the participants were satisfied with the content of Let’s COORDINATE.
- 100 per cent of the participants found that there was a good variety of content delivery method.
- The participants particularly enjoyed the holistic approach of the training that covered all the aspects—from technological overview to flying the drones, including detailed explanation of the safety procedures. Participants also praised professionalism and enthusiasm of the presenters; as well as the participatory approach i.e. working groups.
- Among the biggest personal learning, the participants named: mapping and assessment capacity; case studies; application of drones for search and rescue as well as forecast verification.
- From organizational perspective, participants indicated the following as biggest gains: data protection and raising community awareness; detailed presentations on local context and laws; possibility for developing partnerships; involvement of all stakeholders; applications for agriculture and risk assessment of drought & flood areas.
- Participants suggested to: have more practical exercises, make software for post-processing available before Let’s FLY and Let’s MAP; show more videos; and provide training manuals.

*“Currently, we drive long distances to conduct assessments and where cars cannot access, we go by foot. A food security assessment in one Woreda [district] takes about five days. With a drone, it can be done in a day or two.”*

**Ubah Ahmed, Safety Net Officer, Somali Region Agriculture Bureau**



# Training Details



*"Drones can make our disaster response and rescue operations faster and more efficient."*

**Sahle Tefera, GIS and Remote Sensing Expert at the National Disaster Risk Management Commission (NDRMC)**

## Data protection and privacy

The participants of the Let's COORDINATE training had varying experiences with drones—from zero to 10+ years, but all showed high level of engagement and interest during the course.

For most of the participants, data privacy and protection was a new topic. However, the Government of Ethiopia has clear measures on privacy protection that can be applied also in drone operations. In addition, the African Union (AU) has set some regulations, including [African Union Convention on Cybersecurity and Personal Data Protection" EX.CL/846 \(2014\)](#). African Union countries are drafting their national data protection guidelines in line with the above. The next step is building trust with the affected communities.

## Case study: drones in emergency response

One of the real-life scenarios presented to the group was the use of drones in the emergency response to Cyclone Idai, in the central Mozambique. The UAS services were deployed for the first time as a common service. The process of deploying was explained: day 1—service request, day 2—flights (mapping / assessment), day 3—processing and delivery of data.

## Guest presentations

INSA presented its decade-long experience in research and study based approach to drafting national policies, laws, standards and strategies on security. Since 2009, INSA has been working in the area of research and development (R&D) in aeronautic, and most recently drones. INSA has drafted two documents (security clearance forms) that will be shared with the group.

*"I found the training informative and very interesting. I only knew in theory that drones existed, but I was not aware that you could put them into so many different uses."*

**Adisu Debele, Agricultural Engineer, Ministry of Agriculture**



WFP Aviation presented on its experience of running air operations, but also providing air services to humanitarian agencies (UNHAS). This 16+ years of experience is crucial in building the capacity and offering common services in the area of drones. Importantly, UNHAS has presence in 14 countries, and is even managing airstrips where there is no aviation in place—in the past WFP Aviation and engineers have rehabilitated old landing space.

NICETT presented its project on eradication of tsetse flies in collaboration with International Atomic Energy Agency (IAEA), which involves mass sterile tsetse fly release. The project has resulted in 95% reduction in tsetse fly density over had 70% of the operational area. WFP was approached to help under Sustainable Development Goals 17 (SDG17) to implement the drone insect drops. NICETT would like to use fixed-wings drones as they are the most efficient and safe for the local populations. This will help expand the programme to other areas. Ethiopia is leading the way in Africa, and could be the best case example for other countries in the region—Kenya, Tanzania.

### **Group work outcomes**

The participants were particularly interested in application of drones in Ethiopia and suggested the following use cases:

- Climate change mitigation e.g. drones could help to map, assess, and evaluate impacts of deforestation and land degradation;
- Increase efficiency of operations e.g. drone drops for the tsetse fly eradication programme;
- Agricultural assessments e.g. crops yield; soil quality;
- Mapping of areas prone to disasters (droughts and flooding);
- Search and rescue in disasters;
- Mapping for engineering;
- Healthcare deliveries e.g. transporting vaccines or

lab results for faster medical assessment;

- Logistical assessments for alternative routes;
- Broadcasting /telecom weather advisory;
- Wildlife conservation via tracking and monitoring;
- Monitoring of Internally Displaced Persons (IDPs).

In the practical session, the groups developed concepts of operations (CONOPS) for various scenarios, including assessment for local farmers, logistical assessment of helipad condition as well as post-disaster mapping of the flooded areas. The groups looked into preparing such missions—from equipment and staffing to safety measures and requesting permissions. They also came up with specific tasks, responsibilities and expected outcomes, but also listed challenges and limitations. The participants also remembered to include the data privacy and community perception components.

### **Practical session / demonstration**

On the final day the participants got to learn how to operate the Mavic Pro and got the first look into flights with Phantom. The instructor also explained mapping missions with using software available for download online: Pix4D capture, DJI Pilot and DJI Ground Station.

### **Next steps**

- Two other training modules—Let's FLY and Let's MAP will be delivered in May 2019. This will give the participants a good overview of flight and mapping operations with multi-rotor UAS.
- To further the cooperation between the participants, a WhatsApp group was created to facilitate this dynamic community of drone enthusiasts and enable them a further discussion with the facilitators.

# Conclusion

Various divisions of WFP, from the Country Office in Ethiopia (Aviation and Programme) as well its Headquarters in Italy (TEChnology Division), have come together to deliver the first part of the three-module UAS training, in Addis Abeba in mid-April 2019. This learning experience was possible thanks to support from the Government of Belgium, as well involvement of all participating organizations due to their active engagement and driving some of the sessions.

In his opening statement for Let's COORDINATE, the Country Director of Ethiopia, Steven Omamo stated:

***“Drone training has already proven fruitful—pilots who were trained by WFP in Mozambique last year, are now responding to Cyclone Idai,”\****

Expressing this hope that the training in Ethiopia will bear similar results. With the two remaining modules—Let's FLY and Let's MAP to be conducted in May 2019, the participants will get a full induction to drone operations. This will enable their organization in making their projects and operations more cost-efficient and reach wider areas / assist more affected populations.

\* Please note that this training does not replace national regulation and a professional pilot license might be required to operate drones in your country of residence / assignment.



# Annex

## Training Agenda

SESSION	TIME	FACILITATOR(S)
<b>Monday, 15 April</b>		
Opening & Introductions	0.5 h	WFP Ethiopia, WFP UAS Team
Introduction to UAS	1 h	WFP UAS Team
Introduction to Participants	0.5 h	
INSA Overview of UAS Operations	1 h	INSA Ethiopia
WFP and The UNHAS Background	1 h	WFP Aviation Services
How can we use Drones?	1 h	Help.NGO
What is a CONOPS?	1h	WFP UAS Team, Help.NGO
<b>Tuesday, 16 April</b>		
Overview on Data Protection and Privacy	2 h	WFP UAS Team
Case Study: Disaster Response / Climate Change Mitigate	1.5 h	Help.NGO
Group work : CONOPS	1.5 h	WFP UAS Team, Help.NGO
Planning Field Operations	1 h	WFP UAS Team, Help.NGO
<b>Wednesday, 17 April</b>		
Case Study: Tsetse flies operations	1 h	NICETT
CAA Ethiopia presentation	1 h	ECAA
Field mission & control	1 h	Help.NGO
Case Study	2 h	Help.NGO
Logistics for Day 4	1 h	WFP UAS Team
<b>Thursday, 18 April</b>		
Research and Development Facility Tour	2 h	INSA
Introduction to Practical Flights and Mapping Exercises	2 h	WFP UAS Team

# Acronyms

<b>AFS</b>	Abyssinian Flight Services
<b>AU</b>	African Union
<b>CAA</b>	Civil Aviation Authority
<b>CONOPS</b>	concepts of operations
<b>ECAA</b>	Ethiopian Civil Aviation Authorities
<b>ETC</b>	Emergency Telecommunications Cluster
<b>FAO</b>	Food and Agriculture Organization
<b>GII</b>	Geospatial Information Institute
<b>INSA</b>	Information Network Security Agency
<b>MoA</b>	Ministry of Agriculture
<b>MNA</b>	National Meteorology Agency
<b>NDRMC</b>	National Disaster Risk Management Commission
<b>NGO</b>	non-governmental organization
<b>NICETT</b>	National Institute for Control and Eradication of Tsetse Fly and Trypanosomosis
<b>OCHA</b>	Office for the Coordination of Humanitarian Affairs
<b>R&amp;D</b>	Research and Development
<b>SDG</b>	Sustainable Development Goals
<b>UAS</b>	unmanned aircraft systems
<b>UNHAS</b>	United Nations Humanitarian Air Service
<b>WFP</b>	World Food Programme
<b>WHO</b>	World Health Organization

## Photo Credit

Cover Photo : WFP/Katarzyna Chojnacka  
Photo page 2: WFP/Katarzyna Chojnacka  
Photo page 4: WFP/Katarzyna Chojnacka  
Photo page 5: WFP/Katarzyna Chojnacka  
Photo page 7: WFP/Katarzyna Chojnacka  
Photo page 10: WFP/Katarzyna Chojnacka





**World Food Programme**

Via Cesare Giulio Viola 68/70  
00148 Rome, Italy  
T +39 06 65131 [wfp.org](http://wfp.org)