SAVING
LIVES
CHANGING
LIVES

Unmanned Aircraft Systems (UAS) Training

Report on the UAS Training in Bolivia: Let's COORDINATE, Let's FLY and Let's MAP

WFP
World Food Programme

December 2018

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Introduction

In December 2018, World Food Programme (WFP), as lead of the Emergency Telecommunications Cluster (ETC), conducted the Unmanned Aircraft Systems (UAS) training in La Paz, Bolivia. It consisted of three modules: Let's COORDINATE on strengthening cooperation between national and international stakeholders, Let's FLY—a practical flight exercise and Let's MAP on processing data. In addition to national organizations, also regional representatives from Cuba, El Salvador, Panama and Peru joined this six-day event*.

The Vice Ministry of Civil Defense in Bolivia (VIDECI) and WFP co-organized this learning experience, with funding from the Government of Belgium and support from the Military Engineering School.

43 participants from 15 organizations attended the three-module training— learning about coordination of actors and airspace, data protection, safety procedures, and processing the data. The training aimed to equip the participants with hands-on skills of operating multi-rotor drones in humanitarian context as well as processing the obtained imagery, but also to encourage a coordination between various national and regional stakeholders.

* The full UAS training package takes eight days (four days for Let's COORDIANTE, two days for Let's MAP and two days for Let's FLY). In Bolivia this package was compressed to six days, due to efficient logistics and increased number of facilitators deployed.

This training was organized and supported by:

MINISTERIO DE DEFENSA
ESTADO PLURINACIONAL DE BOLIVIA

VICEMINISTERIO DE DEFENSA CIVIL
DC
BOLIVIA

etc
EMERGENCY TELECOMMUNICATIONS
CLUSTER

Belgium
partner in development

WFP
World Food Programme

WFP

Training Overview

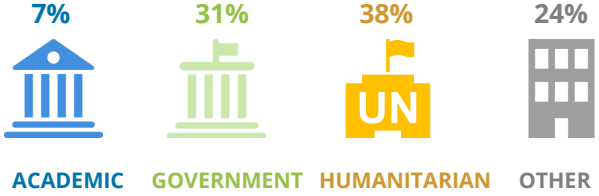
Between 10 and 15 December 2018, WFP, supported by the Government of Belgium and VIDECI, conducted the UAS Training in La Paz, Bolivia. WFP delivered three modules Let's COORDINATE, Let's FLY and Let's MAP. for national entities, intergovernmental organizations and humanitarian agencies.

15 ORGANISATIONS
43 PARTICIAPNTS
82% MEN VS. 12% WOMEN

Participating organizations:

- Computer Incident Response Teams (CIRT);
- Directorate General of Civil Aviation (DGAC);
- Business Group GEOCUBA (GEOCUBA)*;
- Military Engineering School (EMI);
- Military Geographic Institute of Bolivia (IGM);
- Ministry of Rural Development and Lands (MDRYT);
- National Army;
- Agro-environmental and Productive Observatory (OAP);
- Office for the Coordination of Humanitarian Affairs (OCHA);
- Practical Action;
- PROSUCO;
- Red Cross Bolivia;
- United Nations Humanitarian Response Depot (UNHRD);
- Vice Ministry of Civil Defence (VIDECI);
- WFP (offices in El Salvador, Peru and Bolivia).

** Association of state companies including Cuban Institute of Hydrography and the Cuban Institute of Geodesy and Cartography.*



The training consisted of three modules:

LET'S COORDINATE LET'S FLY LET'S MAP

During the six-day training, the participants got 16 flight hours using multi-rotor systems. They also received training on mapping (for creation of 2D maps and 3D models), 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.

Let's COORDINATE

The facilitators delivered theoretical sessions on:

- Airspace regulations;
- Best practices of UAS coordination;
- Lessons-learnt;
- Safety procedures; as well as
- Data privacy and protection.

Let's FLY

16 FLIGHT HOURS

Technology used for practical sessions:

SPARK
MAVIC PRO

Let's MAP

Participants learnt to process drone images into 2D maps and 3D models for assessments, using the following software:

- Pix4Dmapper; and
- Agisoft PhotoScan.

"The UAS training was the first time I worked close with drone technology. It was interesting to hear about lessons learned from other countries that suffer from similar problems. Now I know what drones can do in various scenarios relevant to us, like climate-change adaptation."

Sandra Franco, Practical Action

Survey results:

- The training has met the expectations of all participants.
- 100% of the participants were satisfied with all three modules, in terms of the content and the delivery methods.
- The participants particularly enjoyed the combination of theory and practical exercises; as well the use of alternative software. They praised the security measures taken during the course (safety goggles and vests) as well as competency of the facilitators who were able to deliver a various sessions—practical and theoretical.
- Among the biggest personal learning, the participants named learning to operate different types of UAS, creating flight plans, mapping, but also the high number of flight hours; and gaining insights into security procedures.
- The participations from other offices (El Salvador and Peru) appreciated learning about the potential of drones for operations in the Latin American region.
- From organizational perspective, the biggest learnings were: lessons-learnt on use of drones in various scenarios, particularly climate-change adaptation and emergency preparedness and response, as well as mapping for humanitarian purposes.
- The participants suggested the following improvements: a practical application in a mission; a longer training; online tutorials for refreshing the knowledge after the course or a follow-up training for continuity.

"After this training, the various applications of drones are evident – collecting information for early warning, emergency preparedness and disaster response. By using drones, we will be better positioned to assist the government in responding to various disasters in this country."

Elisabeth Faure, Country Director of WFP Bolivia

Conclusion

With support from the Government of Belgium, VIDECI and EMI, WFP trained representatives from 15 national, regional and international organizations to be able to use drones for humanitarian and development projects. 43 participants learned the full process of drone coordination, flight planning and UAS operations, but also post-processing of the obtained imagery, with various software.

Thanks to participation of actors from the region (El Salvador, Panama, and Peru) there was a broader exchange of ideas on the use of this technology in Latin America. One of the main subjects was use of drones for disaster preparedness as well as climate adaptation, which is particularly relevant in Bolivia, the country most prone to climate-related disasters in the region.

Annex

Training Agenda

SESSION	TIME	FACILITATOR(S)
Monday, 10 December (Let's MAP)		
Opening & Introductions	1 h	WFP, VIDECI, EMI
Introduction to Drone Imagery and Mapping	1 h	WFP UAS Team
Review of Data Privacy Law	2h	WFP UAS Team
Recommendations for Data Privacy	1 h	WFP UAS Team
Standards for Data Processing	1h	WFP UAS Team
Tuesday, 11 December (Let's MAP)		
Introduction to the Mapping Software	1 h	WFP UAS Team
Practical Mapping Exercises: Data Processing and Verification	6 h	WFP UAS Team
Wednesday, 12 December (Let's COORDINATE)		
Introduction to UAS Coordination	1 h	WFP UAS Team
Emergency Response Coordination in Bolivia	1 h	VIDECI
Airspace regulations and Use of UAS in Bolivia	1 h	CAA
International Coordination: Recommendations and Case Studies	2 h	WFP
Case Studies and Security Considerations	1 h	WFP UAS Team
Thursday, 13 December (Let's COORDINATE)		
Flight Planning: Flight and Separation Plans	2 h	WFP UAS Team
Case Studies: Agriculture and Adaptation to Climate Change	2 h	WFP
Group Work: Coordination for the UAS deployments	2 h	WFP
Group Work: Development of Coordination Protocols	2 h	CAA
Friday, 14 December (Let's FLY)		
Introduction to the UAS Technology	1 h	WFP UAS Team
Flight Planning	1 h	WFP UAS Team
Practical Applications and Hands on Flight (Multi-rotor systems)	8 h	WFP UAS Team
Saturday, 15 December (Let's FLY)		
Introduction to Advanced UAS	1 h	WFP UAS Team
Hands on Flight for Participants (Multi-rotor systems)	8 h	WFP UAS Team
Practical Mapping Exercises: Data Processing and Verification	1 h	WFP UAS Team

Acronyms

CAA	Civil Aviation Authority
CIRT	Computer Incident Response Teams
DGAC	General Directorate of Civil Aviation *(Dirección General de Aeronáutica Civil)*
EMI	Military Engineering School (*Escuela Militar de Ingeniería*)
ETC	Emergency Telecommunications Cluster
FAO	Food and Agriculture Organization
GEOCUBA	Business Group GEOCUBA (*Grupo Empresarial GEOCUBA)*
IGM	Military Geographic Institute of Bolivia *(Instituto Geografico Militar)*
MDRYT	*Ministry of Rural Development and Lands (Ministerio de Desarrollo Rural y Tierras)*
NGO	non-governmental organization
OAP	*Agro-environmental and Productive Observatory (Observatorio Agroambiental y Productivo)*
OCHA	Office for the Coordination of Humanitarian Affairs
UAS	Unmanned Aircraft Systems
UNHRD	United Nations Humanitarian Response Depot
VIDECI	Vice Ministry of Civil Defence
WFP	World Food Programme

Photo Credit

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Photo page 5: WFP/Katarzyna Chojnacka
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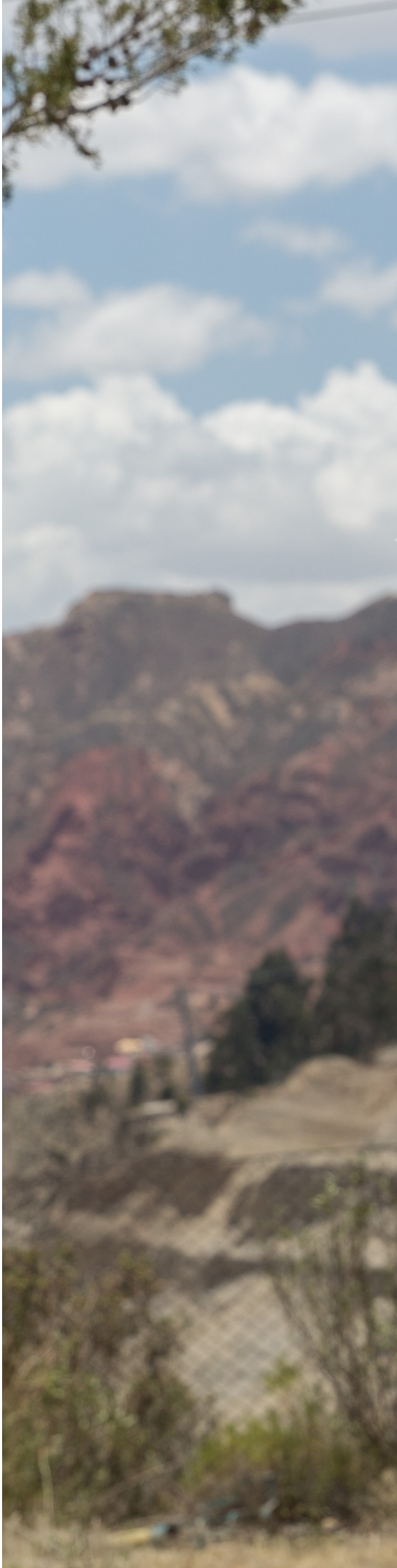

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