Unmanned Aircraft System (UAS) Coordination for Emergency Preparedness and Response in Bhutan

Participants engaging in group session (left) and practical session (right)

Participants pose for a group photo

OVERVIEW

Flying Labs	Nepal Flying Labs with the support of Bhutan Flying Labs
Location	Thimphu, Bhutan
Date	June 2022
Length (number of days)	6 Days
Sector program (optional)	AidRobotics
Format	In-Person Training
Co-organizer if applicable	UN World Food Programme (WFP) Bhutan
SDGs	GOAL 8: Decent Work and Economic Growth GOAL 9: Industry, Innovation and Infrastructure GOAL 17: Partnerships to achieve the Goal

SCOPE & OUTCOMES

Type of training	1. Introduction training to drones. 2. Technical training of professionals (drone data analysis). 3. Sector-specific training of professionals (drones for disaster relief). 4. Disaster simulation exercise.
Goal of the training	1. Create drone awareness. 2. Develop drone data acquisition and analysis skills. 3. Develop coordination skills among multiple stakeholders regarding use of drones in disaster context. 4. Policy discussions and recommendations.
Expected outcome for participants	1. Learn and understand recent development and best practices in the field of drones. 2. Learn to fly drones and most particularly to process these drone datasets. 3. Participate in a field-based exercise and learn how to effectively monitor, conduct drone flights and use output datasets for decision-making.

Confirmed outcome after training	● 40 participants were sensitized and trained on drone applications and coordination. ● Policy recommendation resulting from the gaps that need to be addressed as highlighted by the participating stakeholders. ● Creation of a drone task force where different organizations from different ministries are familiar with one another and can coordinate for drone operations.
Eventual next steps	● Civil Aviation Authority (CAA) Nepal plans to digitize the existing drone registration system by introducing a new web-portal. ● CAA Nepal is going to come up with a new set of regulations based on model Unmanned Aircraft System (UAS) regulations.

PARTICIPANTS	
Profiles and number of participants	● 10 staff from organizations ● 21 staff from government ● 5 professionals ● 1 members of other Flying Labs ● 3 university students
Name of participants' organizations	● Ministry of Home Affairs ● Ministry of Communication, Information and Technology ● CAA Nepal ● Department of Survey ● Land Management Training Center ● Nepal Police ● Nepal Army ● Nepal Armed Police Force ● The International Centre for Integrated Mountain Development (ICIMOD) ● Nepal Red Cross
Gender ratio	10 Females : 30 Males
Who paid for the training?	World Food Programme (WFP) Bhutan
Participant fee rate (if	Free training for all participants as the consulting fees for NFL

applicable)	was covered by WFP Bhutan office.
Scholarships offered?	Free training for all participants as the consulting fees for NFL was covered by WFP Bhutan office.

CONTENT	
Training components	- Introduction to drone technology and its types. - Applications of Drones in disaster management. - Introduction to Drone photogrammetry. - Introduction to different flight planning software and things to consider during flight planning.. - Hands on session with drone data processing software. - Practical drone flight training in the field. - Drones for disaster simulation exercise in the field.
Training resources used	Drones, tablets, android smartphones, high processing units, walkie-talkie, DJI GO 4, PIX4Dcapture, PIX4Dmapper, and PIX4Dreact.
Approaches and methods used	- Different thematic experts were hired for the training to cover topics such as introduction to drones and drone photogrammetry, processing and analyzing drone data. - The team of Bhutan Flying Labs who recently joined the Network contributed to the training efforts and resources. - The training included both theoretical and practical sessions. - The theoretical session was followed by a practical hands-on session where the participants got a chance to perform the processing as per the theoretical session. - The practical exercise included hands-on drone flight, data analysis and disaster simulation training. - The participants actively engaged in the software processing and thereafter, grouped during the field-based flight training as well as the disaster

	simulation exercise.