

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 |
| 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 | <ol style="list-style-type: none"> 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 | <ol style="list-style-type: none"> 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 | <ol style="list-style-type: none"> 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 | <ul style="list-style-type: none"> ● 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 | <ul style="list-style-type: none"> ● 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 | <ul style="list-style-type: none"> ● 10 staff from organizations ● 21 staff from government ● 5 professionals ● 1 members of other Flying Labs ● 3 university students |
| Name of participants' organizations | <ul style="list-style-type: none"> ● 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 | <ul style="list-style-type: none"> ● 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 | <ul style="list-style-type: none"> ● Drones, tablets, android smartphones, high processing units, walkie-talkie, DJI GO 4, PIX4Dcapture, PIX4Dmapper, and PIX4Dreact. |
| Approaches and methods used | <ul style="list-style-type: none"> ● 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. |
|--|----------------------|