City Councils Move with Technology

Group 1 City Council Remote Pilot Licence(RPL) holders from Mutare and Bulawayo City Council
after completing their skills test with the Civil Aviation Authority.

Tawanda Chihambakwe (ZFL Coordinator) introducing the Industry-specific Training

Practical Industry Specific Training with team from Bulawayo City Council

OVERVIEW

Flying Labs	Zimbabwe Flying Labs
Location	Harare, Bulawayo, Mutare and Masvingo
Date	May - September 2023
Length (number of days)	15 days training per group (3 groups trained)
Sector program (optional)	DevRobotics
Format	In-person
Co-organizer if applicable	Precision Drone Training
SDGs	GOAL 3: Good Health and Well-being GOAL 6: Clean Water and Sanitation GOAL 7: Affordable and Clean Energy GOAL 9: Industry, Innovation and Infrastructure GOAL 11: Sustainable Cities and Communities GOAL 13: Climate Action

SCOPE & OUTCOMES

Type of	1. Professional Pilot certification 2. Sector-specific training
Goal of the training	1. Create drone awareness 2. Certify drone pilots 3. Develop drone data acquisition skills 4. Develop drone data analysis skills 5. Develop data literacy/interaction skills
Expected outcomes for participants	The participants aimed to complete Level 1 and Level 2 training. ● Level 1 - The Remote Pilot License (RPL) is the first license that a person will need to obtain as a prospective drone operator and this basic training course is a requirement for pilot licensing as per the Zimbabwe Civil Aviation Regulations, S.I. 271 of 2018. ● Level 2 -Industry-Specific Training, participants gaining practical knowledge on Aerial Mapping, Data

	Processing and Data Analysis.
Confirmed outcome after training	- All 17 participants successfully completed Level 1 and obtained their Remote Pilot Licence (RPL). - Skills gained during the Level 2 training Mapping and Data Processing included: Intelligent Flight Systems and automated Flight, Waypoints and Telemetry Operations, Flight planning and Aerial Mapping, Data Processing and Data Analysis with Pix4D. - City Council staff were able to carry out volumetric measurements at dump sites and map out settlements on their own.
Eventual next steps	- City Councils to develop Standard Operating Procedures and fulfill organizational compliance requirements and safety standards. - Management training is needed on how to integrate drones in the council structures effectively.

PARTICIPANTS	
Profiles and number of participants	17 Participants from City Councils
Name of participants' organizations	- City of Bulawayo - City of Masvingo - City of Mutare - City of Harare
Gender ratio	4 Females (24 %): 13 Males (76%)
Who paid for the training?	The training was partly funded by the City Councils and their donor (VEI Dutch Water)
Participant fee rate (if applicable)	- Standard RPL discounted fee: USD$800 - Industry-specific discounted fee: USD$350
Scholarships offered?	Partial scholarship offered for industry-specific training.

CONTENT

Training components	The training was divided into two levels:-
	
	   ● **Level One Training: Drone Pilot Certification**
	Drone Pilot Certification included Theoretical Aviation, Drone Laws & Regulations, Flight Operations, Planning & Aircraft Performance, Basic Practical Flying Exercises, Flight Safety and Hazard Identification.
	
	   ● **Level Two Training: Industry-Specific Training on Mapping & Data Processing**
	Industry-specific training included Intelligent Flight Systems & Automated Flight , Waypoints and Telemetry Operations, Flight planning and Aerial Mapping, Data Capturing, Data Processing and Data Analysis with Pix4d and ROC operational requirements.

Training resources used	● **Hardware** DJI Phantom 4 Mavic Air 2s ● **Software** PIX4Dmapper ArcGIS
Approaches and methods used	Level 1 training allowed the participants to gain their RPL license which is a legal requirement to operate drones in Zimbabwe. The drone pilots completed the Level 1 training as a prerequisite for Level 2 training, industry-specific training. During the Sector Specific training, participants were taught on how to effectively use drones for Geographic Information System (GIS) Applications, Remote Sensing, Aerial Mapping and Data Processing. The training was conducted onsite at the different City Councils and produced relevant output for the City Councils including landfill volumetric measurements and mapping of settlements. The training took 10 days for the initial Level 1 training and an additional 5 days for Level 2 industry-specific training.