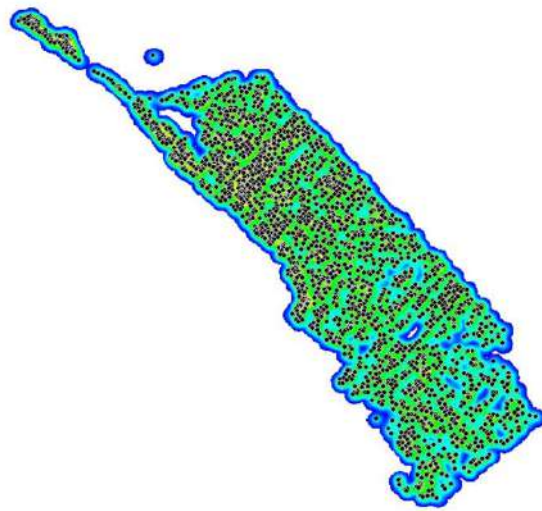


Turning Data into Action by Mapping Ombili - Informal Settlement in Namibia



Ombili informal settlement - orthomosaic



Shack density grid



Namibia Flying Labs team preparing for take-off

OVERVIEW	
Flying Labs	Namibia Flying Labs
Geographic area	Ombili Informal Settlement, Otjiwarongo Municipality, Namibia
Date range	April 2021 - January 2022
Sector program	DevRobotics
Main SDGs	GOAL 3: Good Health and Well-being GOAL 6: Clean Water and Sanitation GOAL 10: Reduced Inequality GOAL 11: Sustainable Cities and Communities

SCOPE	
Project stakeholders	Ministry of Urban and Rural Development (MURD) Namibia Civil Aviation Authority (NCAA) Ombili Informal Settlement residents Otjiwarongo Municipality
People impacted	Ombili Informal Settlement residents
Number of people impacted	Approximately 6160
Challenge	Ombili faces an issue of growing informal settlements and thus making it difficult to plan for services provision. The COVID-19 pandemic has equally negatively contributed to the rise in unemployment and led to new forms of poverty and inequality which will be entrenched for generations to come should there be failure to develop in ways that promote sustainable growth, access to clean water and sanitation, which will in turn result in overall good health and well-being of the target population.
Scope	The scope of this project involved the collection and processing of aerial images, in order to produce detailed maps and a report, with which the Municipality then used to identify projects geared towards serving the target community.
Outcome	An orthomosaic and shack density grid were produced and are being used for analysis to curb the bridge of the growing informal settlements and service provision. Otjiwarongo Municipality had expressed a need for help with four of their informal settlements and within this project, assistance was rendered with one, at no cost to them.
Impact	The Otjiwarongo Municipality used the information to amend their town plan in order to accommodate the target community by providing services around the existing structures, with displacement of a minimal number of the shack dwellers to other already serviced areas.
Next steps	The Municipality will be requesting funding from the central government to implement the identified projects. If successful, the project will be expanded to the other informal settlements that did not benefit from this exercise.

COMMUNITY ENGAGEMENT AND STAKEHOLDER SUPPORT	
Consent for data acquisition	Following the presentation of the project to the Council, they resolved to allow that data to be obtained from the Otjiwarongo Municipality.
Activities to engage with the community	The councilors were requested to engage with the community on behalf of Namibia Flying Labs. The police were also sensitized of the operations and the Council also sent out SMS notifications to the residents on the day of data collection, through their distribution lists.
Community groups engaged with	Community leaders (mayor and councilors)
Community attendance	Due to the COVID-19 pandemic, no in-person meetings were held.
Community feedback	The community members were excited that the Municipality had regards for them and at the prospects of development coming their way. There was also a general sense of felicitousness at the sight of drones.
Stakeholder support	Not relevant, as the Otjiwarongo Municipality has qualified professionals who were in a position to manipulate and interpret the output data.

DATA ACQUISITION	
Size of area	173 ha (1.73 km ²)
Drone	DJI Mavic 2 Pro
Sensor(s)	1" Hasselblad
Flight plan software	DroneDeploy
Flight height	100 m above ground level
GSD (Accuracy)	2.45 cm/pixel
Number of images acquired	2333
Number of flights	6
Time invested in data acquisition	3 days
Georeferencing	Onboard GPS

DATA PROCESSING & ANALYSIS	
Processing software	DroneDeploy, PIX4Dmapper
Processing time	03h:05m:22s
Data products	Orthomosaic
Analysis tools	Global Mapper, Picterra
Analysis outputs	Shack density report, density grid
Final outputs shared with stakeholders	Raw data, processing report, orthomosaic, shack density report, density grid, turning data into action plan, terms of reference for implementation
Data sharing	Flash drive, Google Drive