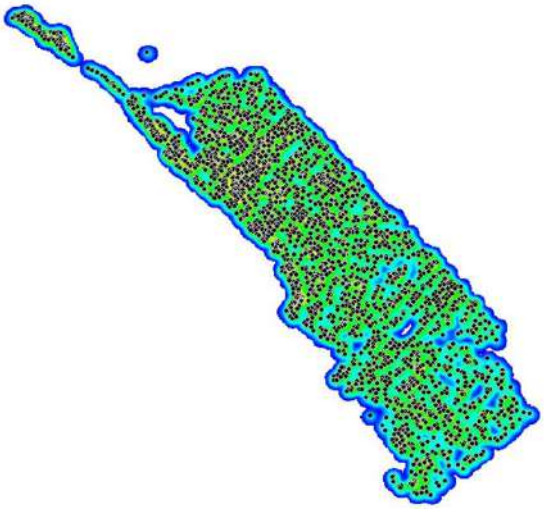
# Turning Data into Action by Mapping Ombili - Informal Settlement in Namibia

*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<br>GOAL 6: Clean Water and Sanitation<br>GOAL 10: Reduced Inequality<br>GOAL 11: Sustainable Cities and Communities |

| SCOPE | |
|---|---|
| **Project stakeholders** | Ministry of Urban and Rural Development (MURD)<br>Namibia Civil Aviation Authority (NCAA)<br>Ombili Informal Settlement residents<br>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 km2) |
| **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 |