Mapping the entire land mass of Zanzibar using senseFly drones

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Abstract:

In recent years, the primary geographic resource used by the Revolutionary Government of Zanzibar has been a map of the archipelago that was created following a manned aircraft mapping project back in 2004. However, this now outdated resource is in the process of being replaced, through the single largest drone mapping project ever undertaken.

The World Bank, the Zanzibar Commission of Lands and the State University of Zanzibar have joined forces to create this resource, embracing professional senseFly mapping UAVs in the form of eBee and eBee Plus aerial imaging drones. These platforms are currently being employed to map the entire land mass of Zanzibar: two islands spanning some 2,300 km^2 of terrain.

Ten students from the university and five surveyors from the Commission of Lands are closely involved in this project. Plus, revolving teams from senseFly in Switzerland are also involved, training local stakeholders on the drones and accompanying Pix4D image processing software in order to build sustainable local capacity on the ground. The goal being that these local operators will then be capable of managing any future mapping projects that are required. To date, the mission has mapped over 1 600 km^2 of the island of Unguja.

When the project ends in May 2017, both local government and civil society will benefit from broad access to a detailed, up-to-date map. There will also be local capacity in place with which to update this resource, as and when required, without large amounts of money needing to be spent on third-party geospatial data providers.

The new map of Zanzibar will be open data, made widely accessible through a Geonode of the government. As such, this resource will be employed by a wide range of government departments and organisations, for example for urban planning, environmental monitoring and much more.

The Zanzibar Mapping Initiative has already generated significant interest from other Zanzibar ministries and organisations. One new project it has spurned, for example, is a future $2 million land tenure project. This will involve mapping smaller parcels with RTK/PPK-enabled eBee Plus drones in order to ensure survey-grade absolute accuracy. Another future project looks set to be drone-based landfill monitoring by the Ministry of the Environment.

Brock Ryder's presentation will detail this unique—and uniquely immense—mapping mission. Brock will cover: how the project came to life, its objectives, example workflows, the challenges involved

and how the project's final high-resolution orthomosaic, created with next-generation survey drone technology, will benefit local communities for years to come.

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Commission 7 – Cadastre and Land Management

- Integrating new technologies in land administration and cadastre
- Modern communication in land administration systems
- Land policy and reform to support sustainable use of land
- Pro poor land management and its role in public administration
- Land management for state and public land
- Multi-dimensional cadastre
- Land rights reflecting societies' needs
- Land administration in pre- and post-conflict and post disaster areas