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UNICEF

Transforming Transportation

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Unmanned Aerial Vehicles in Malawi

WeRobotics Symposium
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Presentation by:
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Presentation Outline

- Feasibility of delivering lab samples by drones in Malawi
- Building national systems
- Use in health, humanitarian and emergency response

First official use of UAVs for development in Malawi:

Driven by use case, not technology

- 50% of HIV+ children die before their 2nd birthday if not on treatment. In Malawi, 70 children die from AIDS every week
- Turnaround time from blood draw for early diagnosis of HIV to lab - 2-3 weeks
- High costs of transport system; poor roads
- Samples (DBS) lightweight & portable



Government approval



Awarding contract



Public information

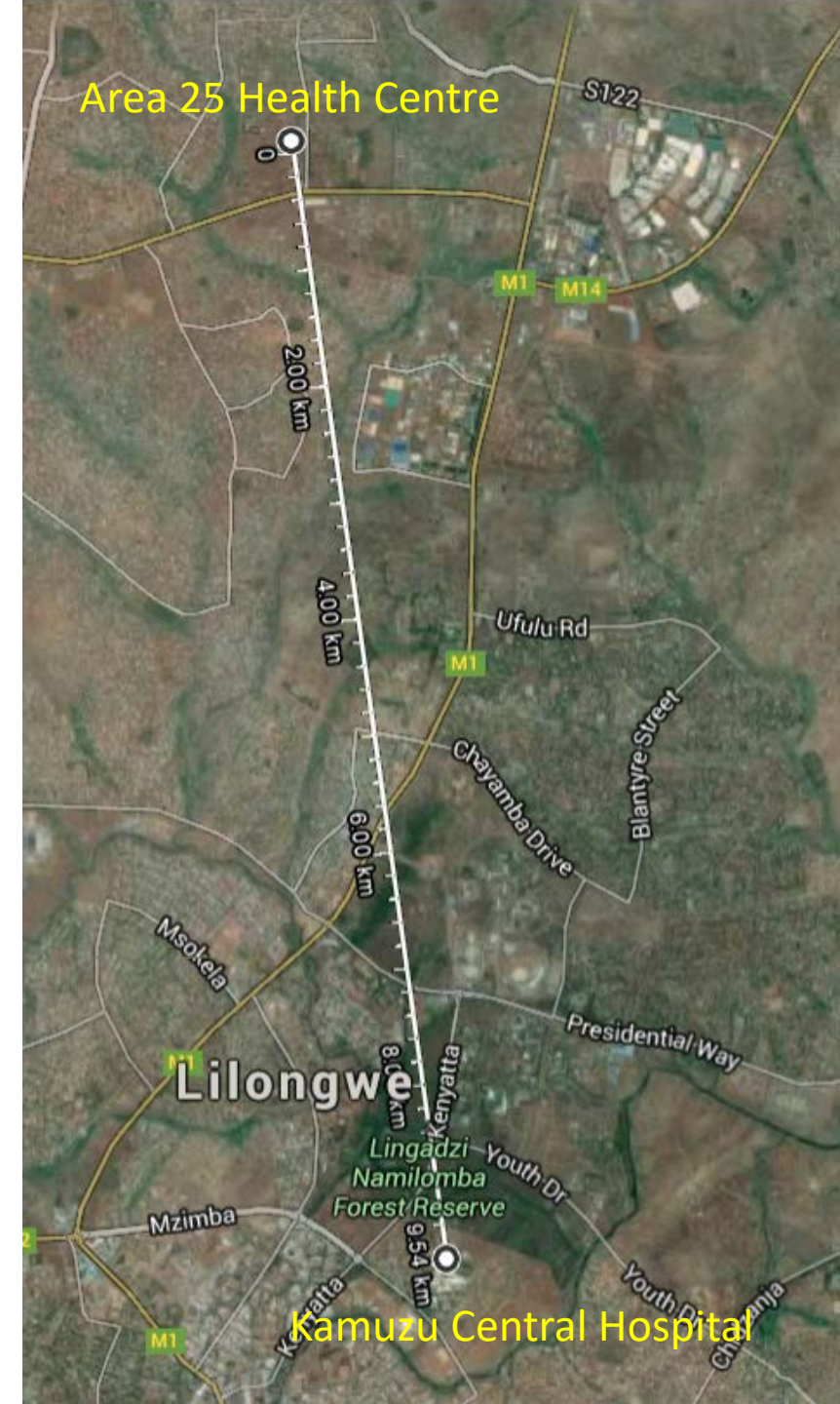


Community Demonstration Day



✓ Feasibility

- Multiple (93) *beyond-line-of sight, autonomous flights* over two weeks
 - Urban, high density environment
 - Controlled airspace
 - Variable weather
 - Most ~ 10 km
 - No adverse effects



Cost...?

Cost analysis of drones & motorbikes – varied according to scenarios (hub & spoke; loops; varying payloads)

Conclusion - Still an evolving field and requires optimized network



Phase 2:

Piloting an optimized diagnostics supply chain, integrating motorbikes, drones and point of care diagnostics for early infant diagnosis of HIV, viral load and TB to improve access to care and treatment



Building national systems

- CAA, MoD, MoJ, MoH regional learning
- Regulatory framework
- Team from CAA, MoD, MoH trained in drones inspection & licensed drone pilots
- South-South support



Emergency response: 2015

Assessing damage



Delivering supplies



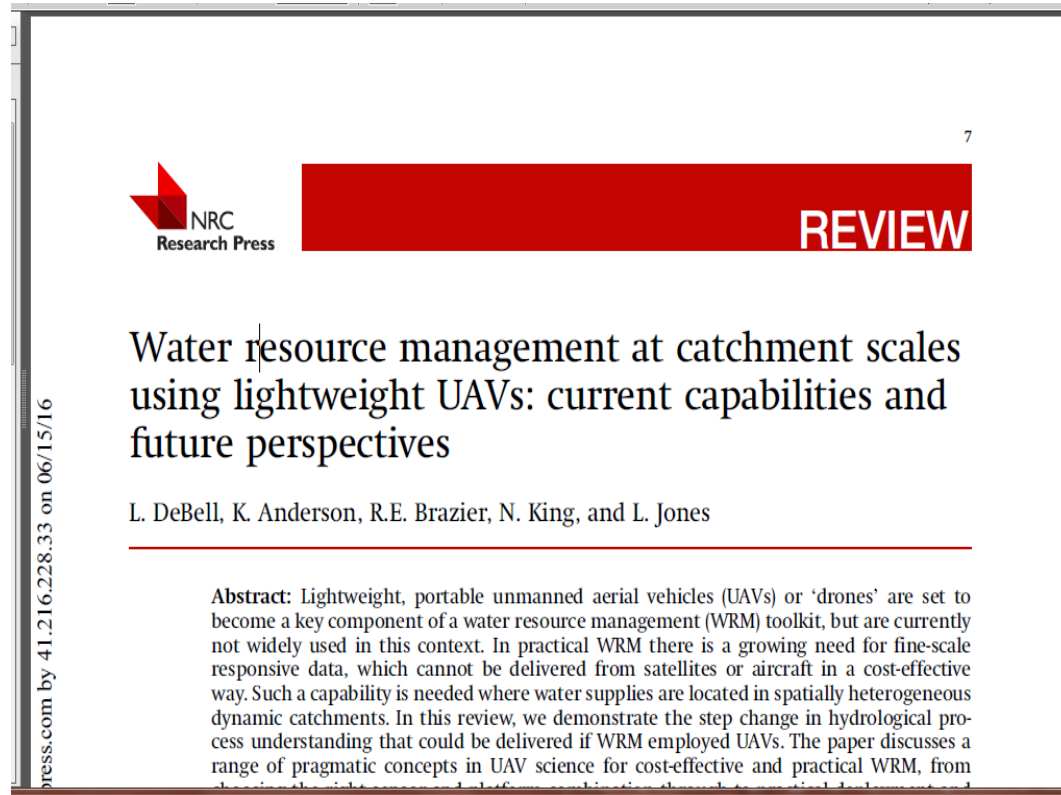
...and 2017



Engaged communities, district and national officials in rapid assessments (within 48 hours)

Integrating drones into national disaster response framework to provide response within 24 hours, especially search & rescue & immediate 'drops'

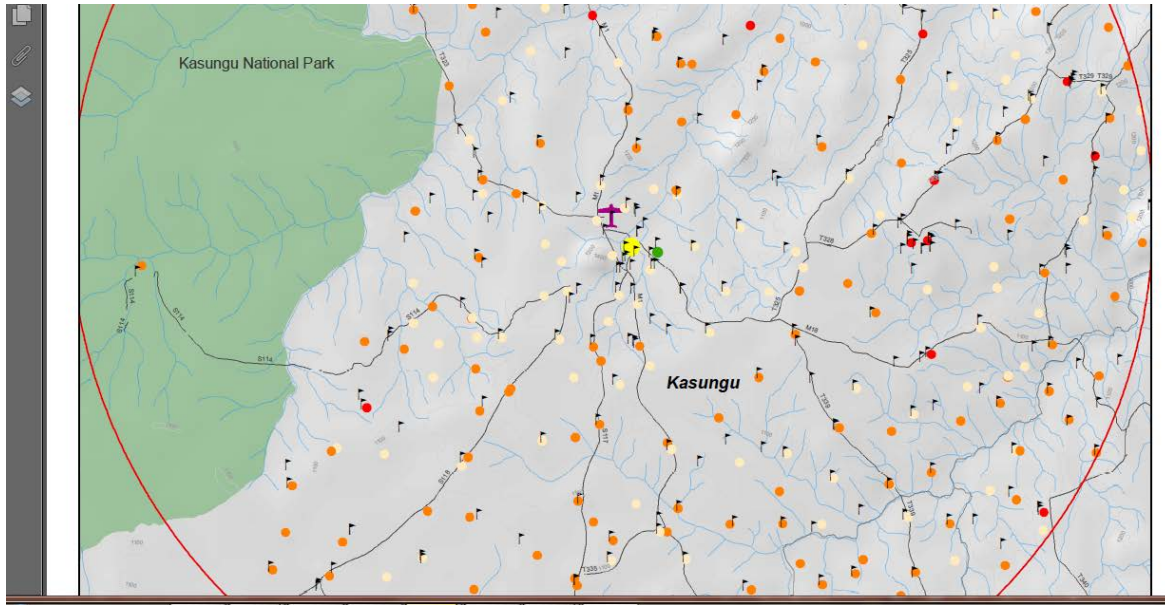
Risk-informed programming & mapping hazards – with communities



Risk mapping and hydrology/flood model of river catchments prone to frequent flooding

- River flows and rainfall intensity
- Community surveillance
- Assessing risk of flooding downstream

Drone corridor – creating space for new technologies & use cases and building local expertise



Acknowledgements

Government of Malawi

- Ministry of Transport and Public Works/Department of Civil Aviation
- Ministry of Defence
- Ministry of Health
- Ministry of Justice
- Ministry of Information
- Ministry of Home Affairs
- Ministry of Local Government
- Ministry of Foreign Affairs



Thank You

