Judith Sherman
UNICEF
Transforming Transportation
Unmanned Aerial Vehicles in Malawi

WeRobotics Symposium
01 June 2017

Presentation by:
Judith Sherman
Chief, HIV/AIDS, UNICEF Malawi
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 2\textsuperscript{nd} 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