Enabling Cross-Border Humanitarian and Medical Deliveries Using LARGE CARGO DRONES

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Problem Statement

Last-mile delivery of health and humanitarian cargoes to rural areas in Africa is usually affected by barriers such as:
- Land isolation;
- The breakdown or lack of a basic transport system and connectivity;
- The lack of secure storage and warehouse facilities;
- An inefficient distribution process and supply chain resulting in high wastage.

Case Studies

1. Ebola Outbreak: DRC Congo
   - 1,504 people have died since August 2018
   - Quick deployment of essential medical equipment and medicines.
   - First case reported: 3rd May 2018
   - First dosage delivered: 14th May 2018

2. Cyclone Idai: Mozambique
   - Area flooded: 2,165 km²
   - Approx. 1m affected people in the region
   - No access to food and clean water.
   - 900,000 doses of cholera to be flown

WFP Requirements for Cargo Drones

- Carry a payload of at least 200kg – 500 kg
- Feed at least 95 ADULT persons
- Travel at least 100 – 500km

Flyox Cargo Drone

- ACCESSING: The Inaccessible
- CONNECTING: The Disconnected
- REACHING: The Unreachable

- 4,000 kg Maximum Weight
- 1,200km Range
- Can land on water and unpaved airstrips
- 2,000 kg payload
- 26 hours Endurance on empty payload

Why Large Cargo Drones

- More cost effective.
- Flexibility in flight scheduling.
- Ability to land on unpaved runways and water.
- Fewer crew requirements.
- Minimal Stop-overs and More Direct flights.

Why Africa

- Distances between rural townships is large with poor infrastructure
- High altitude testing
- Landing in water and unpaved strips

Proposed Route Maps

Why Africa

- Harmonization of regulations across East Africa and other parts of the continent will be crucial for commencement cross-border flights.
- Standardization of personnel licensing across countries will also enable efficient and safe cross-border flights.
- Humanitarian Code of Conduct: This are set of best practices that cover issues of ethics, transparency, privacy and community engagement. Incorporation of these guidelines in drone operations is absolutely crucial in humanitarian and health logistics using large cargo drones.

Conclusion

For most regions in the African continent, the use of cargo drones in the future could be a solution to the infrastructure problem, enabling them to leapfrog traditional infrastructure development. This will involve taking full advantage of improvements in drone technology to increase efficiency in the delivery of humanitarian aid while lowering the transportation cost in a challenging environment where adequate infrastructure lacks.