MSF Cargo UAVs - Last Mile Delivery

- MSF Cargo UAVs – Last Mile Delivery
- We Robotics – Cargo Drones in Peruvian Amazonas
- WeRobotics – DR Cargo Trials

Oriol López
MSF: Supply Constraints

• Isolated Places
• Difficult Transport
• Key for good treatment
Example: Papua New Guinea

- MSF + Ministry of Health - Tuberculosis
- Collect TB sputum samples
Bringing TB Sputum samples is complicated

- Outreach Locations
- Difficult Access
- UAV regulation & Acceptance
- MSF + MoH project

- 2 Way trip – No Drop
- Quadcopter 15km range
<2kg Opportunities

Blood
Vaccines
Anti Venom
Lab Samples
Oxytocin
2kg Emergency Response Kits

Water • Treatment • 10k liters
- 1kg Flocculant
- 500gr Chlorine

Pool Tester

Com's Kit
- Cell Phone Repeater
- Satellite Phone
- Satellite Internet
SO WE WANT TO USE DRONES
Requirements: Operator

MSF Field Logistician

UAV Operator

External Operator

DHL
FedEx
ups
EMS
REQUIREMENTS: CONTROL

Automatic & Simple use
REQUIREMENTS: MAINTENANCE

Reliable & Easy Maintenance
REQUIREMENTS: RANGE VS CONTROL

80Km & Auto Take Off & Land

Vert Take Off

Vert Land

Long Range
REQUIREMENTS: RANGE VS CONTROL
REQUIREMENTS: RANGE & CONTROL
Aviation 1917
UAV VTOL 2017
Complexity – Sustainability - Reliability

Concorde

1976 - 2003
Concorde failed to meet its original sales targets

Douglas DC-3

1935 - Today
Grass & dirt runways
First plane to obtain benefits commercial passengers
Complexity – Sustainability - Reliability

Space Shuttle

1981 – 2011
NASA: The most complex machine ever built: 2.5m parts, 370km wire...

Soyuz (R7 & Spacecraft)

Rocket: 1957 - Today
Spacecraft: 1967 - Today
The Challenge to Demonstrate Transport in Real Environment
Civil Aviation Safety Authority - PNG

• UAV New Zealand regulation
• Regulation 101 – Section Unmanned Vehicles
  • Less than 25kg ✅
  • Aircraft register & approved
  • 400 feet max altitude ✅
• Line of Sight ✗
• Not 4km near Aerodrome ✗

Regulation 102
Transporting TB Sputum Samples
UN3373

- Non Hazardous (Only if Aerosolized)
- Triple Packaging
Flight Plan 1
Flight Plan 2

Landing Area 5m radius

Cleared Area 15m radius

Kerema Hospital

To Malala

To Ihu
PNG Cargo Drones - Key Points

- Outreach Isolated communities
- First Test Matternet 2014
- SOP and Mission Plan
- Solid Regulation (CASA NZ)
- Permission CASA & Local Authorities
  - Operate in Aerodrome
  - Out of the Sight of View
- Multiple Interest:
  - NGOs, Gov, partners...
- No military conflict area
Peru Cargo Tests in the Amazonas
Community Work

Community outreach in Pucallpa, Peru, prepping for our 2 week medical cargo drone tests next week #dronesforgood
Cargo VTOL Trials in Dominican Republic
Emprende – WeRobotics
Training in Parque Cibernético Santo Domingo
Dominican Republic training team
What was Next?

- Dominican Republic
- PNG – Vayu
- PNG – Sparkletech
- Perú – Jacques 2.0
Questions?

o.lopez@tokyo.msf.org