MAPP
Mini Aerial Photography Plane
Mine action

UN pillars of mine action

- Humanitarian Demining
- Advocacy
- Mine risk education
- Stockpile destruction
- Victim assistance
The GICHD

- Independent, impartial and neutral expert organisation founded in 1998.
- Deals with all aspects of landmines, cluster munitions, explosive remnants of war and ammunition safety management.
- Financed by voluntary contributions and through commissioned work (governments, international organisations, NGOs).
- Council of Foundation
  - President: Dr Barbara Haering
  - 20 States (9 mine and ERW-affected countries), European Union & UNMAS
Potential use In Mine Action

> Enhance **planning, recording, and reporting** capabilities

- Indirect indicators of contamination
- Update cartography material
- Communication
- Define object geo location
- Improve prioritization and planning of field operations
Survey on mine action user needs of UAS
Potential use

- Collect information about inaccessible hazardous areas
- Update of cartography material
- Facilitate planning process ahead of NTS, TS or Clearance
- Use as an alternative to GPS, dGPS, or other geodetic methods
- Improve the recording following NTS, TS or Clearance
- Communication with donors
- Communication with local communities
Main output products

- Georeferenced orthorectified mosaics, DEM and 3D models corrected with help of ground control points
- Imagery mosaic (combination of numerous photos into one)
- Numerous photos of the suspected area
- Georeferenced orthorectified mosaics, DEM and 3D models
- Geotagged imagery (one central coordinate per photo)
Main constraints

- Legislation restrictions
- Lack of knowledge about benefits of use of UAS
- Costs
- Safety and Security issues
- Logistic issues including training
- The type of the contamination
- Difficult meteorological conditions
- Already have good quality aerial imagery
MAPP Results

> Tested in Switzerland, Sweden, Azerbaijan, Iraq
Identified UAS criteria for mine action

- Cost
- Compact and easy transportable
- Compliant to security and legislation
- Easy to use
- Good peripheral tools and services
> Direct Evidences (Sweden)
> Indirect Evidences (Sweden)
Road/path not longer in use (Bosnia & Herzegovina)

1996

2005
Land use change (Bosnia & Herzegovina)
Map inaccessible areas (Iraq)
Advantages of the 3D analysis:
- increase the accuracy of area size calculations of contaminated surfaces;
- more realistically assess the operational difficulty of demining in a region by integrating slope and elevation into the analysis;
- better prepare field operations;
- determine the potential location of mines that may have moved over time through water run-off or surface movement; and
- report on demining activities in a more visually intuitive manner.
> Accuracy 1.5 m (Azerbaijan)
Easy to Use: 3 days of training, demonstrations (Iraq)
> Challenges

- Legal
- Cost
- Logistics
- Capacity
- Imagery processing