USING GIS FOR MILITARY ENGINEERING TASKS

Within the Dutch Armed Forces

Koninklijke Landmacht
Introduction

• Captain Sven Weijnschenk
• Military Engineering;
• 2 missions abroad (Iraq & Mali);
• Digital transformation & Robotic Autonomous Systems.
Military Engineering

- Counter mobility
- Protection;
- Mobility.
MILENG vs ENG Intel

KEY SUPPORTING TASKS
- ENG Intel
- ENG Recce
- ENG Divers

Operations

Intel
Rapid assessment team

- Asses the damage;
- Prioritize tasks for follow on forces;

Problems encountered:
- No geo database available before entering the “theatre”.
- No involvement of GIS;
- No base map to compare with.
2021: Our mission

◦ Combined unit (42 FTE) assigned to recce the island;
◦ Conduct an vulnerability analyses in the case of a nature disaster;
◦ Provide a base map to compare with;
◦ Experiment with new types of collection and analyses.
Preperation

◦ Developed an Intel Preparation of the Environment;
◦ Using satellite data, historical weather data, soil data and other open sources;
◦ Developed an Intel collection plan;
◦ Simulated an emergency scenario.
Modus Operandi

- Divided the island in 3 Areas of Operation;
- Tasked 8 teams to collect data using 2 methods:
  - Conventional methods;
  - New generation methods;
Collection 1.0

◦ Being conducted by small teams using conventional tools;
◦ Reported in Excel, later processed by higher levels;
◦ No digital tools were used.
Collection 2.0

- Team used modern tools;
- Drones to measure infrastructure;
- Apps to process the data;
- Near-Realtime presentation of the collected data on dashboards.
Processing

- Verifying the collected data;
- Conclusions to the collected data;
- This data was used to direct the collection effort.
Within the first 72 hours:
- Critical infrastructure was mapped;
- Main and secondary roads were mapped;
- A vulnerability analyses.

New tools provided:
- Reduced lead time
- Sharing the information.
Challenges for Collection 2.0

- Safety concerns;
- Working conditions;
- No validation by higher level before publication on the dashboard;
- (no) Accessibility to internet;
- Energy.
Future of GIS within the Dutch Army

- Automatization of terrain analyses;
- Use of Robotics;
- Verify instead of collect;
- Better understanding of the environment before entering the theatre.
QUESTIONS AND DISCUSSION