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Introducing the toolbox

TIRAMISU (Toolbox Implementation for Removal of Anti-Personnel Mines, Submunitions and UXOs) will develop a set of advanced tools for Humanitarian Demining. These tools will be designed and tested on the field with the help of International demining experts. The toolbox will benefit all the Humanitarian Demining operators allowing for a faster, safer and more precise decontamination of Mine- and UXO-polluted area.

What’s in the toolbox

1) Advanced General Survey tools to help setting priorities among the affected areas, using remote sensing, contextual data, expert knowledge and GIS analysis.

2) Non-Technical Survey tools to support Suspected Hazardous Area (SHA) assessment and delimitation using remote sensing, contextual data, expert knowledge and GIS analysis.

3) Technical Survey tools to detect indicators of probable presence of landmines/UXOs.

4) Stand-off Detection tools to detect mines, submunitions or explosives at close range with remotely controlled Micro (Unmanned) Aerial Vehicles (MAV/UAV), remote controlled ground platforms (UGV) or flying biosensors (honeybees).

5) Ground-based Close-in Detection tools, such as advanced metal detectors, ground penetrating radars and novel chemical sensors.

6) Disposal of ERW (Explosive Remnants of War) tools to protect deminers or vehicles against explosions.

7) Mine Risk Education tools to assist in Mine Risk Education activities.

8) Training tools aiming at developing capacity building and enabling the user uptake of the tools developed.

9) Mine Action mission management tools to improve planning and execution of Mine Action missions.

10) Standards this module includes the current and in-progress or proposed CEN Workshop Agreements (CWA).

Stand-off Detection:
Training honeybees to detect TNT

TIRAMISU partner University of Zagreb is developing a method to train honeybees to detect explosives. The main focus of the experiment is to condition a honeybee colony to search for TNT scent.

How it works

Honeybee colony

MesH tent

Feeders with TNT odour

Procedure

1. Setup of the tents
2. Setup of the test colonies
3. Accommodation of the colonies to the tent for one to two days
4. Setup feeders with and without scent and reward
5. Training phase: three to four consecutive days
6. Testing phase: three to four consecutive days, with two repetitions within a test day.