TIRAMISU
Toolbox Implementation for Removal of Anti-personnel Mines, Sub-munitions and UXO

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OBJECTIVE

The goal of the FP7 Project TIRAMISU project is to prepare a series of cost-effective **tools integrated in a comprehensive modular toolbox** for Humanitarian Demining, explosive remnants of war (ERW) and unexploded ordnance (UXO) removal tasks and a related operational implementation of services, including standardization actions.

As every situation is different, it is impossible to provide one solution for Humanitarian Demining that fits all needs. The TIRAMISU project will concentrate on developing components or building blocks, which can be directly used by the Demining managers when planning Mine Actions, from area reduction to effective mine-clearance.

This objective will cover the following Mine Action Processes :

1. The **Land impact survey** by developing tools to enable the prioritization on the most threatening and the most useful areas to the society.
2. The **Non-technical survey** (Area Reduction) by developing tools for collecting and analysing information about a hazardous area in order to establish the perimeter of the actual hazardous areas without physical intervention.
3. The **Technical Survey** (Area Reduction) by developing tools to get indicators of absence of mines
4. The **Clearance** by developing tools reducing the cost and increasing the speed of (full) clearance, which includes close-in-detection and neutralisation

Taking into account the **end-user's needs**, as they are currently known, and their associated challenges, the TIRAMISU toolbox will be structured into modules. Each module is a set of tools **aimed at the solution of a specific activity or issue related to** Mine Action. The concept of Tool used here, is a generic expression to define a **service** (analysis/software/hardware), a **method**, **equipment** (sensor, platform, protective device, etc.), a **GIS product**, among others

Besides the modules dedicated to the above list of mine action processes, the toolbox will also include a Mine Risk Education module and a personnel equipment module.

OPERATIONAL IMPLEMENTATION

The TIRAMISU toolbox will contain modules based on improved, and possibly standardized or certified, tools associated with their training tools. Moreover, the tools will be validated by end-users in mine-contaminated countries when necessary.

The TIRAMISU toolbox will not duplicate tools that already exist although it will refer to them

The philosophy of the TIRAMISU project is to concentrate most of its efforts on the most mature technologies and methods while still investigating promising and innovating even solutions

The TIRAMISU toolbox will address the operational needs of tools for mine actions in world-wide civilian contexts. A number of scenarios will be selected for their diversity with respect to conflict type, time passed after conflict resolution, climate type, and socio-economic situation. The tools will be defined by the consortium with the help of a large panel of end-users (EUB) involved in the considered scenarios.

A Project Advisory board made of experts (consultants in MA, specialists in conflict/post-conflict analysis, etc.) will provide advice and guidance to the project staff concerning the Project's overall content, direction, priorities, methods and dissemination.

NORMALISATION

The work done in TIRAMISU will naturally lead to standardization through two processes:

- When specifications written for some TIRAMISU tools have a larger benefit to the mine action community, they will form the basis for a new standard;
- Test and evaluation protocols that will be written to evaluate some of the tools can also benefit the mine action community and, when they do, they will serve as starting points for new standards;

INTEGRATION

The integration of the TIRAMISU toolbox will be made through two different means: a TIRAMISU website toolbox the TIRAMISU Information Management and Analysis System (T-IMS)

The TIRAMISU toolbox Website will be set up at the beginning of the TIRAMISU project and will be fed throughout the project."

Six months after the kick-off meeting, the site should already contain detailed information on the state of the art. After the project, the site would be transferred to the Geneva International Centre for Humanitarian demining.

USERS

The toolbox will be designed to provide useful information to three different kinds of end-users:

- Mine Action Centres, who will find details on:

    - “Ready-to-take” tools and other tools (e.g, metal detectors, mechanical devices with their tests and evaluation reports, and training)
    - information about companies offering services for Impact Survey, Technical Survey, or information services subject to agreement with a TIRAMISU partner (for example sensors data)

- Any contracting company involved in Mine Action will find information useful for providing services to NMAA/MAC (such as prioritization tools, GIS dedicated to mine action, guidelines to perform Impact Surveys, access to Earth Observation (EO) and non EO data), list of modules given a specific scenario, etc.)
- Industrial or software companies will find details on tested prototypes and demonstrated methods in order to commercialize tools not developed by the industrial partners of the TIRAMISU consortium

For each tool, the point of contact, descriptive sheets, cost information, training tools, and all other relevant information will be available and accessible externally.

The TIRAMISU toolboxWebsite will include a service gateway that will provide end-users with a user-friendly interface (interactive Website, including Web-GIS tools) for information and services access.

Any sequence of TIRAMISU modules used in a given scenario will be integrated in the sense that the output data of one module will be compatible with the input of the next one. The T-IMS will guarantee this compatibility.

Many of the tools that are a part of TIRAMISU already exist in some form (prototype, first release or mature system). This would most likely lead to some problems if the TIRAMISU project would aim at a complete integration into a common application framework and a unified user interface.
In order to avoid unnecessary costs the project will focus on a loose integration based on a common data exchange format (tsuXML). The data exchange format will cover all data structures and elements that are needed through the TIRAMISU workflow (raw data like imagery is not covered by the xml scheme and will be exchanged as separate files). Each data transmission between two tools may use the parts of tsuXML that are necessary to perform the next task.

The T-IMS will have an internal data structure that is capable of storing the complete dataset used in the TIRAMISU workflow.

Ref: FP7 GA 284747 (www.cordis.eu)