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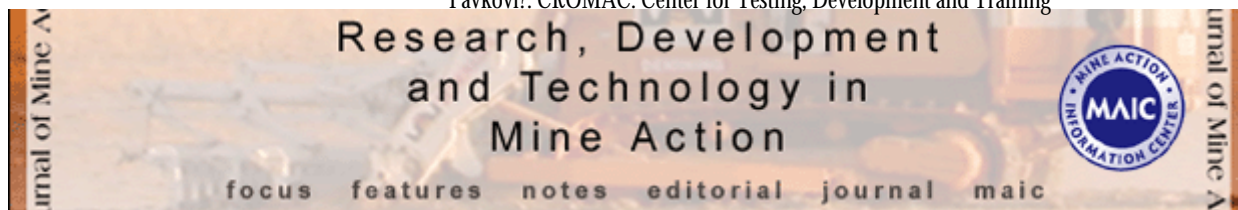
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CROMAC: Center for Testing, Development and Training

Having established the mine action program in Croatia, the Croatian Mine Action Center (CROMAC) created conditions to engage not only in the organization and execution of demining operations, but also in research, development and improvement of mine action techniques, technology, and methods; testing of demining machines; and testing of mine detection dogs (MDDs) and handlers, testing and field evaluation of modern technologies, training, and providing professional assistance within the region and beyond.

by Nikola Pavković, M.Sc., CROMAC

Introduction

Since the scope of Croatia's demining activities has been growing constantly, CROMAC has established the Center for Testing, Development and Training (CTDT) as an independent legal entity. The rationale behind establishing the Center is as follows:

- Continuing research and development (R&D), thereby increasing the scope and range of CROMAC activities.
- Development to date; quality and achievement in the field of testing; implementation of scientific projects; number of established test sites; CROMAC needs; and interest by equipment manufacturers and previous project partners.
- System, equipment and standard operating procedures (SOPs) for general airborne survey procured and developed through projects financed outside the Croatian state budget, plus trained and qualified staff.
- A number of scientific and expert associates in Croatia qualified and trained for implementation of projects in accordance with the methodology of the European Council (EC), the International Atomic Energy Agency (IAEA) and U.S. Humanitarian Mine Action Programs.
- Facilitating collaboration developed among scientists from the different faculties of Zagreb and Split Universities, as well as from other institutions.

The Center will enable donors, manufacturers and end-users to test and develop demining machines and mine/UXO detection methods and techniques on its own site. In collaboration with CROMAC, the Center will conduct field tests and operative evaluations of new technologies and methods for minefield detection, mine-suspected area reduction and mine/UXO detection in real minefields. It will also develop and improve mine information systems (MISs) and geographic information systems (GISs), integrate advanced decision-making support methods, provide situation overviews and increase spatial data quality.



Oracle heavy machine.

In collaboration with the Croatian Standardization Institute, national standards for testing and licensing of tested mechanical equipment, dogs and new detection methods will be performed.

Furthermore, the Center will be working on the

overall development of the mine action system and on development of all of its components separately. With the CROMAC support, the Center will strive to cross national borders with the aim of more efficiently implementing mine action in other countries of the region and beyond.

The Center will also train work site managers, team leaders, demining project development staff and quality assurance (QA) staff for CROMAC, demining companies and non-governmental organizations (NGOs) inside and outside of Croatia, in cooperation with similar institutions all over the world. Through a special training program, the Center will prepare mine action managers for missions in foreign countries.



Samson medium-sized machine.

Objectives

The Center's main objective is to upgrade and develop mine action in Croatia and in the region. On the basis of this objective, the Center will promote, support and develop field tests and evaluation of detection technologies, systematic trials and R&D of mine action. The following activities highlight this objective:

- Organizing workshops, seminars, lectures, conventions, conferences and other gatherings on the subject of mine action.
- Establishing cooperation among, and the professional upgrading of, mine action actors, with the aim of enabling Croatian experts to come out to the international market.
- Acquiring accreditation for the testing of mechanical clearance equipment.
- Acquiring accreditation for the testing of MDDs and handlers.
- Developing and maintaining existing test sites for demining technologies and techniques.
- Developing norms and standards for applying demining techniques in coordination with the Croatian State Standardization Institute, the European Center for Standardization (CEN) and the Geneva International Center for Humanitarian Demining (GICHD).
- Encouraging students and young experts in the R&D and upgrading of the mine action system.
- Collaborating with similar centers and organizations abroad, and with all other organizations that support the work of the Center.
- Promoting scientific and professional collaboration with national and international institutions and centers.
- Publishing journals and presenting test results.
- Implementing projects aimed at systematic development of mine action.
- Implementing projects, field trials, and testing and evaluation (T&E) of mine action technologies in the field of mine-affected area detection, mine detection and mine-suspected area reduction.
- Participating in international tenders related to scientific projects of mine action, primarily for the detection of mines and mine-affected areas and mine-suspected area reduction.
- Acting as the executing party in scientific projects on behalf of and under authority of CROMAC.
- Collaborating with the Ministry of Science and Technology and with other Croatian ministries in the realization of the Center's objectives.
- Executing other activities that contribute to achieving the objectives of establishing the Center, determined by the provisions of the future Statute of the Center.

After the testing conducted on a test-site and after the operative testing of a new method, the Center will, in collaboration with CROMAC, apply that method in real minefields. This will accelerate the mine clearance process while reducing its price, and enhance the safety of deminers as well as improve safety in the cleared area. The CROMAC Scientific Council is one of the factors contributing to the development of the Center, and has become the

managing council of the Center. The principles of quality and economics were used in the development of the program and work plan with the purpose of acquiring sustainability, competitiveness and further development of the Center.

CROMAC, as the founder of the Center, will carry out its activities through the Center. Moreover, CROMAC will provide the Center with logistic support in the following areas:

- Conducting R&D of demining technologies (Article 8 Item 6 of the CROMAC Statutes).
- Testing machines, MDDs and handlers.
- Implementing existing and future mine action projects.
- Providing all types of training for CROMAC.
- Collaborating with similar international institutions.
- Ensuring the Center's appearance in the international market.
- Establishing and maintaining future and existing test sites.
- Executing other activities as later defined by a contract on mutual relations, or by the statement of the founder.

Based on the need to improve the quality of demining work, the Center may render monitoring services to CROMAC on demining projects funded from the state budget, public companies and other projects funded by donors.

The Role of the Center in the Mine Action Community

Both technological advancement and sharing technology are imperative for successful and sustainable growth of both undeveloped and developed countries. The testing and development needs of countries in the region and beyond, especially with regards to the needs of humanitarian demining, will be fulfilled in the Center. Croatia possesses the appropriate knowledge, a properly established humanitarian demining system, the necessary skills, a professional staff and specific test sites, all of which are necessary for high-quality field tests.

The establishment of the Center is also in line with the National Mine Action Program in the Republic of Croatia, the framework of which has led to the view that the development of new technologies should be overseen and introduced into the Croatian demining system. According to the UN evaluation mission, the Croatian humanitarian demining system is one of the best in the world. Experts are trained at our universities, while our demining companies, army and police are internationally recognized and respected. The Center will have a leading role in testing and will also train and introduce new methods and techniques in countries that face a landmine problem (i.e., Bosnia and Herzegovina, Kosovo, Albania, Afghanistan, Macedonia, Azerbaijan, etc.).

Ongoing Activities

In contracted projects, CROMAC-CTDT enables the integration of R&D activities into interdisciplinary projects in a way that actively connects the academic community with the mine action community. There are several ongoing testing and trial activities in Croatia, including:

- Comparative testing of explosive vapor detection systems, such as the Mechem Explosive and Drug Detection System (MEDDS) and FIDO.
- Field testing and use of a neutron generator-based system in demining (PELAN).
- Testing of an explosive vapor detection system (BIOSENS).
- Airborne mine-suspected area reduction (ARC).
- Space and Airborne Mined Area Reduction Tools (SMART).
- International Test and Evaluation Program (ITEP) project 2.1.1.2, Reliability Model for Evaluation of Metal Detectors.
- Testing of demining machines.
- Testing of MDDs and handlers.
- Application of multicriteria analysis in developing mine action plans.
- Application of General Airborne Survey with the aim of defining mine-suspected and mine-affected areas.

- Airborne identification of minefields by detection with honeybee clusters.

Cooperation in the above-listed scientific projects provides a unique chance for all the research team members to come in contact with advanced technology. The projects have also been useful in training teams and establishing standard operating procedures (SOPs), and experience has been gained in defining and executing operational T&E in real minefields.

Conclusion

The basic objective of establishing the Center is to create an institution that will enable its users and partners to conduct high-quality field tests and evaluation—activities highly in demand—that will result in new solutions upon which an improved mine action process will be based. The analysis of supply and demand concerning the activities for which the Center will be responsible has shown that no similar centers exist in Croatia, despite a significant need for one in the region and beyond. The establishment of the Center will open the possibility for further development of mine action, e.g., in the direction of detection and destruction of individual UXO items, in-depth searches, underwater demining, etc.

**All photos courtesy of the author.*

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