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Dear Readers,

NATO Centres of Excellence are one of the tools of NATO Supreme Allied Commander for Transformation aiming to improve military capabilities, value and efficiency of the Alliance. They are nationally or multi-nationally sponsored entities offering recognized expertise and experience to the benefit of the Alliance, especially in support of transformation.

The Explosive Ordnance Disposal Centre of Excellence (EOD COE) was founded in 2007, three years after Slovak Republic joined NATO and volunteered to establish the EOD COE on its territory. With the Slovak Republic as a Framework Nation, providing the Centre with infrastructure and the main manning body, the EOD COE is supported by four Sponsoring Nations (CZE, HUN, POL and ROU).

Since its establishment, the EOD COE has been solidifying its leading position within the EOD community. The expertise accumulated within the Centre has fostered the development of future EOD capabilities in support of the NATO level of ambitions.

In order to enhance the interoperability within the NATO, the EOD COE contributes to the NATO standardization process by supporting the development of the Allied EOD publications, leading to the creation of the first ever NATO EOD Doctrine promulgated at the beginning of 2018. We also support selected NATO Working Groups (WG), mainly EOD WG, MILENG WG, Force Protection WG and C-IED WG. Within the EOD WG, we volunteered to lead the Terminology Team and the Lessons Learned Team. As such, we are leading the development of NATO EOD Terminology.

Witnessing more and more attacks happening in every part of the world, homemade explosives are still a growing concern for NATO due to the availability of precursors on the market. In order to face this challenge, the EOD COE organizes homemade explosives courses at basic and advanced levels. Based on NATO request, the Centre assumed the role of a project manager for NATO CBRN EOD Incident Management Training.
Within new challenges, the Centre initiated its contribution to the full EOD capabilities training spectra through multinational EOD related exercises, such as Bison Counter, Northern Challenge or Ardent Defender.

As EOD is an integral part of NATO capabilities, we also support NATO Defence Planning Process (NDPP). The EOD COE is recognized as an appropriate point/linkage body through which the EOD expertise knowledge is embedded into the NDPP.

The Centre has established the EOD/IED Equipment Catalogue in order to provide more information about EOD/IED equipment, its brochures, training manuals and users’ opinion statistics.

In cooperation with the C-IED COE and the MILENG COE, the EOD COE organizes NATO EOD Demonstrations and Trials series harmonized with a series of EOD Workshops, both events being organized biennially. Furthermore, since 2017 the Centre, in cooperation with the NATO Communication and Information Agency, has launched the Integration of Exoskeleton in the Battlefield project as a part of the Defence against Terrorism Programme of Work.

Above-mentioned is only a very brief overview of the works and efforts of the entire EOD COE team. We continue carrying out our mission to be a relevant supporter in building of EOD capabilities of Sponsoring Nations, NATO Alliance and its Partners and to support the NATO transformation process. At the same time, we stand ready to welcome other Nations on board to enhance our effort more widely in development of solutions and to address current and emerging global security challenges.

Róbert CSÁSZÁR
Colonel, SVK Army
Director
Mission and Vision

MISSION:
The EOD COE mission is to support and enhance the NATO transformation and operational efforts in the field of EOD.

VISION:
To be NATO’s catalyst for improvement and transformation of EOD.

Strategic goals:
Optimize communication
Increase knowledge building
Ensure excellent expertise delivery
Improve ourselves
Background, History and Milestones

One of the first steps of the Slovak Republic after joining NATO in 2004, was volunteering to establish the Explosive Ordnance Disposal Centre of Excellence (EOD COE) on its territory. Since then we went through several milestones, assessments and accreditations to finally become the official NATO Education and Training Facility:

**2007**
Establishment of the EOD COE, collocated with the national EOD unit

**2009**
Splitting into a national and a NATO organization, including full Host Nation Support

**2010**
Functional and Operational Memoranda of Understanding were signed by SVK as Framework Nation and CZE, HUN, FRA and ROU as Sponsoring Nations

**2011**
Assessment by the ACT HQ team following the North Atlantic Council accreditation of the EOD COE, the Centre was activated as an International Military Organization

Poland joining the EOD COE

**2013**
France leaving the EOD COE

**2015**
Quality Assurance /Institutional Accreditation/

The EOD COE, since its establishment as a NATO COE has provided products and services consistent with NATO standards, practices and procedures enhancing interoperability of NATO members and partnering nations in fields of EOD. Recognizing its high standards of training and education, in 2016, the Supreme Allied Command Transformation awarded the Centre with a Quality Assurance Unconditional Accreditation Certificate and the EOD COE became the official NATO Education and Training Facility.
Four Pillars and Organisational Structure

In harmony with the EOD COE mission anchored in the MOUs all main tasks are performed in support of four COE mission pillars:

- **Lessons Learned and Analysis**
- **Training and Education**
- **Concept and Doctrine Development and Experimentation**
- **Standardization**

The EOD COE is continuously aiming to harmonize own and coordinated work efforts and produce valuable expertise outcomes and entries for the whole spectrum of requirements from EOD COI.

Therefore, the EOD COE has implemented and applied the Quality Assurance mechanism and tailored its organizational structures accordingly (see the current EOD COE chart below).
The EOD COE dedicates its main current efforts to the umbrella EOD COE objective to support and enhance the NATO transformation and operational efforts in the field of EOD. At the same time, a great deal of attention is paid to the future security challenges, analyzing them, searching and projecting possible solutions within EOD area. These ambitions and focuses are brought to life throughout following lines of operation:

- **Expertise support**
- **Cooperation with respective COIs and works on projects for the future**
- **Training**
Expertise Support

To enhance the Interoperability the EOD COE contributes to the NATO Standardization process by providing the EOD expertise to the NATO Working Groups (WG), especially:

- EOD WG
- MILENG WG
- C-IED WG
- Force Protection WG
- AJOD WG

In the area of Collective Training and Exercises (CT&E) the EOD COE acts as a recognized institution in EOD area of expertise. Our SMEs contribute to the development of Main Events List/Main Incidents List in EOD related scenarios, including the EOD injects there.

These injects may be used within NATO exercises which are listed in Military Training and Exercises Program (MTEP). At the same time, our SMEs monitor how the EOD ratified procedures are implemented/practiced during the CT&E. There are several multinational EOD exercises, where our Centre provides relevant expertise and contribution.
NATO EOD Demonstrations and Trials Series

NATO EOD Demonstration and Trials is a biennial event intended for experts from NATO and partner armed forces and defence industry highlighting the latest EOD/IEDD technology development through live demonstrations, static exhibitions, seminars and conferences. The series of NATO EOD Demonstrations and Trials is organized by the Centre of Excellence for Explosive Ordnance Disposal with full support of the Ministry of Defence of the Slovak Republic. It is funded through the NATO Defence Against Terrorism Programme of Work (DAT POW) established under the auspices of the NATO HQ Emerging Security Challenges Division.

First NATO EOD Demonstration and Trials was organized in Slovakia in 2010. Since then the event has been organized every two years with different leading topics, as “Protection as complex and composite responses to terrorist threat” in 2016 or “Multidisciplinary approach to EOD” in 2018.

The main objective is to offer:
- A common platform for companies, research and development institutes, NATO bodies and nations to present the latest technological solutions for an improvement of Alliance forces interoperability and EOD operator’s capability in protecting the forces and civilian population.
- An open space for discussions as part of the conference, seminars, or panels about Urgent Military Requirements for the DAT POW and compare them with the direction of actual roadmaps.

Organizing of the event broadens knowledge about current and future aspects of EOD related technology capability horizons and confirms or identifies the area of shortfalls. Discussions and demonstrations of technologies, TTPs and connecting different organizations and bodies continuously help to shape the future of the DAT POW effort and roadmaps.

The main aim of this project is to facilitate search for suitable equipment for EOD specialists as well as to support other armament subject matter experts in procurement, when they seek for available solutions on the market. It is equally important to promote new technologies and advanced EOD equipment along with the operators’ practical experience from the field and real deployment.

Having this kind of assessments/information at one central spot brings the full spectrum benefits to all those involved in this area of interests. It also provides an excellent opportunity for manufacturers to promote their products, highlight latest upgrades and technological progress to the EOD community.

The Technology Department as a part of the EOD COE is responsible for the catalogue, its operational functionality, accuracy and regular update. The catalogue splits products to several main categories like Detectors, ROVs (Remotely Operated Vehicles), Protection equipment, Tools and Active materials.

In summer 2017, the EOD/IEDD Equipment Catalogue has been significantly changed and upgraded. Nowadays, the catalogue provides more information about EOD/IEDD equipment including brochures/leaflets, videos, training manuals and users’ opinion statistics. Moreover, it includes a discussion forum in order to facilitate information exchange (Q&A) among catalogue users. The EOD/IEDD Catalogue is a living database updated on a daily basis and permanently growing.

The classification of the Catalogue remains NATO UNCLASSIFIED/RELEASABLE TO IP.
Exoskeleton in the Battlefield Project

The Wales Summit declaration identifies the exploratory role of the Defence Against Terrorism Programme of Work (DAT POW) in identifying emerging defence technologies that can improve the readiness of the Alliance’s forces.

While robotic technologies are progressing fast, the operational concepts need to be refined in order to fully benefit of such technological advances. In this context, maintaining awareness amongst NATO allies on future capabilities can make dismounted operations more efficient, safer and cost effective.

The Integration of the Exoskeleton in the Battlefield project was launched in 2017 by the EOD COE in cooperation with the NATO Communications and Information Agency (NCIA) and financed by the DAT POW.

This project is focused on organizing live demonstrations of Exoskeletons for Human Performance Augmentation (EHPA) technologies currently available on the market in order to update the technological baseline that needs to be considered in the development and maintenance of dismounted soldier operational concepts.

The results of this project will help NATO and Nations to understand the technological readiness of EHPA capabilities, support the formulation of minimum military requirements (MMRs) in this area and refinement of operational concepts.
EOD Workshops Series

The EOD WS Series is a tool for organizing events in the main responsibility of the LLAB. It started in 2012 as an EOD LL Seminar, where EOD operators and staff officers had the opportunity to share their lessons.

Throughout the years, the EOD Community of Interest (COI) learned from these yearly events their information and outputs.

As the EOD COE is continuously heading towards more valuable and efficiently organized events, the EOD WS became a platform not only for LL sharing but it also started to serve as a workshop supporting development of particular projects/studies since 2017. By this approach the EOD Workshops indirectly connect knowledge obtained from past lessons with probable or possible EOD trends arising in the present and it forms requirements for the future EOD capabilities.

Besides this, the EOD WS will continuously contribute to the EOD COI by providing space for fruitful networking of SMEs on tactical and operational levels (including SMEs from academia and commercial sector) from 2017 on biennial basis (every odd year) in order to synchronize the EOD COE main events.
Involvement and Contribution to NATO Defence Planning Process (NDPP)

The aim of NATO defence planning is to provide a framework within which national and Alliance defence planning activities can be harmonised to meet agreed targets in the most effective way.

It should facilitate the timely identification, development and delivery of the necessary range of forces that are interoperable and adequately prepared, equipped, trained and supported as well as the associated military and non-military capabilities to undertake the Alliance’s full spectrum of missions.

As a permanent member of Military Engineering Defense Planning Advisory Group (MILENG DPAG), EOD COE brings its substantial contribution by providing consolidated expertise and support to the NDPP planning domains in a comprehensive and effective manner.

EOD COE supports steps 2 - 5 of the NDPP through the active contribution in:

**Step 2 - Determine requirements**
- review of MILENG CCs&CSs (Capability Codes and Capability Statements) related to EOD, supports the review of C-IED related CC&CS, provides review of MILENG CC&CS;

**Step 3 - Apportion requirements and set targets** – as active part of NATO MILENG actively contributes to the drafting of MILENG Targets and, whenever is necessary, identifies solutions for the benefit of NATO;

**Step 4 - Facilitate implementation** – permanently supports NATO efforts and assists national or multinational initiatives when requested.

**Step 5 - Review results** – when required, EOD COE contributes to the elaboration of the Capability Survey (as a specialized area of MILENG), supports the preparation of the Impact Statements and provides inputs to MILENG contribution to Annual Progress Report.
Training Way Ahead

Education&Training (E&T) is one of the important pillars in which the NATO EOD COE disseminates the fruits of its work. The EOD COE provides for NATO, Sponsoring Nations and its partners in general, Education and Individual Training (E&IT) to EOD staff and EOD operators’ level as a Target Audience (TA).

Education for the EOD staff is based on NATO EOD related publications once the EOD staff conducts EOD operations on multinational deployment. On the other side, the analysed shared knowledge on Homemade Explosives (HME) subjects are tailored to the EOD already trained personnel based on the best practices.

All of the EOD COE E&IT solutions are tracking the so-called NATO System Approach to Training (SAT) in line with Alliance approach to Education, Training, Exercises and Evaluation Policy (ETEE).

The EOD COE with the E&T portfolio reflects the NATO Military Engineering (MILENG) discipline identified gaps in EOD area, which are driven by new trends. These gaps are further elaborated by the EOD COE as the MILENG discipline recognized specialized institution.

In 2016 EOD COE was accredited in E&T Quality Assurance (QA) at the unconditional level of accreditation. The high accreditation grade proves that the analysed, designed, developed and delivered products to the EOD Community of Interest (COI) are meeting NATO’s QA criteria with their systematic improvement.

The high quality of the deliverables offer is not only the NATO EOD COE merit, but also the Centre’s external EOD COI, which helps to orchestrate the EOD COE level of “excellence”.

In the Collective Training and Exercises (CT&E) area, the EOD COE provides NATO led multinational exercises and, in particular, EOD related exercises with EOD advice, which challenges the multinational deployed EOD capabilities.

The EOD COE Education&Training is effectively connecting the EOD COI entities with its final goal to enhance NATO’s transformation and interoperability through training.
Courses and Training Activities
NATO EOD Staff Officers Training

**Aim:**

NATO EOD SOT is designed to educate and train non-qualified EOD staff officers to achieve basic level of proficiency in accordance with NATO and EU standards. EOD staff officer is able to plan, prepare, command, control and coordinate EOD operations within multinational operations at battalion and brigade levels of command.

**Course objectives:**

After successful completion of the course, the graduates are able to:

- **recognize:**
  - explosive ordnance (EO) by type and hazards
  - IED threat and its impact on operation

- **understand:**
  - types of EOD incidents and task appropriate EOD assets to deal with them
  - state of command and how they are applied to the C2 EOD structure

- **apply:**
  - NATO EOD messages and reporting system
  - current NATO EOD publications

- **conduct:**
  - a threat analysis and mitigate (decrease) the import of UXO on operations
  - plan, prepare and conduct the EOD/IEDD activities based on the multinational deployment
  - prioritize and plan EOR/EOD/IEDD operations.

**Depth of knowledge:**

300. Apply (on the basis of Depth of Knowledge matrix Bi-SC 075-007 Education and Individual Training Directive) dated 10 SEP 2015

**Course length:**

2 weeks (50% of theory - EOD standards and procedures, 50% of a practical training and exercises)
Home-Made Explosives Course - Basic

Aim:

HMEC-Basic’s aim is to educate non-EOD qualified personnel about the fundamentals of identification of individual precursors that are regularly used in the process of manufacturing Home Made Explosives (HMEs). The same teaching process also applies to the identification of HME final products. Great emphasis is also placed on recognition of various manufacturing equipment and clandestine HME laboratories. The students are also taught the basic principles of taking the necessary safety precautions and reporting the HME-related incidents.

Course objectives:

After successful completion of the course, the graduates are able to: recognize, identify, describe:
- particular types of HME manufacturing equipment and HME clandestine laboratories
- nitrate-based home-made explosives
- chlorate and perchlorate-based home-made explosives
- peroxide-based home-made explosives
- necessary steps to introduce basic safety measures on the HME manufacturing site

understand:
- explosives phenomena, types and their effects, as well as explosives characteristics
- process of laboratory testing of military, commercial and home-made explosives
- basic chemistry as it relates to common energetic HME mixtures

Depth of knowledge:

300. Apply (on the basis of Depth of Knowledge matrix Bi-SC 075-007 Education and Individual Training Directive) dated 10 SEP 2015

Course length:

3 days (65% of theory, 35% of hands-on training)
Home-Made Explosives Course - Advanced

**Aim:**

HMEC-Advanced teaches responding personnel about the precursors used by criminals and terrorists in the manufacturing process of homemade explosives, along with the synthetized final explosive mixtures.

Students learn to identify the hazards of mixed or partially mixed precursor chemicals, identify unknown materials and related hazards, process on a scene to preserve evidence and safely remove and dispose hazards.

**Course objectives:**

After successful completion of the course, the graduates are able to:

- **explain** properties of HME and their precursors
- **demonstrate** HME manufacturing processes and equipment
- **operate** equipment supporting HME scene processing
- **process** clandestine explosives laboratory

Students should be aware that the HMEC-A is tightly scheduled (extremely busy) course that also requires evening and/or night classes/training.

**Depth of knowledge:**

300. Apply (on the basis of Depth of Knowledge Matrix Bi-SC 075-007 Education and Individual Training Directive) dated 10 SEP 2015

**Course length:**

5 days (40% of theory, 60% of hands-on training)
NATO CBRN EOD Incident Management
Staff Officers Training

**Aim:**

The aim of the NATO CBRN EOD Staff Officer Incident Management Training is to train qualified personnel (EOD staff officers) in managing CBRN EOD incident up to brigade staff level during multinational operations and in advising a commander on chemical, biological and radiological explosive ordnance disposal and CBR IEDD matters.

**Course objectives:**

After successful completion of the course, the graduates are able to:

- **apply**
  CBRN EOD threat management including CBRN weapons.
- **advice**
  commander on up to Brigade Staff level on CBRN Explosive ordnance disposal.
- **manage**
  CBRN EOD Incident within the overall spectrum of EOD tasks.

**Depth of knowledge:**

300. Apply (on the basis of Depth of Knowledge Matrix Bi-SC 075-007 Education and Individual Training Directive) dated 10 SEP 2015

**Course length:**

5 days /50% of theory, 50% of practice with live demonstrations)