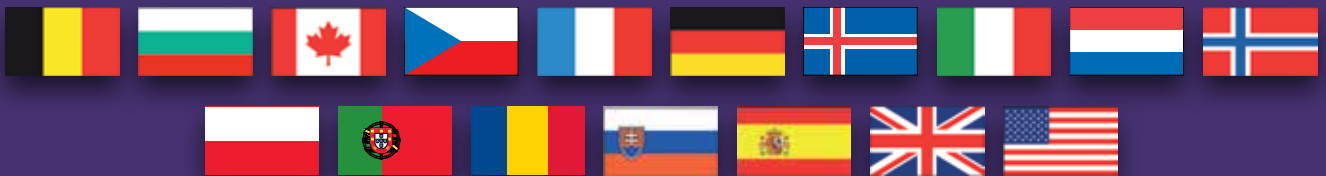




NATO'S DEFENCE AGAINST TERRORISM PROGRAM



EMERGING SECURITY CHALLENGES DIVISION

INTRODUCTION

“Terrorism poses a direct threat to the security of the citizens of NATO countries and to international stability and prosperity more broadly, and will remain a threat for the foreseeable future. [...] the Alliance strives at all times to remain aware of the evolving threat from terrorism; to ensure it has adequate capabilities to prevent, protect against, and respond to terrorist threats. Building on our Defence against Terrorism Programme of Work, we will continue to improve our capabilities and technologies, including to defend against Improvised Explosive Devices and CBRN threat. We will keep terrorism and related threats high on NATO’s security agenda.”

(NATO Heads of State and Government, Wales Summit Declaration, 2014)

Globally connected, terrorism transcends borders and continues to become more sophisticated, more indiscriminate and more lethal. Our governments, our forces and our communities are at risk. The potency of terrorist organizations is steadily increasing. Their tactics, techniques and procedures have proven to be ingenious, employing a large range of both simple and sophisticated technology in their attacks. NATO’s Defence Against Terrorism Programme of Work (DAT POW) is one of the Alliance’s responses to the security challenges posed by terrorism. DAT POW supports readiness, promotes interoperability, supports the Alliance in maintaining technological dominance while striving to build coherent architectures of systems. Managed by the Emerging Security Challenges Division (ESCD) and overseen by the Conference of National Armaments Directors (CNAD), the DAT POW is the only common-funded programme to support capability development. The programme is governed by the NATO’s Counter Terrorism Policy Guidelines, Bi Strategic Commands sanctioned requirements and priorities captured in the NATO Defence Planning Process. On its ten year anniversary, the programme is taking stock of project deliverables accomplished by lead nations and bodies in addressing critical Allied military shortfalls and mitigating gaps identified by our forces in theatres of operations.

The programme’s relevance in the current security environment and increasingly ambiguous warfare is underpinned by the operational areas it addresses and the adaptation of its structures. DAT POW :

- Reflects the Alliance’s transition from deployed posture to readiness through an increased number of exercises and training;
- Capitalizes on NATO’s experience by injecting lessons learned and best practices into doctrine;
- Supports NATO Response Force (NRF) 2016 and Readiness Action Plan (RAP) by addressing critical deployability shortfalls.

Background: The programme was launched under the auspices of the Conference of National Armaments Directors (CNAD), and endorsed by NATO’s Heads of State and Government at the Istanbul Summit in June 2004. Building on its initial technological focus, the programme aimed at developing for our armed forces new or adapted technologies to detect, disrupt and defeat terrorists. It also aimed to



provide rapid response capabilities for the protection of civilian populations and infrastructure. Its initial technical focus has been enlarged to provide a more comprehensive approach to capability development and respond to the emerging challenges of the security environment – to include elements of doctrine and concept development, testing of technologies, renewed focus on trials and exercises.



Functioning: The DAT POW focuses on the most critical terrorist threats through 3 capability umbrellas. It is unique in that each initiative is being brought forward by individual Lead Nations or Lead Bodies so



as to leverage the capacities of national governments, industry, science and research, thereby accelerating counter-measure development and fielding. In this sense, the DAT PoW can be considered as a precursor of the Smart Defence approach. The programme’s overarching systems of systems approach

and aim to further interoperability support broadly the Alliance’s Connected Forces Initiative. In light of this, the programme has developed and maintained close links with a network of national counter-terrorism experts, operators, industries, key NATO Bodies and Agencies. Other counterparts are European and international organizations, working together to find solutions to counter this consequential and global threat.

PROGRAMME OF WORK FOR DEFENCE AGAINST TERRORISM

Incident Management

This capability umbrella comprises initiatives to improve organisation and coordination in dealing with a terrorist incident.

1. Protection of Harbours and Ports/ Critical infrastructure protection

Force Protection/Survivability

This umbrella covers initiatives to improve "all measures and means to minimise the vulnerability of personnel, facilities, equipment and operations to any threat and in all situations, to preserve freedom of action and the operational effectiveness of the force."

1. Large Aircraft Survivability against Man-Portable Air Defence Systems (MANPADS);
2. Countering Improvised Explosive Devices (IEDs);
3. Detection, Protection and Defeat of Chemical, Biological, Radiological and Nuclear (CBRN) Weapons;
4. Explosive Ordnance Disposal (EOD) and Consequence Management;
5. Non-Lethal Capabilities (NLC).

Network Engagement

This capability umbrella covers initiatives to improve identification and targeting of key nodes of Threat Networks.

1. Technology for Intelligence, Surveillance, Reconnaissance and Target Acquisition (ISRTA)
2. Improving standardization among the Human Intelligence (HUMINT) community.
3. Biometrics

* Initiatives Defence against Mortar Attack, reducing the vulnerability of helicopters to rocket propelled grenades (RPGs) and Precision Air Drop Technology for SOF were successfully completed.

* Critical Infrastructure Protection initiative was integrated into the Harbour and Ports Protection.



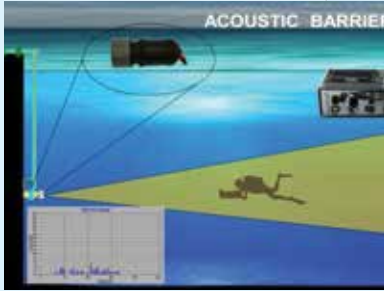
PROGRAMME OF WORK



Protection of harbours and ports (Portugal, Poland)

The safe and uninterrupted functioning of ports and harbours is critical to the global economy and it is essential that maritime assets be made as secure as possible. To enhance maritime protection, varied technologies are being explored. These include sensor nets, electro-optical detectors, rapid reaction capabilities and unmanned underwater vehicles. Building on previous work conducted by Italy and the Centre for Maritime Research and Experimentation, a maritime mission planning tool, known as "Safe Port", is being developed under the leadership of Portugal. This project is currently being integrated into a broader initiative, under the Smart Defence framework. Ongoing work led by Poland aims to develop an underwater magnetic barrier to complement sonar systems currently used to detect underwater threats. Additional trials, experimentation and exercises are being organized by the NATO Centre for Maritime Research on protection of ports, civilian/military cooperation, protection against improvised explosive devices and the development of architectures of systems.

Exercises and demonstrations: Live Demonstration of Detection and Deterrence System, June 2013, Gdansk, Poland;



Reducing the vulnerability of wide-body civilian and military aircraft to man-portable air defence systems (MANPADs) (UK, France)

A range of infrared countermeasures is under development, putting together different kinds of capabilities and systems (electro-magnetic, infrared) and detection systems. These have successfully been applied to large aircraft and helicopter platforms and have led to an increase in the number of platforms supporting operations and their level of protection. The UK is the lead nation for this initiative and the NATO Air Force Armaments Group (NAFAG) has provided critical expertise and support to the annual field trials. As supporting nation, France is sharing the burden by conducting trials to complement the work done by UK and NAFAG.

Exercises and demonstrations: 2013 Trials in Biscarosse, France; 2015 Trials in UK



Detecting, protecting against and defeating chemical, biological, radiological and nuclear (CBRN) weapons (JCBRN Defence COE, Czech Republic; and Canada)

The ideal would be to prevent terrorists from using CBRN weapons but there is a requirement to protect forces and populations against their effects should prevention fail. France, as the first lead nation in this effort, developed a work plan which included live exercises, CBRN agent sampling and identification analysis. A broad range of technologies were tested against a number of CBRN-related threats. Recent projects were conducted under the leadership of Czech Republic on the development of a prototype for a deployable isolation unit; additionally, a regular training exercise under Canadian leadership - Exercise PRECISE RESPONSE – focuses on a live agent scenario for first responders. Collaboration with the JCBRN Defence COE has also led to the establishment of NATO's first CBRN reach-back capability, inaugurated in November 2014, which meets a critical priority of the Alliance.

Exercises and demonstrations: Annual exercise PRECISE RESPONSE, Suffield, Canada; inauguration of NATO's CBRN reach-back capability, November 2014, JCBRN Defence COE, Vyskov, Czech Republic.



Countering improvised explosive devices (C-IED) (C-IED CoE, Spain; MILENG CoE, Germany; and NCI Agency, The Netherlands)

The NATO C-IED Centre of Excellence in Madrid, Spain has been instrumental in consolidating this effort within the DAT POW. Various technologies to defeat the device have been explored, in particular stand-off detection. In 2012 DAT POW with the NATO Communication and Information Agency (NCIA) organized a route clearance demonstration in Germany to share best practices and improve the standardization of NATO route clearance operations. Since 2013, this project has been continued by MILENG CoE. It is currently focused on the coherent development of the NATO Route Clearance Doctrine across all relevant domains and will culminate with a demonstration at the end of 2014. Additional C-IED related projects led by NCIA involve automated data mining and passengers scanning systems. Other projects include research on IED Explosively Formed Projectiles impact on a steel plate, led by C-IED COE, and Exercise XXplosive 2013, led by The Netherlands.

Exercises and demonstrations: 2012 Route Clearance Demonstration, Brussels, Belgium, NCIA lead; Exercise XXplosive 2013, The Netherlands; 2014 Route Clearance Demonstration, Ingolstadt, Germany, MILENG COE lead.



Explosive ordnance disposal (EOD) and consequence management (EOD CoE, Slovakia; and Iceland)

Here the objective is to improve NATO's capabilities, the training of EOD teams and management of the consequences of an explosion. DAT POW supports the annual Northern Challenge exercise, led by Iceland, which involves underwater EOD/ IED disposal/conventional munitions disposal and is open to NATO and Partnership for Peace Nations. In 2014, DAT POW supported the NATO EOD demonstrations and trials, led by the EOD Centre of Excellence in Trenčín, Slovakia

Exercises and demonstrations: 2012 and 2014 NATO EOD Demonstrations and trials, Trenčín, Slovakia, EOD COE; annual Northern Challenge exercise, Keflavik, Iceland;



Developing non-lethal capabilities (Germany, Belgium)

The NATO operational community has stressed the need for better response capabilities which minimize collateral damage. If forces can only respond in a lethal manner, civilians and military alike are endangered and mission failure and political fallout may result. Building on previous work led by Canada to identify non-lethal capabilities for NATO forces, Germany and Belgium are leading the organization of two field exercises (NATO Non-Lethal Technological Exercises) for the maritime and land domains in 2015 to demonstrate and promote the added value of NLW technologies in the current security environment. Using both deployed technologies and those on test, the exercises should assess the utility of these systems in NATO missions and identify promising NLW technologies. Additional projects under this initiative were led by Belgium and France on blunt trauma standards for NLW. The Centre for Maritime Research and Experimentation in La Spezia, Italy, explored the behavioural effects of NLC.

Exercises and demonstrations: North American Technological Demonstration, 2011, Ottawa, Canada; NATO Non-Lethal Technological Exercise-Maritime (NNTEX - M15), June/July 2015, Belgian territorial waters; NATO Non-Lethal Technological Exercise-Land (NNTEX-L15), October 2015, Bad Reichenhall, Germany



Technologies and concept development for intelligence, surveillance, reconnaissance (ISR) and target acquisition (US)

The goal of this initiative is to develop improved tools for early warning and identification of terrorists and their activities. To build on the improved intelligence/information sharing achieved over the last decade in common operations and to capture these developments for the future, DAT POW supported Unified Vision Trials (2012-2014), organized by the joint capability development group ISR. Simulating a real-world operational environment, the trial sought to determine how well participants could analyze threat information and identify and track threats to form a cohesive intelligence picture and how easily this could be shared.

Exercises and demonstrations: Unified Vision Trials (2012-2014)



Human Intelligence (HUMINT CoE, Oradea, Romania)

DAT POW also supports improving technical interoperability within the NATO HUMINT community and the ability to analyse human aspects of the operational environment where NATO forces operate, under the lead of the HUMINT COE in Oradea, Romania. Key milestones include the delivery of a Human Aspects of the Operational Environment Study and the development of the HUMINT Operator Toolset (NHOTS). The latter project is being extended to include deployable facilities in support of NATO Response Force 2016 and the Readiness Action Plan (RAP).

Exercises and demonstrations: NATO HUMINT Steadfast Indicator 2015 to test the NHOTS



Biometrics (The Netherlands)

Biometric data are essential for the protection of forces in theatre, allowing them to identify known or suspected insurgents. The Strategic Commands have recognized that developing and improving this area is a military requirement and a NATO Biometrics Concept has been developed. The concept establishes a structure that allows NATO nations to choose their level of participation in biometrics operations, while maintaining control of biometric data produced by their forces. The DAT POW community is supportive of The Netherlands as lead nation in this effort and is involved in its multiple strands of work (doctrine, concept, standardization and capabilities). A Program of Work has been developed by ACO and was submitted to nations this year.

Exercises and demonstrations: Unified Vision Trial (2014)



PROGRAMME OF WORK



Special Operations Forces' Community (NATO SOF HQ, Mons, Belgium)

Recognized as one of the lead entities in the fight against terrorism, Special Operations Forces (SOF) are a crucial component of the DAT POW. DAT POW supported the NATO Special Operations Headquarters (NSHQ) in developing a mobile laboratory permitting forensics investigation of IED incidents in theatre. While one of these capabilities is deployable, the other is currently integrated into the Exploitation Analysis Centre, based at the NATO Special Operations School (NSOS) located at Chievres Air Force Base near Mons, Belgium. More recently, the programme has contributed to the development of a database for NATO Special Operations Counter-Terrorism activities within the NATO environment. As a way ahead, DAT POW hopes to support the SOF Air Development Programme by contributing to the further development of the Chievres simulation centre for training.



OBJECTIVES ACHIEVED – PROJECTS CONCLUDED

Technologies to defend against mortar attacks (The Netherlands and Norway)

As a result of the increasing number of terrorist mortar attacks in Afghanistan and Iraq, this work was initiated in 2006 by The Netherlands and taken up by Norway in 2007. The aim was to employ new technologies to detect mortar-firing positions and then to react with sufficient speed and accuracy against the attacker or destroy the projectiles. This initiative was closed upon completion in 2010 and the resulting architecture of systems is in use in Afghanistan.

SUCCESSFULLY COMPLETED



Precision Air-Drop Technology for SOF (US)

Terrorists often operate in isolated sanctuaries located in challenging terrain, such as in Afghanistan. Precision Air Drop (PAD) capabilities can provide an effective method of rapid insertion of equipment, personnel, weapons, and logistic re-supply, under "all weather" conditions, while reducing the threat to transport aircraft and their crews. With multiple flight path, altitude, and delivery options, NATO's PAD work brings new dimensions to the air drop mission in support of special operations forces (SOF), such as providing air delivery platforms extended stand-off protection with concurrent drop accuracy to single or multiple targets. This technology provides greater operational flexibility, reach, force protection and sustainability to operational forces and paved the way for the development of a PAD concept of operations (CONOPS).

SUCCESSFULLY COMPLETED



Protection of harbours and ports - Archimedes project (Italy)

With the support of the NATO Naval Armaments Group (NNAG), the Centre for Maritime Research and Experimentation, Italy successfully tested countermeasures for an array of underwater threats. At Eckenforde, Germany, September 2008, Italy conducted Harbour Protection Trials with the Archimedes system as part of a technical demonstration with Belgium and Germany. Numerous multi-national and multi-functional surveillance and detection sensors were linked into a network centric battle-management system for detection, localization and identification of potential terrorist threats in harbour sub-surface and surface waters and airspace.

SUCCESSFULLY COMPLETED



Protection of critical infrastructure (Belgium)

This initiative became an overarching project since it involves protection of NATO's infrastructure, personnel and citizens. It is closely linked to other initiatives such as harbour protection, intelligence, reconnaissance, surveillance and target acquisition and defence against mortar attacks. In October 2009 the BELCOAST 09 exercise incorporated many DAT initiatives in a multi-dimensional threat environment. This initiative has been integrated into the harbour protection programme led by Portugal.



CONCLUSION

Drastic changes to the international security environment over the past several years present serious challenges to NATO. With an array of both state-sponsored terrorist groups and non-state actors, terrorism has emerged as a major threat to our societies and a significant pre-occupation of our governments. Terrorists have taken full advantage of both "state of the art" and simple, readily available technology. They profit from the mobility afforded by modern transportation and use the connectivity and autonomy afforded by modern communications. It is imperative that we provide our forces with the capabilities needed to counter these threats. We also need to develop enhanced means of protecting our civilian populations and infrastructure, and to improve mechanisms for international cooperation and coordination.

NATO's Defence Against Terrorism Program of Work (DAT POW) specifically addresses critical counter-terrorism capability deficiencies. Since its inception in 2004, NATO has expanded the program's scope. The program is producing technological solutions for defending against terrorism and other asymmetric threats, and its results contribute to the enhancement of NATO and national capabilities more broadly. The program continues to focus on supporting forces with new or adapted technologies or methods to detect, disrupt and defeat terrorists. In response to an ever changing and complex threat, DAT POW has evolved to become more responsive and to encompass a broader range of counter-measures.

The DAT POW continues to develop new concrete solutions to operational requirements as well as much needed expertise in NATO by using a "lessons learned" approach from field operations in Afghanistan, Iraq, Libya, the Mediterranean, and the Balkans, including Kosovo. Indeed, one of the successes of the program is the commitment and dedication of nations which increasingly share their expertise for the benefit of all in the NATO community.

Additionally, much progress has been made in joint approaches, common projects and coordination in the DAT POW. Many NATO bodies and agencies provide extensive support to the program. The Science and Technology

Organization (STO) has conducted numerous scientific studies in such areas as electro-optical countermeasures, information fusion in asymmetric operations, and tactical communications for urban operations. The NATO Industrial Advisory Group (NIAG) has conducted industrial studies in direct support of the DAT POW in areas such as the use of Unmanned Underwater Vehicles for harbour and port protection and the technical aspects of helicopter protection from ground threats.

The NATO Communication and Information Agency (NCIA) has supported the development of Route Clearance capabilities and innovative technologies for stand-off detection of explosives. In addition, projects are conducted by Centers of Excellence (COE), such as EOD COE, C-IED CoE, JCBRN Defence CoE, HUMINT CoE, MILENG COE, Joint Air Power Competence Centre (JAPCC). While DAT POW is oriented primarily towards Allied priorities, there are opportunities for partner engagement from those nations willing to contribute their expertise and engage in joint projects to maintain the high interoperability level within the Alliance. Some initiatives, i.e. C-IED, EOD and NLC are open to non-NATO countries, with other initiatives possibly open on a case-by-case basis. United Nations, through the Mine Action Service, INTERPOL and World Customs Organization have a continuing interest in the program as well. Despite the success of the DAT POW in producing practical counter-measures to defend against terrorism, it is but a starting point.

The fight against terrorism encompasses more than just technological solutions. For instance, information concerning terrorists and their methodologies must be shared more widely and effectively, and higher levels of cooperation and interoperability must be achieved between military forces and civilian law enforcement, border control, and emergency response organisations. The face of terrorism today presents new political dimensions and new security challenges. The terrorists are focused on improving their capabilities and operational reach. In defence of our societies, NATO nations must continue to do the same.





Support for Operations
Development of Capabilities
Partner Engagement