Developing Practical Cooperation through Science

Israel has been actively engaged within the framework of the NATO Science for Peace and Security (SPS) Programme since 1996.

The NATO SPS Programme enables close collaboration on issues of common interest to enhance the security of NATO and partner nations by facilitating international efforts to meet emerging security challenges, supporting NATO-led operations and missions, and advancing early warning and forecast for the prevention of disasters and crises.

The current SPS Key Priorities include:

- Counter-Terrorism;
- Energy Security;
- Cyber Defence;
- Defence against CBRN Agents;
- Environmental Security;
- Security-related Advanced Technology;
- Border and Port Security;
- Human and Social Aspects of Security.

Additionally, the SPS Programme helps to promote regional security through scientific cooperation among partners. The programme also helps to prepare interested eligible nations for NATO membership. SPS activities often have a high public diplomacy value.

Israel is an active partner in the SPS Programme, and has several ongoing activities. At present, the leading areas for cooperation include Advanced Technology, Counter-Terrorism, Cyber Defence and CBRN Defence. Below are some examples of ongoing and completed activities led by scientists and experts from Israel and NATO countries under the framework of the NATO SPS Programme.

Cooperative Activities

CYBER DEFENCE SUMMER SCHOOL

This Advanced Study Institute (ASI) addressed young researchers from NATO and partner countries and comprised lectures on the latest developments in cyber defence. The advanced-level audience was taught counter-terrorism counter-measures with methods and techniques of theoretical computer science. The ASI, held in Marktoberdorf, Germany, is a yearly networking hub that helps to establish an international community of competent young researchers in the field of cyber defence. Previous editions of the Summer School supported by the SPS Programme were held in 2014 and 2016. This Advanced Study Institute was led by Germany and Israel [ref. 5315].
COUNTERING TERRORISM AT THE BORDERS: COMMON CHALLENGES AND SOLUTIONS

This Advanced Training Course provided a platform for high-level experts on counter-terrorism from NATO, EU, OSCE, UN, Israel and other partners in the MENA region to share insights and best practices on operational challenges in the implementation of counter-terrorism activities. The course helped increase awareness on preventative measures and resilience against the threat of terrorism. It was composed of lectures, trainings and simulations to build capacity for countering terrorism. This training was led by Israel and Belgium in Nov. 2017 [ref. 5391].

AUTONOMOUS PLATFORM FOR SECURING MARINE INFRASTRUCTURES

This multi-year project aims to develop an underwater unmanned system to secure marine infrastructures from the threat of diving intruders and submerged mines. The researchers investigate key aspects for the successful operation of autonomous underwater observation systems, i.e. object detection, positioning, and classification. They intend to develop practical system architectures and signal processing algorithms, and to deploy them using a marine platform on-board of an autonomous underwater vehicle (AUV). The platform will provide detection through an acoustic array, while the AUV will use its sonar system to enable detection verification of a submerged mine. This project is led by experts from Israel, Spain and Canada [ref. G5293].

COUNTERING TRAFFICKING OF WMD AND CBRN MATERIAL IN A MARITIME ENVIRONMENT

This workshop presented the latest developments in technological, legal, strategic and tactical aspects relevant to CBRN/WMD proliferation in a maritime environment. Held at the NATO Maritime Interdiction Operational training Center in May 2018, it improved cooperation and fostered the exchange of views, expertise and awareness between NATO and partner countries on various aspects of the issue. This event was led by Israel and Greece [ref. 5469].

CELL BIOSENSORS FOR DETECTION OF CHEMICAL AND BIOLOGICAL THREATS

A rapid response to chemical and biological attacks requires the ability to monitor and detect chemical or biological agents, define the health risks and take proper countermeasures. This multi-year project will produce a battery of bioengineered live cell biosensors tailored to respond to different chemical and biological agents by the generation of measurable signals. A selection of such cell biosensors will be integrated into a portable robust device and used for field surveillance. The final prototype will be user-friendly and sensitive enough to detect chemical and biological agent concentrations at or below health risk levels. This SPS project is led by Israel, Japan, Romania and Italy [ref. 5042].

MULTIDISCIPLINARY METRICS FOR SOLDIER RESILIENCE PREDICTION AND TRAINING

The aim of this project is to better understand soldiers’ stress resilience, vulnerability and pathophysiology. To this end, scientists work to identify multidisciplinary risk factors as prediction of soldiers’ resilience and vulnerability. The project will result in the development of a state-of-the-art pre-deployment training programme for armed forces aimed at strengthening the resilience of a soldier. The project participants will be exposed to stressful pre-deployment simulated combat training, and will be assessed for their predicted mission readiness. This project is led by Croatia, Israel & the U.S. [ref. G4829].