

SPAIN

Cooperative Activities under the SPS Programme

Since NATO began offering science cooperation to partners in 1992, Spanish scientists and experts have had leading roles in 669 activities, and more joined various cooperative activities as participants.

Today, NATO science activities enable close collaboration on the two key priorities of **defence against terrorism** and **countering other threats to security** and are managed under the Science for Peace and Security (SPS) Programme. SPS activities contribute to NATO's strategic objective of partnership,

helping to connect scientists and experts from NATO countries with their counterparts from Partner and Mediterranean Dialogue countries. All activities supported by the SPS Programme are approved by NATO nations on the basis of consensus.



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Examples of Activities

On 16 to 20 November 2009 an Advanced Training Course entitled **“Water Purification and Management in Mediterranean Countries”** took place in Oviedo, Spain. Bringing together over 60 participants from NATO, Partner and Mediterranean Dialogue countries this event addressed the mechanisms related to water management in Mediterranean countries. This includes water purification, clean industrial processes and waste water treatment. This SPS event, co-sponsored by the University of Oviedo, highlighted the current poor management of water resources in North Africa and the Middle East, which is leading to population displacement in these areas to more water abundant countries of Europe, particularly Spain, Italy and Greece. This training course has led to a better understanding of the problems and has facilitated the transfer of knowledge to countries in the affected areas.

[ref 983750]

Also in the field of defence against terrorism, investigators from Italy, Canada, Romania and Spain have worked since October 2005 to develop a procedure for **“Photocatalytic Decontamination of Neurotoxic and Vesicant Compounds”**, to be used in the clean-up of land and materials exposed to chemical weapons, particularly in circumstances where incineration or collection of spills would not be possible. In October 2008, a team from the NBC Defence and Ecology Research Centre of the Romanian Ministry of Defence demonstrated two new techniques for decontamination of chemical warfare agents using photocatalysts as a powder and as an aqueous suspension. The techniques, which were employed during the demonstration to decompose sulphur mustard, use only natural chemicals and solar radiation and leave

behind only innocuous gaseous oxide compounds. The techniques are environmentally friendly and safe for sensitive equipment, infrastructure and humans. [ref 981476]

As part of the ongoing project **“Advanced Apparatus for Pathogen Detection”**,



Demonstration of an environmentally safe method for chemical warfare destruction. (photo: courtesy of project co-directors)

investigators from Spain, Tunisia and the United States are cooperating to develop a system for the rapid detection of bacterial pathogens. This capability is of vital importance not only in biological warfare scenarios, but also in the event that biological agents are used in terrorist attacks. In addition, rapid pathogen detection methods are of great interest to the food industry and to sectors concerned with environmental control. The detection principle will be based on measuring changes either in interfacial

conductivity or optical refractive index produced when the target bacteria are selectively captured by the phages and immobilized over a transducer surface. The resulting prototype will be tested by the Biophage Pharma company. [ref 983115]

In addition to NATO-funded activities, the SPS Programme facilitates the development of nationally funded activities, such as the series of workshops on **“Environmental Management Systems (EMS) in the Military Sector”**. Following an earlier pilot study on the same topic, it was recognised among participating countries that an EMS is a useful tool to manage the impact of military activities on the environment—not only for protecting the environment today, but also for cleaning up after past activities and for creating an environmentally sound future. Through this activity, Spanish experts connected with their counterparts in NATO and Partner countries to discuss the practical challenges of implementing EMS in the management framework. Improved environmental practices are expected to foster sustainability, thereby promoting broader peace and security objectives. The final workshop was held in Kyiv, Ukraine in November 2008. [ref 982701]

The SPS programme has also engaged a number of Spanish consultants to lend their expertise in various fields—such as industrial waste recovery and biomedical engineering—to technical advice and monitoring of projects.