

TURKEY

Cooperative Activities under the SPS Programme

Since NATO began offering science cooperation to partners in 1992, Turkish scientists and experts have had leading roles in 440 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 through workshops, training courses, team collaborations and multi-year projects.

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 22 to 24 June 2010 an Advanced Research Workshop entitled “**Ethics, Morality and the Law: Managing Bio-Terrorism Threats**” will bring together 20 participants from NATO and Partner countries to explore the emerging threat from bio-terrorism and the malicious exploitation of life sciences. This SPS event will be held in Ankara, Turkey and will attract key speakers from United States Federal Bureau of Investigations and the Council of Europe Committee on Bioethics. This two day event will primarily focus on the developments in bio-science policy, implications of new technology, the legality of new developments in bio-science technology and policy and the potential terrorist threat emerging from unrestricted bio-science research.

[ref 983658]

In a project entitled “**Seismic Assessment for Southern Caucasus-Eastern Turkey Energy Corridors**”, scientists from Turkey, Azerbaijan and Georgia are collaborating to evaluate the hazard posed by earthquakes to the two Trans-Caucasian pipelines (the Baku-Tbilisi-Ceyhan Crude Oil Pipeline and the Baku-Tbilisi-Erzurum Natural Gas Pipeline), which cross major seismic zones. Earthquakes can cause serious damage including flow stoppages, fires, environmental pollution and economic losses. In this project, the partners will perform a comprehensive seismic risk study of the pipelines and develop efficient seismic risk monitoring and mitigation strategies in order to improve environmental security. The expected outputs include hazard

maps, site amplification maps, fragility curves, maps of expected damage, GIS-based software packages and specifications for a seismic monitoring system. The partners are communicating with all agencies that are involved in the operation, safety and maintenance of the pipelines.[ref 983038]

Experts from Turkey and Russia are working together to develop a technique for explosive detection using nuclear quadruple resonance



photo: courtesy of Prof. Polat Gulkan, earthquake METU, Ankara

(NQR) and low-field nuclear magnetic resonance (NMR) to identify chemical compounds containing nitrogen. This project, **“Highly Sensitive NQR/NMR Technique for Explosive Detection”** addresses the limitations in sensitivity and other factors of the current techniques using NQR and NMR. To this end, the project participants aim to increase the sensitivity and flexibility of these methods, to design methods of low-field NMR detection of liquid explosives; and to create

models of the detection devices. The project end-user is expected to be able to produce the new NQR and NMR devices for detection of nitrogen compounds in luggage or packages. [ref 982836]

In the field of energy security, scientists from Turkey, France, Germany, Mauritania and Morocco are cooperating on a project to use the prevailing trade winds over the Sahara Desert to produce hydrogen for sustainable energy systems. This collaborative project, entitled **“Sahara Trade Winds to Hydrogen”**, involves building two research platforms at the main research centres in Morocco and Mauritania. The aim is to integrate intermittent sources of renewable energies into the weak grid infrastructure of the Saharan/Sahel region, and the initiative will later be extended to other countries in the region including Senegal, Mali, Niger and Chad. Hydrogen produced by wind-driven electrolysis can be used for power storage and also for fuel or chemical feedstock in specific industries. [ref 982620]

The SPS Programme also facilitates the development of nationally funded activities, such as the pilot study **“Ecosystem Modeling of Coastal Lagoons for Sustainable Management”**, led by Turkey. Scientists, engineers, decision-makers from local, regional, and national governments, and academics have participated in workshops and international forums to examine the use of hydrodynamic and ecological models. The work has resulted in the development and/or promotion of advanced tools for strategic management of sensitive natural resources like coastal lagoons, which support the socio-economic systems within their watersheds and are therefore critical for human security. The final workshop was held in Dalaman, Turkey in October 2008. [ref 981614]