NATO
OTAN

N° 71
issue 3
2005

Science, Society, Security

news

Science Committee
Committee on the Challenges of Modern Society

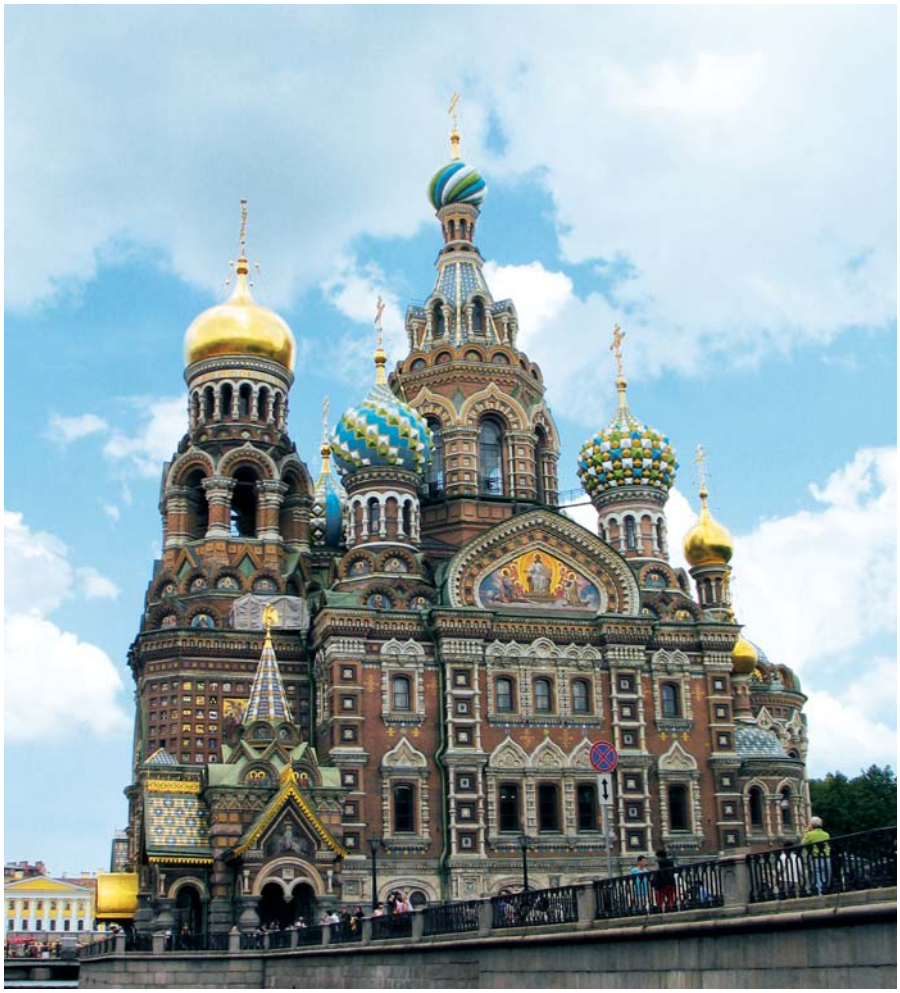
NATO
www.nato.int/science
www.nato.int/ccms

Cooperation on anti-terrorism, environment and computer networking - from Spain to Azerbaijan via Ukraine

A wealth of activities within the NATO Programme for Security through Science has taken place during the summer, starting with the high level meeting of the NATO-Russia Council (NRC) Science Committee in St Petersburg, Russia, on 13 and 14 June 2005. This summer has also seen the beginning of a new Science for Peace project in Azerbaijan for the protection of drinking water resources against accidental or terrorist-related pollution incidents through the setting up of an early warning system. This project represents a further example of the effective reorientation of the Programme to better respond to NATO's priorities, including the fight against terrorism. Such has also been the focus of a workshop in Madrid aimed at investigating possible strategies for cooperation in the field of anti-terrorism between Europe and North Africa. With regard to cooperation with other international organisations, the NATO Programme for Security through Science has joined forces with the Organization for Security and Co-operation in Europe (OSCE), in order to assist Partner countries in the disposal of melange, an environmentally hazardous rocket fuel formerly used by Warsaw Pact countries. A NATO-awarded Networking Infrastructure Grant allows to continue the provision of high-speed Internet connectivity to research and educational institutes across Ukraine. The value of NATO support to this initiative was highlighted by the Ukrainian Minister of Education and Science at the recent annual meeting of the Joint NATO-Ukraine Working Group for Scientific and Environmental Cooperation that took place in Kyiv, Ukraine. The NATO Programme for Security through Science has also sponsored another initiative that took place in Ukraine: a summer school that offered participants lectures and training on technologies for biological decontamination of sites affected by chemical and radiological nuclear agents.

NATO Science Committee goes to Russia

The NATO-Russia Council (NRC) Science Committee met in St Petersburg, in the Russian Federation, on 13 and 14 June 2005. On 13 June, the NRC Science Committee visited the Khlopin Radium Institute, and received briefings and demonstrations of Explosives Detection Technology. In its 14 June session, the NRC Science Committee took stock of the cooperative activities in the framework of the NATO Programme for Security through Science.



The NRC Science Committee was welcomed by Ambassador Alexander Alexeev of the Ministry of Foreign Affairs and by the representative of the Russian Federation, Prof Dmitry V. Livanov. Following the opening remarks, the NATO Public Diplomacy Staff provided an overview of the activities carried out in other NRC bodies and presented the work of the NRC Committee on the Challenges of Modern Society (NRC-CCMS), such as an ongoing project on Ecoterrorism. As the NRC Science Committee and the NRC-CCMS deal with closely related and complementary areas, it was agreed to maintain close relations between them.

Representatives reviewed the activities of the NRC Science Committee Action Plan for 2005-2006 on the following security-related priority areas: Explosives Detection; Psychological and Sociological Consequences of Terrorism; Forecast and Prevention of Catastrophes; Chemical, Biological, Radiological and Nuclear (CBRN) Protection; Cybersecurity; and Transport Security. A total of 23 bottom-up activities have been included in the work programme thus far in 2005, primarily in the area of Forecast and Prevention (14 activities) and CBRN Protection (8 activities). The Committee also reviewed the results of the Expert Meetings, which were held in Moscow in April 2005, involving experts from NATO countries and from Russia. These meetings resulted in seven proposed workshop topics on CBRN protection and CyberSecurity. These proposed activities will be submitted to the Advisory Panels for review and recommendation. The Committee agreed to continue the Expert Meeting process, which is particularly important for developing workshop applications. It was also agreed that all top-down activities would be submitted to the NRC Science Committee for approval under the silence procedure.

In addition, Dr Igor Kirillov of the Russian Federation presented the results of a project on "Hazard and Risk Analysis for Aircraft Collision with High-Rise Buildings" (conducted jointly by Russia and the Netherlands). The possibility to hold a workshop to define further cooperation in this field within the NRC Science Committee Action Plan was discussed.

The NRC Science Committee also noted that Russian experts had been appointed (one each) to the four Advisory Panels of the NATO Programme for Security through Science. The Committee also agreed that its members should work nationally to encourage the development of quality

applications for concrete activities. The next meeting of the NRC Science Committee will take place at NATO Headquarters on 20 October 2005.

Following the NRC Science Committee meeting, the members of the Science Committee held discussions on issues regarding the NATO Programme for Security through Science. The Committee was updated by the Public Diplomacy Staff on the organisation of the first "Security Science Forum" to be held on 18 October 2005 at NATO Headquarters. The goals of this forward-looking event are to seek inputs from NATO nations on security priorities; to identify topics for cooperation with Partner countries; and to ensure that Security through Science activities cannot be abused for potential terrorist activities.

Other items on the agenda included the results of the Spring 2005 Advisory Panel meetings and the status of current top-down activities, such as the Virtual Silk Highway and workshops in cooperation with the NATO Conference of National Armaments Directors (CNAD).

Of interest for the Science Committee were also the linkages between the NATO Programme for Security through Science and other NATO and non-NATO bodies, including the European Union (EU), the International Association for the Promotion of Cooperation with Scientists from the New Independent States of the Former Soviet Union (INTAS) and the European Science Foundation (ESF). In addition, a possible extension of the Environment and Security (ENVSEC) Initiative to Belarus, Moldova and Ukraine is being considered by the participating organisations. ENVSEC, which involves NATO, the Organization for Security and Co-operation in Europe (OSCE), the United Nations Development Programme (UNDP) and the United Nations Environment Programme (UNEP), provides assistance to the countries of South Caucasus, Central Asia and Southeast Europe through projects aimed at tackling environmental issues that can threaten regional security.

NATO has also begun discussions with ESF and INTAS to conduct a series of activities focusing on Human and Societal Dynamics. This joint initiative is entitled SAFE (Security: Advancing a Framework for Enquiry), and will examine how the humanities and social science can contribute to security research.

The Science Committee continued the debate on its future restructuring with the CCMS. The initial reactions to the results of the Joint Working Group on Science Committee/CCMS Restructuring held on 23 May 2005 were positive, but it was agreed that more time is needed to further refine considerations. The Science Committee will follow up these issues at its next meeting on 19 and 20 October 2005.

NATO-OSCE cooperation for the safe disposal of rocket fuel

Providing a comprehensive, cost efficient and environmentally friendly response to the problem of melange - such was the aim of a workshop jointly organised by NATO and the Organization for Security and Co-operation in Europe (OSCE) that took place in Kyiv, Ukraine, from 6 to 8 July 2005.

Melange bulk storage tanks

Melange, a rocket fuel oxidiser formerly used by Warsaw Pact countries, is both highly toxic and corrosive. As the containers in which melange is stored are progressively deteriorating and as many containers are currently in critical condition with a high risk of leaks, there is a serious threat to the environment and to public health.

During the opening session of the joint NATO-OSCE workshop, Volodymyr Tereschenko, Deputy Defence Minister of Ukraine, welcomed the participants and also stated that melange disposal is a high priority for Ukraine. In addition, Armenia, Azerbaijan, Kazakhstan, Tajikistan and Uzbekistan also have serious problems with melange.

The workshop offered participants from the countries concerned and international experts the opportunity to discuss lessons learned from earlier melange destruction projects and exchange views on the way forward in developing new projects. The participants noted that NATO and OSCE have developed considerable experience in implementing melange conversion projects. For instance, in 2002, the "OSCE Project Melange" in Georgia converted approximately 450 tons of melange into fertiliser. In the same year, NATO and NAMSA (the NATO Maintenance and Supply Agency) have successfully completed the destruction of 350 tonnes of melange in Moldova through incineration.

From left to right, H.E. Primo Seligo, Ambassador of Slovenia to Ukraine; Dr Chris De Wispelaere, Head of the Collaborative Programmes Section of the NATO Public Diplomacy Division; Volodymyr Tereschenko, Deputy Defence Minister of Ukraine; Anton Martynyuk, OSCE; Col Volodymyr Popovych, Head of Ammunition and Rocket Fuel Disposal Department at the Ministry of Defence of Ukraine

Participants also focused on the identification of the best methodology and technical options for melange disposal as well as on the legal and managerial aspects of melange conversion projects implementation.

During the workshop, the Environment and Security Initiative (ENVSEC), a partnership of the OSCE, NATO, the United Nations Development Programme (UNDP) and the United Nations Environment Programme (UNEP) to tackle environmental security risks, was presented and hailed as a model of inter-agency cooperation, which could also be applied to deal with melange conversion.

Melange fumes escaping from storage tanks

Editorial

Public Diplomacy is now clearly identified as a strategic priority of the Alliance and is likely to remain as such. No matter how successful or important a NATO action or decision may be, its impact will be significantly weakened without an appropriate level of public diplomacy to enhance its visibility and communicate its meaning to the public.

Scientific and Environmental cooperation is a wonderful tool to reach out to civil society, hence a remarkable tool for Public Diplomacy due to its excellent reputation among academic communities, especially in the Partner countries. But we have to do more to communicate our achievements and our relevance to new NATO.

Transformation is more than ever a key word in an Alliance which has been, since its inception, in the permanent process of inventing itself, devising new policies, new partnerships, new capabilities, new tools.

The Science Programme itself is an integral part of this evolution with its latest incarnation as a Security through Science Programme A further transformation should take place in the coming months with a view to creating a new structure for concrete cooperative Partnership projects with applied science and technology content. A new simplified structure might then replace the existing Science Committee and the Committee on the Challenges of Modern Society. This would be in keeping with the current NATO policy of reducing the number of Committees in the framework of NATO Reform.

Of all this, we will tell more in future issues.

Protecting drinking water supply from pollution and eco-terrorism in Azerbaijan

Setting up an early warning system for the protection of Azerbaijan's drinking water resources against accidental or terrorist-related pollution incidents is the objective of a Science for Peace (SfP) project initiated in March 2005. Should an incident occur, such a system would allow the responsible authorities to take swiftly the necessary actions in order to mitigate the presence of pollutants in the water.

Samur-Apsheron Canal (SAC), source of drinking water supply, with oil, gas and water pipelines crossing

The project is directed by Dr Prof Abilov Fazil, from the Research and Design Enterprise "Watercanal" of the Azerbaijan State Joint Stock Water Company "Azersu", in Baku, Azerbaijan, and Dr Péter Literáthy from EdiCon Ltd., in Budapest, Hungary. Its expected duration is three years.

The availability of fresh water resources is an issue of concern for Azerbaijan. The main sources providing drinking water to the population are the River Samur and the Samur-Apsheron Canal, which provide water to the Djeyranbatan reservoir hydro-engineering system. Such water resources are vulnerable to chemical pollutants, which might be released into the water accidentally or as a result of an act of sabotage or terrorism, thereby affecting the functioning of the ecosystem. The oil pipelines present in the region and the Sumgait tank-railway station, from where chemical products are transported to different countries, represent potential sources of pollution. For instance, in 1991, one of these pipelines was deliberately damaged causing an oil spill, which spread into the Samur-Apsheron Canal and hindered the use of water for two weeks.

If the presence of toxic chemicals in drinking water is not promptly recognised, the water quality can deteriorate causing direct risk to public health. Hence, early recognition and warning of a pollution incident is crucial. This is where the proposed Early Warning and Monitoring System and emergency response procedures come into play.

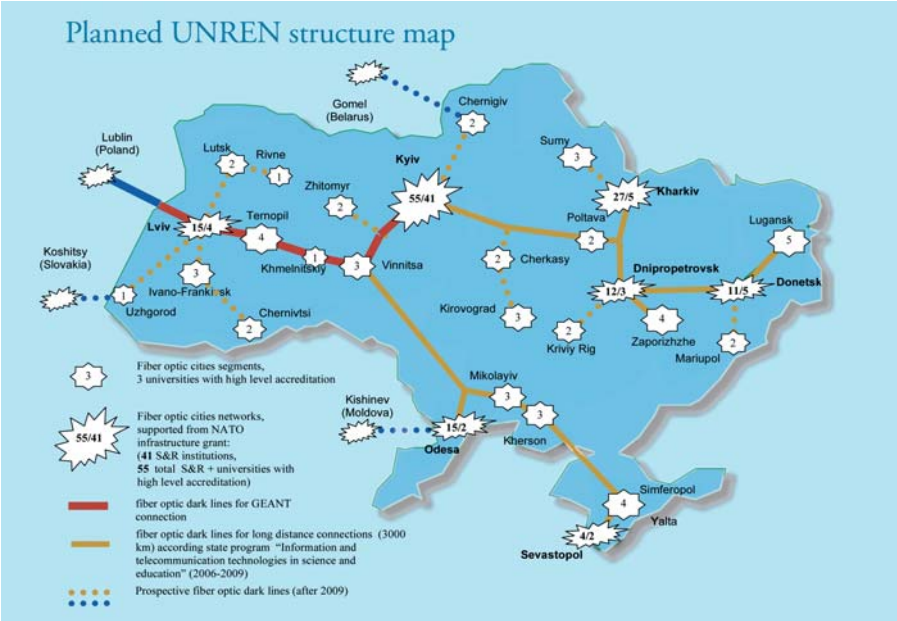
The project will provide an assessment of the risk of accidental chemical spills or intentional water pollution affecting the River Samur, the Samur-Apsheron Canal and the Djeyranbatan reservoir. The scientists involved will design and set up a water quality monitoring system, including Automatic Water Quality Monitoring stations along the aforementioned water courses, and the related telecommunication facilities. The Centre of the Early Warning System will receive alarm signals from the stations, evaluate them and identify the actions needed to deal with the emergency situation.

In addition, contingency plans to cope with this kind of emergency will be developed, and the responsible staff, including young scientists, will be given the appropriate training. A Pollution Emergency unit (PEU) will also be established to assist in pollution abatement activities. This unit will be equipped with a mobile laboratory with the appropriate instruments, including portable detectors to measure water quality parameters and portable automatic samplers to collect water samples. The PEU will also include basic pollution abatement tools, like inflatable floating devices to stop the spread of pollutants, such as oil, on the water surface and skimmers/adsorbents to remove oil from the water.

The end-user of the outcomes of this SfP project will be AMIR Technical Services Ltd., located in Baku, which will be responsible for operating the Automatic Water Quality Monitoring stations and the Early Warning System, and for taking the appropriate measures in case of emergency.

Assisting Ukraine
in developing computer networking infrastructure

Providing high-speed Internet connectivity to research and educational institutes across Ukraine - this is the goal of a Networking Infrastructure Grant (NIG) awarded in November 2004 by the NATO Programme for Security through Science for a project co-directed by Mr Tor Bloch of Denmark and Prof Yurij Yakimenko of the Kyiv Polytechnic Institute in Ukraine. Networking Infrastructure Grants provide assistance to Partner countries' research institutions in purchasing equipment that will improve the level and quality of telecommunications facilities, thus promoting local and international collaboration through networking capabilities.



This project is a continuation of three previous grants awarded to Ukraine in 1999, 2001 and 2003 for a total amount of €422 000. Through this new grant NATO will contribute €400 000 over three years mainly for the purchasing of networking equipment.

NATO's support is geared towards the development of the Ukrainian National Research and Educational Network (UNREN, which is co-financed by Ukraine), among research and educational centres in eight major urban areas: Dnepropetrovsk, Donetsk, Kharkiv, Kyiv, Lviv, Odessa, Sevastopol and Simpheropol. Such centres will be connected to the national backbone operated by UkrTelecom, the organisation supplying access to high-speed transmission lines connecting users to the Internet.

The project will facilitate the access of Ukrainian scientists to the diverse opportunities offered by high-speed Internet connectivity, such as easy access to the World Wide Web and the possibility to exchange large documents and datasets with their local and foreign counterparts. In addition, researchers will be able to sign up to distance learning programmes and to set up video conference facilities.

In addition, access to GÉANT, a collaborative project between 26 National Research and Education Networks representing 30 countries across Europe, is important for Ukrainian scientists. This year the Ukrainian government has invested 10 million grivnas (about US$2 million) for connecting Lviv and Kyiv's science institutions to GÉANT via Poland. It is planned that this international connection will be established by the end of this year. This access to GÉANT will also be a very important step for UNREN and will contribute to overcoming the "great digital divide" between Ukraine and Europe.

The Ukrainian government also intends to develop a state programme on "Information and Telecommunication Technologies in Science and Education" for the years 2006-2009. The aim of this programme is to further develop the networking infrastructure of UNREN and to upgrade connectivity between universities and research institutions (see the map of the future UNREN infrastructure). The investment only for telecommunication lines and equipment is estimated at about 200 million grivnas (US$40 million).

During his meeting in Kyiv with NATO Assistant Secretary General for Public Diplomacy Jean Fournet on the occasion of the annual meeting of the Joint NATO-Ukraine Working Group for Scientific and Environmental Cooperation on 27 May 2005, the Ukrainian Minister of Education and Science, Stanislav Nikolaienko, underlined that NATO's support is crucial for the development of UNREN. Such support not only enhances links between Ukrainian scientists and the international scientific community and among Ukrainian scientists themselves, it also demonstrates the wide scope of the activities carried out in the framework of the NATO Programme for Security through Science.

News from CCMS

© USDA

Seminar on Biodiversity

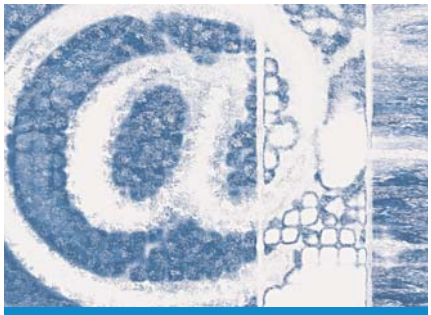
Biodiversity, with its elements of genetic, species and ecosystem diversity, represents a necessary and precious asset for present and future generations. The issue of protecting biodiversity and biological resources is part of Azerbaijan's Individual Partnership Action Plan (IPAP) for 2005. On the occasion of the "NATO week" organised by Azerbaijan, a seminar on the "Protection and Utilisation of Biological Resources for a Sustainable Development" was held in Baku, on 6 and 7 June 2005. The seminar was co-directed by the German Federal Agency for Nature Conservation and by the Ministry of Ecology and Natural Resources of Azerbaijan. Huseyngulu Baghirov, Minister for Ecology and Natural Resources, gave a keynote speech at the opening session.

Experts from Estonia, Georgia, Kazakhstan, Kyrgyz Republic, Russia and Turkey participated in the discussions, which focused on the "Convention on Biological Diversity".This Convention, which was signed and ratified by Azerbaijan in 2000, provides an internationally agreed framework for the protection and sustainable utilisation of biodiversity and defines criteria for access and benefits sharing.

Short-term project on environmental impact assessment at Krivolak

The first preparatory meeting of the short-term project on "Analysis of the environmental impact assessment from the military training ground in Krivolak and its management" was held on 23 and 24 June 2005 in the former Yugoslav Republic of Macedonia.* This project aims to reduce the environmental impact of the military activities carried out at the Krivolak training ground.

The two-day meeting was organised and hosted by the national Ministry of Environment and Physical Planning. The participating experts visited the training ground in order to gain an initial understanding of its general characteristics and conditions, and discussed the way ahead for the project's implementation.



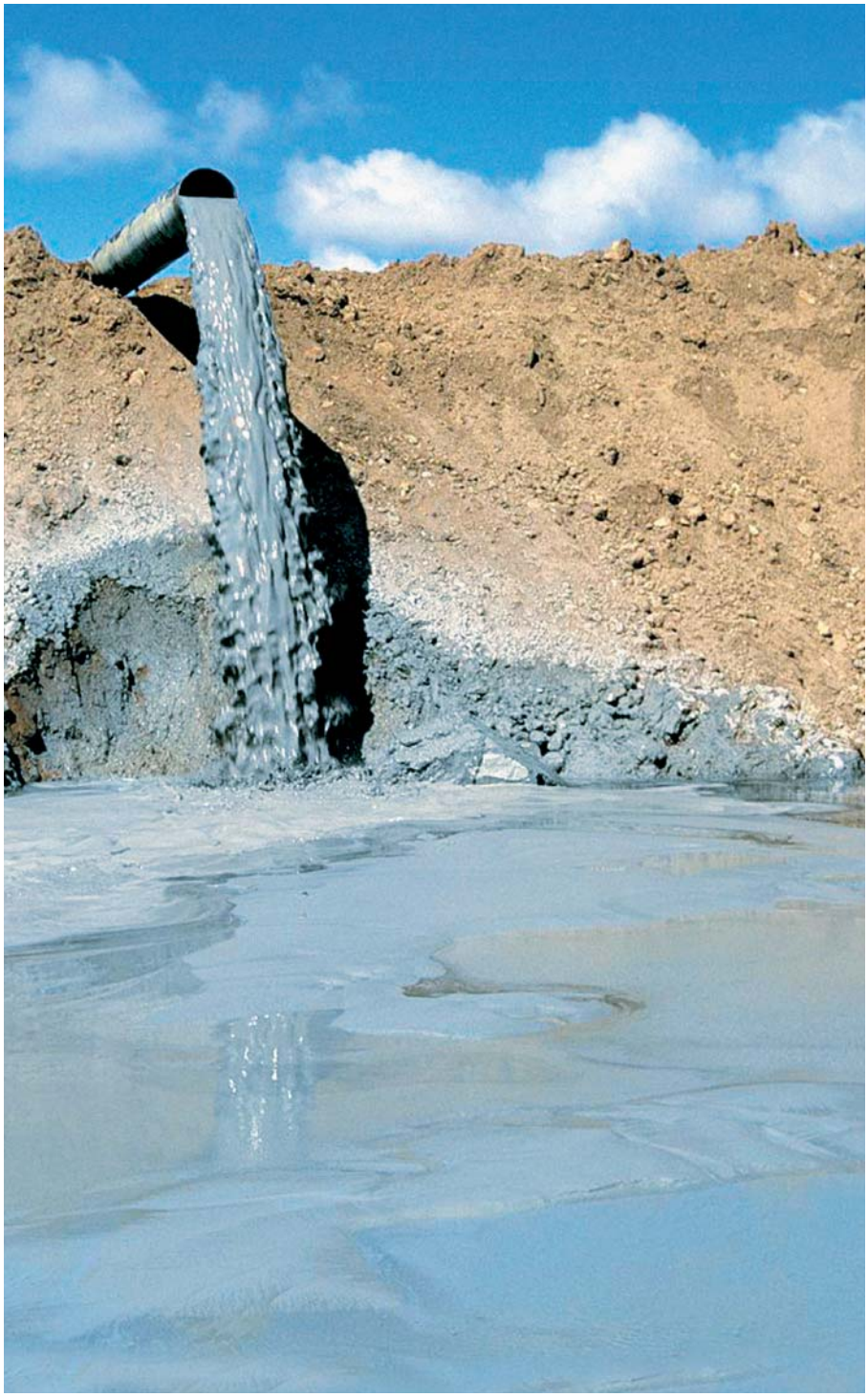
Further information about CCMS:
www.nato.int/ccms

Enquiries about CCMS:
ccms@hq.nato.int

** Turkey recognises the Republic of Macedonia with its constitutional name.*

Pilot Study on "Prevention and Remediation Issues in Selected Industrial Sectors"

The third meeting pertaining to this pilot study was held in Ottawa from 12 to 15 June 2005. This study focuses on the technologies for preventing and avoiding discharge of polluting agents to soil and groundwater as well as on measurement and remediation with regard to a selected industrial sector, which is different every year. Experts from twenty countries participated including Georgia, Poland, Russia and Ukraine. Experts from Australia and Japan were also present. The focus of next year's meeting will be "Redevelopment and Remediation of Small Sites in Urban Settings". The meeting is scheduled to take place in Athens, Greece, in late May or early June 2006.

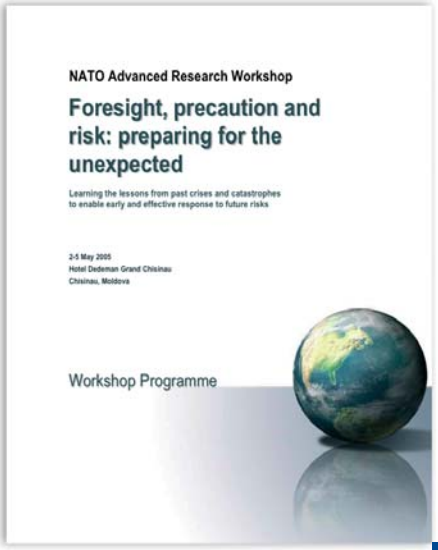


© American Geological Institute

Pilot Study on "Managing Effective Risk Response: An Ecological Approach"

The focus of this pilot study is on the need to have advance warning of emerging risks and on how to communicate such risks in order to enable those who need to intervene to take the appropriate actions in time. Risk preparedness to be effective needs to be in tune with all aspects of risk management.

A meeting organised in the framework of this pilot study was held in Chisinau, Moldova, in conjunction with the Advanced Research Workshop (ARW) organised under the NATO Programme for Security through Science on "Foresight, Precaution and Risk: Preparing for the unexpected", held from 2 to 5 May 2005. Participants from Canada, Georgia, Hungary, Moldova, Romania, UK, US and Turkey were present. The final meeting will be held in London from 10 to 12 November 2005.



Promoting cooperation between Europe and North Africa in the fight against terrorism

An Advanced Research Workshop on "Securitizing Terrorism in Europe and North Africa: Strategies for regional cooperation" was held in Madrid, Spain, from 24 to 26 June 2005. The workshop was co-directed by Dr Frederic Volpi of the University of Bristol, UK, and Dr Abdnnour Benantar of the *Centre de Recherche en Économie Appliquée pour le Développement (CREAD)* in Alger, Algeria.

NATO and Jordanian officers planning the details of an exercise in the Red Sea involving NATO and Jordanian ships on 17 March 2005 in the framework of NATO's Mediterranean Dialogue

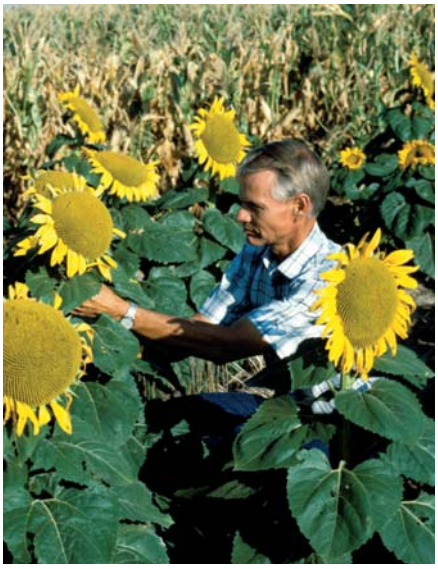
The goal of the organisers was threefold: to examine the case of Islamic radicalism in Western Europe and North Africa; to assess the compatibility of security policies across these regions; and, to promote close working relationships between scholars from NATO and the Mediterranean Dialogue countries.

The security policies introduced after September 11 in Algeria, Morocco, Spain, Tunisia and the UK as well as at the EU level were analysed. In the first part of the workshop, participants examined how the threat of Islamic radicalism is interpreted in the different countries concerned and how such interpretations impact the formulation of domestic and foreign policies aspects addressing religious extremism. In the second part of the meeting, participants sought to identify the potential strengths and weaknesses of the different types of initiatives (such as intelligence sharing and joint operations), at the domestic and regional level, devised by national governments and supranational organisations to counter the threat of Islamic radicalism. The aim was to assess the impact of these initiatives on the level of the activities triggered by Islamic radicalism and to consider which strategies are the most (or the least) promising and which steps should be taken in the near and medium term.

The outcome of the workshop will be a set of policy recommendations about combating Islamic radicalism that can contribute to strengthen a regional framework for multilateral cooperation.

Training on Biological Decontamination Techniques in Ukraine

An Advanced Study Institute (ASI) on "Advanced Science and Technology for Biological Decontamination of Sites Affected by Chemical and Radiological Nuclear Agents" took place in Zhytomyr, Ukraine, from 17 to 28 August 2005. This summer school was co-directed by Dr Borys B. Samotokin from the Zhytomyr State Technological University in Ukraine and Prof Nelson Marmiroli from the Department of Environmental Sciences of the University of Parma, Italy (member of the National Interuniversity Consortium for Environmental Sciences, CINSA, which was involved in applying for this ASI).



Sunflower plants have significant phytoremediation capabilities

More than 50 participants (including post-doctoral students and government officials), assisted by a group of twelve professors, attended high-level tutorial activities and lectures and had the opportunity to illustrate their work in poster sessions which allowed them to establish connections with professors and other attendees with long-standing experience.

The main goal of this ASI was to train participants in decontamination approaches based on the scientific and technological principles of both "bioremediation" and "phytoremediation", in order to apply them to sites contaminated with radionuclides or chemicals connected with explosives, ammunitions, and fuels. Technologies for remediation of contaminated sites can be based on conventional systems using physical and chemical treatments such as incineration and ultraviolet oxidation. However, such approaches are usually expensive, can imply removal of soil or water and often lead to a depletion of resources, limiting future utilisation of the site. Instead, technologies based on bioremediation and phytoremediation, that is based on living organism (such as micro-organisms) and plants, are characterised by lower costs and a reduced environmental impact. For instance, as discussed at the ASI, sunflower plants have significant phytoremediation capabilities as proved by their use in the decontamination of the missile site of Liubashhevka near Odessa (Ukraine), which was carried out from January 2001 to August 2004.

Attendees discussed the state-of-the-art and latest developments in these technologies with representatives from commercial companies, environmental research institutions and public administrations as well as with military experts. In addition, the Zhytomyr summer school aimed to stimulate future transnational cooperation in the field of emerging sustainable development.

This NATO-sponsored ASI has responded to the need to train new professionals who, knowing both the scientific background of biological decontamination and its related field applications, can be employed in commercial or governmental activities. The development of such expertise is crucial for countries that have to address pollution emergencies left as legacy of previous activities such as weapons production and nuclear energy generation.

From left to right, Dr Deniz Yuksel-Beten, Head of the Threats and Challenges Section, NATO Public Diplomacy Division; Dr Thomas Strassburger; Mr Jean Fournet, NATO Assistant Secretary General for Public Diplomacy

Bidding farewell to NATO

A dedicated member of the Threats and Challenges Section of the NATO Public Diplomacy Division has left the organisation. As a Voluntary National Contribution from the Federal Republic of Germany, Dr Thomas Strassburger has been part of the team supporting the work of the Committee on the Challenges of Modern Society (CCMS) from 1 March 2004 to 31 August 2005.

As CCMS Assistant Programme Director, he has been involved in the whole range of CCMS, EAPC and NRC CCMS activities, with the latter especially gaining momentum due to his close working relationships with the Russian colleagues. His responsibilities included organising and managing conferences and other meetings sponsored by CCMS both in NATO and Partner countries, assisting project participants and promoting awareness in the scientific community of the opportunities available under the NATO Programme for Security through Science.

Dr Strassburger holds M.Sc. and Ph.D. degrees in Agricultural Sciences. Prior to joining the German Federal Ministry of Defence (MoD), he worked as an Agricultural Adviser in southern Africa and for the Ministry of Nature and Environment in the German State of Schleswig Holstein.

In September 2005, Dr Strassburger returned to the German MoD to resume his former duties. At the MoD he is responsible for all aspects of nature conservation and terrain care on military lands in Germany. We wish him all the best for his future undertakings, and we hope to see him again perhaps as a future member of one of the working groups which he helped coordinate.

Upcoming events

- **Advanced Research Workshop on "Nuclear Security Culture: from National Best Practices to International Standards"**
  24-25 October 2005
  Moscow, Russia

- **Advanced Research Workshop on "Solar Desalination for the 21st century"**
  6-9 November 2005
  Hammamet, Tunisia

- **Advanced Research Workshop on "Security in Knowledge-based Society: Developing Resilience in Societies at Risk and Threatened by Terrorism"**
  15-20 November 2005
  Zagreb, Croatia

- **Advanced Study Institute on "Chemicals as Intentional and Accidental Global Environmental Threats"**
  16-28 November 2005
  Borovetz, Bulgaria

NATO
Security through Science Programme
CCMS Programme

Public Diplomacy Division
Boulevard Leopold III
1110 Brussels
Belgium

Contacts: science@hq.nato.int
science.admin@hq.nato.int
(enquiries about distribution)

SCNEWSENG71/05