



NATO
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OTAN

N° 66

issue 01
2004

Science, Society, Security

news

Science Committee

Committee on the Challenges of Modern Society

NATO

www.nato.int/science

www.nato.int/ccms

A new beginning

Seven new members join the Alliance

As announced in our last edition, we have a new-look newsletter which marks not only the 20th year of publication, but also the inauguration of the new Security Through Science Programme. Concentrating support on security-related topics is a new departure for the civil science programme of NATO, and this reflects the changed environment in which NATO, and science and society, now find themselves.

Indeed, novelty is the theme of this newsletter. Featured are not only new elements of the developing Security Through Science Programme, agreed by the NATO Science Committee at its meeting in March, and the launch of new security-related initiatives, but also new NATO member countries. On 29 March 2004 seven additional countries acceded to the North Atlantic Treaty, bringing the number of NATO countries to twenty-six. It is therefore in celebratory mood that we move ahead in 2004.

A ceremony to mark the accession of Bulgaria, Estonia, Latvia, Lithuania, Romania, Slovakia and Slovenia to the North Atlantic Treaty Organization was held at NATO Headquarters, Brussels on 2 April 2004, in the presence of NATO Foreign Ministers. A ceremonial flag-raising took place, when the flags of the seven new allies were raised for the first time at the Headquarters, to the accompaniment of the seven national anthems played by the military band of SHAPE. The ceremony was also witnessed by national delegations and staff of NATO Headquarters. The Accession Ceremony was followed by an informal meeting of NATO Foreign Ministers in the new configuration of twenty-six members.

The countries acceded to the Treaty on 29 March 2004 at a ceremony in Washington D.C., when the Prime Ministers of the seven countries handed over their instruments of accession to US Secretary of State Colin Powell, who accepted them on behalf of the United States, the depositary nation for the Treaty.



Science Committee approves new measures



⇒ The NATO Science Committee met in Brussels on 11 and 12 March and approved a number of new elements to be included in the Security Through Science Programme.



Reintegration Grants - a new opportunity for support

A new support mechanism has been developed in response to concerns often voiced by representatives of Partner countries about the loss of their well-trained researchers to other countries. Following suggestions by a Science Committee sub-group set up to study what might be an appropriate response to these "brain drain" concerns, a new Reintegration Grant has been launched.

The aim of the grant is to support the reintegration of young Partner country scientists in their home countries after conducting research in NATO countries. Reintegration Grants are intended to give the returning fellow the means necessary to start a scientific career in his or her home country and to establish a research team in the research institution of choice. Reintegration Grants are also aimed at assisting the host institution in the home country to facilitate the reintegration of the returning fellow, through additional financial support. The Reintegration Grant will therefore comprise two separate elements: one for the returning fellow and one for the host institution.

Reintegration Grants for Partner-country scientists currently working in NATO countries have been introduced as a new support mechanism; areas of priority research have been selected by Partner countries; and stipends for laboratory assistance services have been introduced for Science for Peace projects and for experts responsible for setting up computer networking infrastructure grants. Details of these new programme elements may be found at the NATO science web site, and summary information is given here. Other measures agreed are also outlined below, including restructuring the grant advisory panels, which incorporates a new social sciences initiative.

In 2004 the Reintegration Grant mechanism will be open to returning scientists of all Partner countries, including the seven countries who have become NATO members this year. A Reintegration Grant will cover a three-year period. To be eligible for support, the returning fellow should have completed a research period of at least 6 months in a NATO country. The proposed research project of the returning fellow should be focused on security-related NATO priority areas, and/or on agreed priorities of Partner countries.

An application form for a Reintegration Grant may be found at the NATO science web site, as well as Notes for Applicants giving further details of the support criteria.

New peer-review Advisory Panels

As the Security Through Science programme is launched, the Advisory Panels are being adapted to focus on the new security-related elements of the programme, and panel membership will shift from an emphasis on the basic sciences towards expertise in the security-related priority areas. The new panels will meet for the first time in autumn 2004, and will be as follows:

- ⇒ Chemical / Biological / Physics (CBP) Panel
- ⇒ Information and Communications Security (ICS) Panel
- ⇒ Environmental Security Panel (ESP)
- ⇒ Human & Societal Dynamics (HSD) Panel

The NATO Advisory Panels are composed of scientists drawn from among the scientific community of NATO, Partner and Mediterranean Dialogue countries. The panel members put their professional expertise at the disposal of the Science Committee, without honorarium, and their advice is invaluable in arriving at and maintaining a high scientific standard.

Panel membership is decided by the Science Committee. Committee members nominate experts from their countries, and the full Committee agrees to new membership, taking into account the expertise required by the Panel, and with a rotation of nationalities. Panel members serve for a period of four years.

New Social Sciences initiative

Many of the complex issues on NATO's new security agenda need close co-operation between the natural sciences, the humanities, and social sciences. Among the new Advisory Panels to be convened later this year is one on Human and Societal Dynamics, which will consider applications in the social sciences and thus respond to the need for synergy between these disciplines.



The Reintegration Grant will replace Science Fellowships as a support mechanism more suited to the situation of Partner countries in transition economies.

The NATO scientific Advisory Panels fulfil the function of peer review for the Security Through Science Programme. Peer review is the recognised process in the academic world for screening applications for research funding or for publishing manuscripts.



New measures

- ⇒ Reintegration Grants introduced
- ⇒ Advisory Panels restructured
- ⇒ Partner-country priorities established
- ⇒ Social sciences supported
- ⇒ Stipends for young scientists available



The support mechanisms will be the traditional mechanisms of Advanced Study Institutes, Advanced Research Workshops, Collaborative Linkage Grants and Experts' Visits.

Stipends for Science for Peace researchers and Computer Networking experts

The Science Committee has agreed that stipends of up to 10 per cent of the grant may be paid to young key researchers in Science for Peace projects, or to experts in charge of the implementation of a Computer Networking Infrastructure Grant. Where applicable this will pertain to projects supported from 2004, and details will be incorporated in the guidelines for Science for Peace project development, and the Notes for Applicants for Computer Networking Infrastructure Grants.

Partner Country Priority Areas

Although the Security Through Science Programme now concentrates support on security-related activities, partnership nevertheless remains at the heart of the programme, and this translates concretely into Partner-country priorities being included in the list of priority topics for support. These may now be found on the NATO science web site, among the priority research topics eligible for support. They will be limited to proposals which include scientists from the country concerned. The Priority Research Topics are in areas of defence against terrorism, countering other threats to security, and/or Partner country priorities.

Science, Society, Security

Three simple words, placed side by side, like a motto in a coat-of-arms.

Each one, taken in isolation, is already charged with meaning, and with historical, cultural and social references.

But taken two by two they support and complement each other - science and society, as symbols of the development of our modern world; society and security, as proof that living as part of society is the basis of our security and reinforces social order; science and security, because the pursuit of knowledge has always been at the root of the dialectic opposing sword and shield.

But all three words together give an impression of harmony, of strength, of stability. When science brings security to society, and society guarantees security to science, it goes beyond a play on words and becomes an assurance for the future.

Here then are reasons for self-congratulation on the recent changes in the science and environment programmes of NATO.

Here too is the reason why we have chosen this new title for our publication.

Jean Fournet

Following the introduction of Partner-country priorities, it should be noted that applications which are in both a security-related priority and a Partner-country priority are particularly encouraged.

Science for Peace

new projects launched

Project plans have been accepted for two new Science for Peace (SfP) projects which will get underway later this year, one with a partnership between Kazakhstan and the United Kingdom and the other between Croatia and Italy.



Investigation of the radiological situation in a northern region of the former Semipalatinsk nuclear test site

Between 1949 and 1989 a total of 456 nuclear tests were carried out at Semipalatinsk in Kazakhstan, the former Soviet Union's premier test site, before its closure by presidential edict in 1991.

This project addresses the contamination in the former Soviet nuclear test site at Semipalatinsk in Kazakhstan. It follows on from a completed SfP study which began in 1999 with the object of establishing contamination levels in land near the village of Sarzhal in the south of the region.

The earlier project, known as SEMIRAD-1, showed that, contrary to expectation, the area studied was not highly contaminated, and even in the vicinity of craters created by nuclear explosions, the radiation dose for the local population was

well within the range of doses experienced by populations resident in western nations, and considered to be of little concern. It was concluded therefore that this part of the test site presented no significant radiological hazard to the farmers and Sarzhal residents that use it for agriculture.

The newly approved project, called SEMIRAD-2, will examine another area of the test site. This area is approximately 800 square kilometres and is located to the north of the site, near the city of Kurchatov. Although the area has not been declared radiologically safe, parts are already being farmed by Kazakh families and workers from local villages. The objective of the project is to investigate precisely which parts of the area present no radiological hazards and can be safely exploited by the significant local population. The area also contains mineral resources which could be exploited if the radiological levels were declared safe.

The project will not only investigate the general levels of contamination, but also look for residues of radiation dispersion devices (RDDs) which may have been tested in this area. Some RDD tests could have resulted in ground contamination levels that are sufficiently high to allow the collection of material to construct small

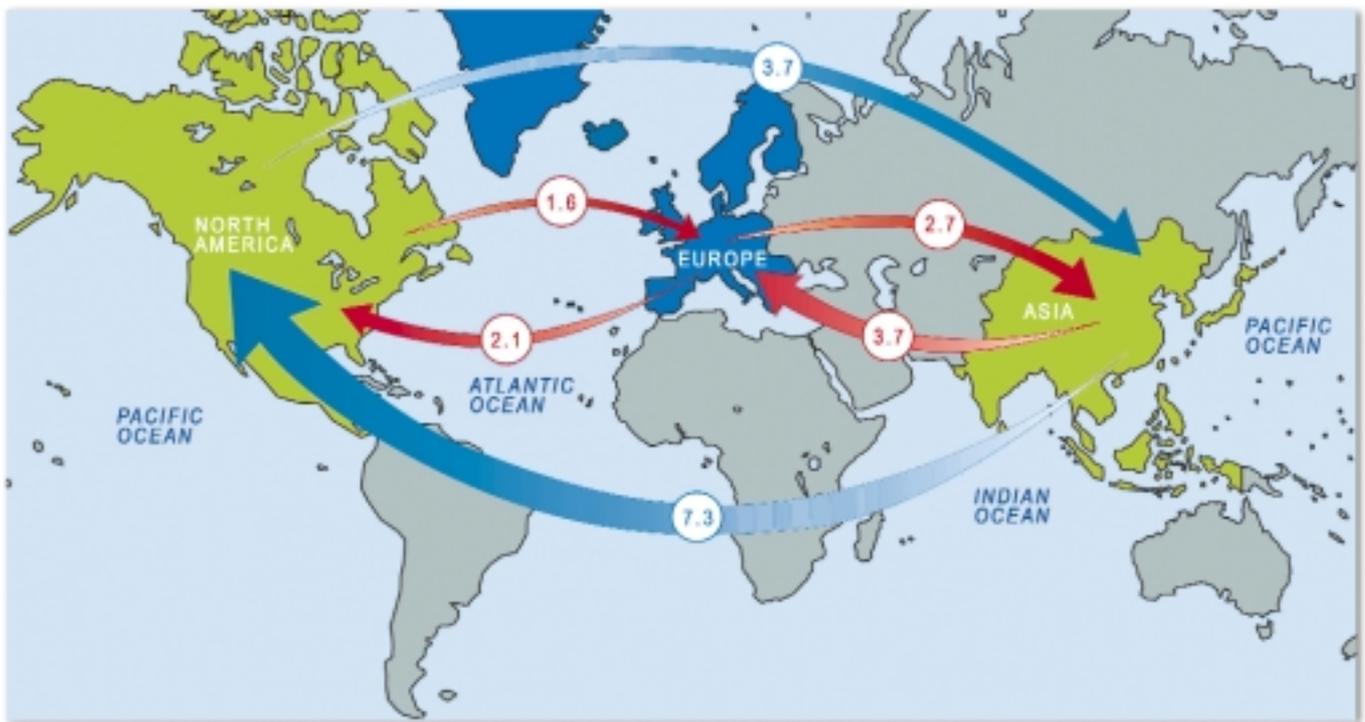
radiological weapons - so-called dirty bombs. Involved national agencies have already taken steps to identify such sites and prevent inadvertent disclosure of their locations.

An important result of the first project, which will be implemented in the new one, was an increased speed for evaluation. This entails placing a greater reliance on in situ analysis by using modern field spectrometry equipment as opposed to laboratory analysis.

The project directors are Prof. Nicholas Priest of Middlesex University, London, UK and Prof. Mukhambetcaly Burkitbaev of Al-Farabi Kazakh State National University, Almaty, Kazakhstan, and experts from Ireland, France and Russia will assist the project.

The results of the NATO SfP SEMIRAD-1 project were presented to the Kazakh government, and a Russian language summary and full version of the report were prepared for local residents and local government officials. In addition, the results have been entered into the central database maintained by the National Nuclear Centre of Kazakhstan.





Size of the container transport industry: Last year the world's total movement in containers is estimated at more than 100x106 TEU ("20-foot equivalent units", the industry standard). The arrows in the figure represent the most important trade flows (not routes) in 106 TEU

Control of illicit trafficking of threat materials

This project is aimed at developing an inspection system to control illicit trafficking of explosives, chemical agents, fissile material, etc. across international borders.

Modern cargo inspection systems are non-invasive imaging systems. The systems use penetrating radiation scanning (gamma and x-rays) to detect objects. This technique, however, is non-specific in that it gives no information on the nature of objects. Moreover, the current control measures are time-consuming, inefficient, and slow down traffic. A great deal of effort is currently going into development of the "smart border" concept, where management systems can keep pace with an expanding trade while

protecting from the threats of terrorist attack, illegal immigration, etc. Fast-working shipping container control systems are an essential building block of the "smart border" concept.

The novel techniques proposed by the partners in this project make use of fast "tagged neutrons" to define a small volume within the shipment. The neutrons produce a reaction in the objects which allows the elemental composition to be identified, so as to tell whether the material is some harmless object, or explosives, drugs, etc.

The project co-directors are Prof. Vladivoj Valkovic, of Institute Rudjer Boskovic, Zagreb, Croatia, and Dr. Giancarlo Nebbia, of Institute of Nuclear Physics (INFN), Padua, Italy. The group in Zagreb has many years of experience working with fast neutrons, and the researchers

involved from Italy have over 20 years of experience in experimental nuclear physics with the use of particle accelerators. Research on development of explosive detection by atomic and nuclear methods is already ongoing between the partners, with help from a current NATO collaborative linkage grant.

The Croatian Customs Service will be the end user of the project, which aims to develop a novel technique based on neutron activation analysis for the detection and identification of threat materials such as explosives and drugs hidden in large containers.

Meetings of the Committee on the Challenges of Modern Society (CCMS)

CCMS held their spring meetings at NATO Headquarters on 25 and 26 March. The Committee not only met in plenary Alliance format, but also in the format of the NRC (NATO-Russia Council) and in the format of the EAPC (Euro-Atlantic Partnership Council). The NATO CCMS approved two new workshops which will be undertaken in implementation of one of the Committee's key objectives - reducing environmental impact of military activities.

CCMS in EAPC format

Meeting on 26 March CCMS meeting in format of the 46-nation Euro-Atlantic Partnership Council, received reports on ongoing pilot studies, including :

- ⇨ Design of the Caspian Basin Observing System to Form the Basis for Environmental Forecasting, led by Turkey and Azerbaijan.
- ⇨ Environmental Decision-Making for Sustainable Development in Central Asia, led by the United States.
- ⇨ Integrated Water Management, led by Belgium.
- ⇨ Risk Assessment of Chernobyl Accident Consequences : Lessons Learned for the Future, led by Italy and the United States.



An abandoned military site

Rehabilitation of Former Military Sites

The Mongolian authorities have offered to sponsor a workshop in Ulaan Baatar on 1-3 June 2004, dealing with Rehabilitation of Former Military Sites. The Netherlands and Luxembourg will be co-sponsors. Since the 1930s, land in Mongolia has been used extensively for military purposes. The main problems in these sites are unexploded ordinance that harms shepherds and cattle, water and ground-water pollution and waste, demolishing of infrastructure by local people and nomads, and organizational and financial difficulties in the conversion of sites from military to civil use. A preliminary appraisal has concluded that a complete assessment of all sites and proposals for possible

reuse will be necessary, followed by prioritisation, and these and other issues will be worked out further at the forthcoming workshop.

Environmental Management Systems (EMS) in the Military Sector

The German Ministry of Defence will sponsor a workshop on the above topic in Sonthofen, Germany, on 27 September to 1 October 2004. The workshop will share experience gained on the implementation of an EMS in the military sector, and study the feasibility of introducing performance indicators. It will assist nations in identifying knowledge themselves, and in analysing

gaps in current practices, and will foster "mentoring partnerships" to accelerate the transfer of knowledge most effectively.

CCMS Key Objectives

- ⇨ Reducing the environmental impact of military activities
- ⇨ Conducting regional studies including cross-border activities
- ⇨ Preventing conflicts in relation to scarcity of resources
- ⇨ Addressing emerging risks to the environment and society that could cause economic, cultural and political instability
- ⇨ Addressing non-traditional threats to security

cooperation in science and environment

- ⇒ The first NRC-CCMS workshop will examine oil spills in cold and arctic climate conditions.

NATO-Russia CCMS

The third meeting of the NATO-Russia Committee on the Challenges of Modern Society (NRC CCMS) took place on 26 March. The Committee reviewed their Action Plan for 2003 and were informed on progress of plans for the NRC workshop on [Oil Spill Response Equipment](#), outlined below.

Response to Oil Spills in the Barents Sea

Norway will host the first NRC CCMS workshop, which will examine the response to oil spills in cold and arctic climate conditions. Studies will concentrate on the Barents Sea. Scheduled for 29-30 April, in Horten, Norway, the workshop's main objective will be to evaluate the possible foundations of a joint NRC CCMS development project for oil spill response equipment. Participants will include experts with working experience in oil spill response equipment, relevant authorities from NRC countries, and representatives from equipment manufacturers and research institutes, leading to a transfer of knowledge between participants.

The five main topics to be discussed are :

- ⇒ High viscous oil and cold climate, involving icing problems
- ⇒ Use of offshore booms, dealing with wave height and icing problems
- ⇒ Detection of oil spill in darkness and under ice

The NATO-Russia Council (NRC) was established at the Rome Summit on 28 May 2002. It meets at least once a month at ambassadorial level and brings together the NATO Allies and Russia to identify and pursue opportunities for joint action as equal partners. The NRC Science Committee and the NRC-CCMS were established by the NATO-Russia Council with the aim of promoting, encouraging and coordinating joint cooperative projects between scientists and experts from the NATO countries and Russia.

- ⇒ Systems and procedures for handling vessels in distress
- ⇒ Procedures, systems and standards for the logistics of response operations

The NRC CCMS workshop will examine ways to protect the environment along the shipping routes to the USA and Europe of Russian crude and refined oil.

New framework for work of NATO-Russia Council (NRC) Science Committee

At its meeting on 12 March the NRC Science Committee drew up an Action Plan for 2004. The draft Action Plan was compiled following the advice of an Expert Meeting held in Moscow early in March with the participation of over 30 Russian and NATO-country experts, convened by the Committee to explore specific opportunities for concrete cooperation. The draft Action Plan proposes topics to provide the basis for the programme of work to be carried out under the NRC Science Committee. The draft Action Plan is currently under review by all the NRC countries.

NRC Science Committee - Upcoming Workshops

[Earthquake Vulnerability Reduction for Critical Infrastructure and Facilities](#)

24 May 2004 - 28 May 2004 :
Moscow, Russia

Co-Directors :

Prof Frederick Krimgold, USA
(E-mail: krimgold@vt.edu)
Dr. Vitaly Petrov, Russia
(E-mail: icts@online.ru)

[Protection of Civilian Infrastructure from Acts of Terrorism](#)

27 May 2004 - 29 May 2004:
Moscow , Russia

Co-Directors :

Prof. Gregory Baecher, USA
(E-mail: gbaecher@umd.edu)
Prof. Konstantin Frolov, Russia
(E-mail: lmashReznikoff@yandex.ru)



newsbriefs...

New Science Committee member for Greece

Professor Gerasimos Lyberatos has been appointed Science Committee member for Greece. Professor of Chemical Engineering at the University of Patras, Gerasimos Lyberatos is Head of the Laboratory for Biochemical Engineering and Environmental Technology; he is also Editor of the Journal of Hazardous Material (Elsevier). He replaces Prof. Georgios Papatheodorou, who had served as Science Committee member since 1994.



Born in 1958 in Athens, Prof. Lyberatos attained his Bachelor of Science in Chemical Engineering at the Massachusetts Institute of Technology, USA, in 1980, followed by a Master of Science (1982) and then Ph.D. in Chemical Engineering at the California Institute of Technology, USA, in 1984. He then became Assistant Professor at the University of Florida, USA, until August 1988 and continued at the same university as tenured Associate Professor until April 1990, when he returned to Greece as Associate Professor at the University of Patras. He became Professor of Chemical Engineering in 1993. He was Vice-Rector for Financial Planning and Development at the University from 1994-1997, and Chairman of Chemical Engineering from 1999-2003. He is author or co-author of over 80 scientific papers in refereed journals.

Forum on Business and Security - DVD available to order

A NATO Forum on Business and Security, scheduled to take place in Istanbul this summer, is being held at a significant time. Never before have issues such as terrorism and protecting the supply chain been so high on the political agenda. To mark this occasion the organizers of the Forum are making available a DVD to look behind the issues discussed. The DVD will feature mini documentaries sponsored by some of the leading players in the industry as well as extracts from many of the speeches from an earlier Business and Security Forum held in Berlin in April. Speakers there included Peter Ryan, Head of Security for the Olympic Games, General Klaus Naumann, former Chairman of the NATO Military Committee, and Christian Sommade from France's Committee for Civil Defence. Copies of the DVD can be reserved by contacting the broadcasters for the event, hbl media. Orders can be emailed to Sally Nelson at sally@hblmedia.com. There is a cost of £25 which includes postage and packing.

Azerbaijan

Professor Ali Abbasov has been made Minister of Communications and Informatization of Azerbaijan. Mr. Abbasov served for a period as representative of Azerbaijan on the EAPC Science Committee. He is Rector of the Azerbaijan State Economic University, and was the coordinator of the NATO Silk Project in Azerbaijan.

Georgia

Mr. Zurab Zhvaniya is the new Prime Minister of Georgia. Mr. Zhvaniya is a scientist, and in his previous capacity of President of the Parliament of Georgia, he welcomed the Science Committee to Georgia on the occasion of their meeting in Tbilisi.

Kyrgyz Republic

Mr. Askar Kutanov has been appointed Ambassador of the Kyrgyz Republic to Japan. Mr. Kutanov is the representative for the Kyrgyz Republic on the EAPC Science Committee. As professor at the Institute of Physics of the Kyrgyz National Academy of Sciences, he was the coordinator of the NATO Silk Project in the Kyrgyz Republic, and of a Science for Peace project to develop holograms for security applications.

Moldova

Professor Gheorghe Duca has been made President of the Academy of Sciences of Moldova. Professor Duca is project director of the Science for Peace project which is creating a warning monitoring system for flood and pollution levels on the Nistru and Prut Rivers. He replaces Professor Andrei Andries, member of the EAPC Science Committee, who has been elected Honorary President of the Academy.



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*Security Through Science Programme
CCMS Programme*

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