

NATO NEG

CIRMS November 2007

Nuclear Risks of relevance to NATO

Brit Salbu

Norwegian University of Life Sciences (UMB)



Nuclear Risks of relevance to NATO

- Background for SPS (Science for peace and security) and NEG (Nuclear expert group)
- Instruments
- Key areas of relevance
- Nuclear risks of relevance
- Collaboration with other institutions
- New Top – down initiatives – Road map

History of Science Support by NATO

- Started in the 1950s based on initiatives from Canada, Norway and Italy, to allow scientist to have a dialogue across the “iron curtain”,
- 1992: End of the Cold War: New NATO Partners including the Russian Federation
- Enlargement of NATO to 26 countries
- 2002: NATO is associated with the Environment and Security Initiative – ENVSEC, UNDP, UNEP and OSCE:
 - The aim is to initiate and co-ordinate projects in environmental security, mainly in Central Asia and the Caucasus region.

Public Diplomacy Division (PDD)

- * **Two components in PDD,**
 - **Public information,**
 - **Civil science cooperation,**
 - **Science for Peace and Security (SPS).**

- * **Reaching out to civil societies,**
 - **NATO,**
 - **Partner countries,**
 - **Mediterranean Dialogue (MD) countries.**

SPS Committee

* **Established by the NAC on 28 June 2006:**

- **Primary NATO body over a programme for enhancing cooperation with all partnerships based on science and innovation,**
- **Conducts activities aligned with NATO's Strategic Objectives - especially Partnership,**
- **Has a 'horizon-scanning' role in identifying future threats, raising awareness and finding solutions.**

SPS Committee & Expert Groups

*** Four advisory scientific panels, including Environmental Security Panel (ESP)**



*** Expert groups will be established within high priority areas**

- **Nuclear Expert Group (NEG) – focus on radiological risks - was established in 2007,**

- **US member dr. Tom Hinton, Univ. Georgia/Savannah Ecol. Lab.**

SPS Objectives

- * Establish concrete civil collaboration between NATO countries and Partner and MD countries,**
- * Contribute to solving problems effecting large societies in Partner and MD countries,**
- * Contribute to stability and peace e.g. by promoting regional co-operation,**

SPS Objectives

- * **Promote NATO's values and image in targeted communities in Partner and MD countries and society at large,**
 - *Young generation of 'Leaders of Tomorrow',*
- * **Provide seed money for seed projects to provide the basis for addressing priority needs.**

A Unique Network of Cooperation

-NATO Countries (26)

-Belgium, Bulgaria, Canada, Czech Republic, Denmark, Estonia, France, Germany, Greece, Hungary, Iceland, Italy, Latvia, Lithuania, Luxembourg, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Turkey, United Kingdom, United States.

-Partner Countries (23)

-Albania, Armenia, Austria, Azerbaijan, Belarus, Bosnia & Herzegovina, Croatia, Finland, Georgia, Moldova, Montenegro, Ireland, Kyrgyz Republic, Kazakhstan, Russia, Serbia, Sweden, Switzerland, Tajikistan the former Yugoslav Republic of Macedonia(*), Turkmenistan, Ukraine, Uzbekistan.

-Mediterranean Dialogue Countries (7)

-Algeria, Egypt, Israel, Jordan, Mauritania, Morocco, Tunisia.

-Total: 56 countries

-(*) Turkey recognizes the Republic of Macedonia with its constitutional name.

SPS Characteristics

- * **Based on key priorities,**
- * **Non-military, civil science cooperation,**
- * **NATO-Russia Council (NRC),**
- * **Activities involve NATO + Partner/MD countries,**
- * **Programme elements,**
 - **Nationally Funded Activities (former CCMS),**
 - **NATO Managed Activities.**

SPS Key Priorities

* Defence Against Terrorism:

- Rapid detection of CBRN agents and weapons, and rapid diagnosis of their effects on people,
- Novel and rapid methods of detection,
- Physical Protection against CBRN agents,
- Decontamination of CBRN agents,
- Destruction of CBRN agents and weapons (e.g. chemical & vaccine technologies),
- Medical countermeasures,
- Explosive detection,
- Food security,
- Information security,
- Eco-terrorism countermeasures,
- Computer terrorism countermeasures.

SPS Key Priorities

- * **Scientific Collaboration to Counter other Threats to Security:**
 - Environmental security (e.g. desertification, land erosion, pollution),
 - **Nuclear risks and security - NEG**
 - Water resources management,
 - Management of non-renewable resources,
 - Modelling sustainable consumption (e.g. food, energy, materials, fiscal measures and environmental costing),
 - Disaster forecast and prevention,
 - Human and societal dynamics (e.g. new challenges for global security, economic impact of terrorist actions, risk studies, topics in science policy).

SPS Key Priorities

* Partner Country Priorities:

- Specific topics for collaborative research have been identified by the Partner countries,
 - High priorities for individual Partner countries.
- Some common themes:
 - Environmental Security,
 - Computer Networking,
 - Counter-Terrorism.
- Posted on the SPS website along with the other priority areas,
 - www.nato.int/science.

Target Participants & Mechanisms

- * **Small research groups:**
Collaborative Linkage Grants (CLGs) - Working together for security.
- * **Large groups of experts:**
Workshops (ATC- ARW) - Studies on security-related priorities.
- * **Institutions:**
Science for Peace Projects - Conduct joint security R&D and upgrade Partner laboratories.
- * **Societies at large:**
Projects -NATO support to solve problems affecting societies.

CASES

- **ARW Nuclear Risks in Central Asia, Almaty, 2006**
- **ARW Hot particles, Yalta, 2007**
- **SfP project – Semirad I and II:
Contamination within the Semipalatinsk
test site**
- **SfP project: Uranium mining and tailing in
Central Asia (Kazakhstan, Kyrgyzstan,
Uzbekistan, Tajikistan)**

NEG: Key areas of relevance

Key areas of relevance:

- Central – Asia
- Caucasus
- Balkan
- Mediterranean dialogue countries – North Africa,
- Middle East – Israel, Jordan, Egypt etc.

In addition, projects in

- Black Sea area – Ukraine
- Chernobyl area – Belarus

Other areas of concern

- North-West Russia
- Arctic

Nuclear risks of relevance

- **Past sources**
 - Nuclear weapon tests, PUNES
 - Nuclear accidents
 - Uranium mining and tailing
- **Present sources**
 - Present releases
 - Contaminated sites - Clean –up strategies
- **Future sources**
 - Identification of nuclear and radiological risks associated with future releases from old sources
 - Priority List
 - Unforeseen events such as Dirty bombs

Nuclear Risks

Paradigm shifts

- **Reactor accident Three Mile Island, USA (1979): low probability accidents can occur**
- **Reactor accident Chernobyl, Sovjet Union (1986): when a relatively low probability accident occurs - the consequences may be more serious than expected (outside 30 km zone)**
- **Attack on World Trade Centre, USA (2001): terrorist groups have both the intention and capacity to harm**

SOURCES: artificially produced radionuclides

- Nuclear weapon tests (more than 2000 atm., at ground, under water, under ground tests), PUNES
- Safety trials
- Conventional explosions with DU weapon
- Nuclear reactor explosions and fires
- Satellite, aircraft, submarine accidents
- Effluents from nuclear installations
- Leaching from dumped nuclear material
- Uranium mining and tailing

Artificially produces longlived radionuclides such as ^{90}Sr , ^{137}Cs , ^{129}I , ^{99}Tc , Pu-isotopes

Collaboration with other institutions

- ENVSEC co-operation (OSCE, UNDP, UNEP) : Central –Asia and Caucasus
- IAEA – Nuclear waste division
- IAEA – Seibersdorf – training
- EU– DG1 Tacis etc.
- EU- Euratom- research
- IUR – Int Union of Radioecology
- WHO – health aspects
- FAO – Food aspects
- AMAP – Arctic monitoring and assessment programme – NATO Partnership with Russia

We should organise a joint platform and a road map associated with Nuclear Risks, Safety and Security

Conclusions

- Many sources within Key areas of interests
 - Central Asia: STS, U mining, PUNES, scale, transboundary contamination
 - Caucasus: PUNES, Scale, transboundary contamination
 - North Africa: Nuclear test
- Many sources within other relevant areas
 - NW Russia - Kola peninsula - Arctic
- **We can**
 - **Identify key sources and make a priority list – Road map**
 - **Initiate co-operation with other institutions and countries**
 - **Take top-down or stimulate bottom – up initiatives according to the road map**

EU Master in Radioecology

Norwegian University of Life Sciences in
collaboration with France and UK
Field work at Spitsbergen

